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**North East Warner Fuels Reduction and
Habitat Restoration Project**

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1.0 BACKGROUND INFORMATION

In 2008, the Modoc National Forest (USFS), U.S. Department of the Interior Bureau of Land Management Alturas Field Office, and cooperating agency, Modoc County, California, prepared the Sage Steppe Ecosystem Restoration Environmental Impact Statement (USFS 2008). The Sage Steppe Ecosystem Restoration Environmental Initial Statement focuses on the restoration of sage-steppe ecosystems that have come to be dominated by juniper, as the density of juniper has increased over the landscape. The management strategy broadly identifies appropriate restoration methodologies by ecological conditions; and provides guidelines for design and implementation of effective restoration treatments for restoration areas within approximately 6.5 million acres of public and private land to be analyzed site specifically over a 50-year horizon. Restoration projects are proposed on National Forest lands and public lands administered by the Bureau of Land Management (BLM) in parts of Modoc, Lassen, Shasta and Siskiyou counties, California and in Washoe County, Nevada.

The strategy is a programmatic, landscape-scale approach to restoration. Proposed individual treatments would require site-specific environmental analysis to meet the objectives of the proposed strategy and obtain federal agency approval prior to implementation. This Environmental Assessment (EA) presents the environmental analysis prepared pursuant to the National Environmental Policy Act (NEPA) sufficient to implement the proposed North East Warner Fuel Reduction and Habitat Restoration Project (Proposed Action). Tiering is used in this document by relying on the 2008 Sage Steppe Ecosystem Restoration Strategy FEIS (SSER FEIS) and 2008 Surprise Field Office Resource Management Plan FEIS (SFO RMP FEIS) as the initial bases for analyzing the potential environmental effects of implementation of the Proposed Action.

1.1 Introduction

The BLM Surprise Field Office (SFO) is proposing hazardous fuels reduction and habitat restoration treatments on 1,613 acres of public lands in the vicinity of northern Surprise Valley and Barrel Springs. There are four proposed individual treatment areas varying in size from 193 acres to 599 acres. Each of these projects is proposed to reduce hazardous fuels, treat juniper in sage steppe plant communities which are decadent or declining in vigor as a result of competition, improve hydrologic conditions, and enhance the forage base for wildlife and domestic animals.

Historically, vegetation community composition, structures and dispersion within the northern Surprise Valley and Barrel Springs areas were heavily influenced by wildfire. Historical fire patterns characterized by more frequent low to moderate intensity fires maintained juniper at low densities in most of the area, with scattered areas of dense juniper woodlands. However, fire regimes within sage-steppe ecosystems have been modified as a result of domestic livestock grazing and wildfire suppression (USFS 2008).

As the density of juniper has increased, large portions of the sage-steppe ecosystem have been converted to predominantly juniper woodlands. This shift in vegetative communities has resulted in a loss of biodiversity on the landscape, diminished habitat values, particularly for sage

steppe obligate species; and has contributed to degraded surface hydrologic conditions. Increased juniper density in sage-steppe habitats also results in a decline in ground cover and exposure of bare soils, as well as increased erosion potential and a loss of soil productivity (USFS 2008).

Juniper is widely scattered throughout the Surprise Field Office area and the intermountain west and management issues surrounding this vegetation community usually focus on stand density and/or encroachment into adjacent habitats. Management of juniper is a complex issue for BLM. Historically, juniper existed in a continuum of seral stages throughout the landscape, dominated by two stand types. Old-growth stands typically inhabit areas of rocky, shallow soils surrounded by limited fine fuels. In these areas, fire intervals are infrequent. The second dominant stand type is the juniper savanna, and is characterized by young trees across the landscape at low densities within areas of deep soils, experiencing more frequent, mixed-severity fires. However, juniper has expanded to greater than 30 percent crown closure within many areas that would have typically supported low-density juniper woodland. In these areas, understory vegetation declines resulting in expanses of bare ground and a loss of key ecosystem components (BLM 2007).

1.2 Purpose and Need

The Purpose of the Proposed Action is to implement site-specific treatments consistent with and to meet the restoration objectives identified by the SSER FEIS to improve ecological sites that are encroached by juniper, restore vegetation conditions that resemble historic mosaic plant communities, and reduce risks of catastrophic wildfire associated with high fuel loading. The Need for Environmental Assessment is to comply with the requirements of NEPA.

Objectives of the North East Warner Fuels Reduction and Habitat Restoration Project:

- Increase heterogeneity of fuels across the landscape by reducing the canopy cover of juniper by at least 75 percent on sagebrush ecological sites on approximately 1,200 acres (77 percent) of the 1,613 acre Action Area.
- Reduce vertical fuel loading within timber sites to protect Ponderosa pine and increase the herbaceous understory within timber sites.
- Maintain sagebrush cover greater than 10 percent on low sage and Wyoming big sage ecological sites.
- Maintain herbaceous vegetative composition on dominant ecological sites consistent with achieving land health standards and the SSER FEIS monitoring protocol.
- Improve the ecological health (i.e. resilience and resistance) of sites currently dominated by juniper to provide for improved wildlife habitat.
- Maintain old growth juniper stands on portions of the landscape where they would be expected to occur.

1.3 Relationship to Planning

The Proposed Action would be implemented consistent with the standards and conditions

specified by federal and State laws and related regulations relevant to project resources as well as those governing the management of BLM lands.

The North East Warner Fuels Reduction and Habitat Restoration Project EA references and is tiered to the 2008 SFO RMP FEIS and the 2008 SSER FEIS.

1.3.1 Land Use Plan (LUP) Conformance

The SFO RMP represents a comprehensive guidance document for managing all uses and resources administered by the BLM SFO. Key management actions identified by the SFO RMP FEIS include restoration of communities encroached by invasive juniper using prescribed fire, mechanical, chemical, and manual treatments. The Proposed Action would be consistent with the Surprise Field Office Resource Management Plan.

1.3.2 Relevant Laws, Regulations, Environmental Impact Statement (EIS's), and Other Documents

The Proposed Action identified by this EA would facilitate the restoration of ecological site conditions to improve watershed values consistent with the standards outlined in the following plans and acts:

Sage Steppe Ecosystem Restoration Strategy Record of Decision (ROD) and Final Environmental Impact Statement, Modoc, Lassen, Shasta and Siskiyou counties, California and Washoe County, Nevada. Record of Decision signed December 2008 (SSER FEIS).

The Sage Steppe Ecosystem Restoration Strategy focuses on the restoration of sage-steppe ecosystems that have come to be dominated by Western and Utah juniper, as the density of juniper has increased over the landscape. The management strategy would broadly identify appropriate restoration methodologies by ecological conditions; provide guidelines for design and implementation of effective restoration treatments for restoration areas to be analyzed site specifically over a 50-year period. The Proposed Action would implement the restoration strategies defined by the Sage Steppe Ecosystem Restoration Strategy.

The Healthy Forest Restoration Act (HFRA) was signed into law on December 3, 2003 by United States President, George W. Bush. It is designed to improve the capacity of the Departments of Interior and Agriculture to implement the National Fire Plan, and conduct hazardous fuels reduction projects to protect communities, watersheds, and other at-risk lands from catastrophic wildfire. The Proposed Action meets the criteria for an Authorized Hazardous Fuels Reduction Project.

A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, 10-Year Comprehensive Strategy was a policy developed in 2001 that placed emphasis on reducing risk to communities and the environment by managing wildland fire, hazardous fuels, and ecosystem restoration and rehabilitation on forest and rangelands. Three of the four goals of this policy are to: 1) Improve prevention and suppression, 2) Reduce hazardous fuels, and 3) Restore fire adapted ecosystems. The Proposed Action would facilitate these goals.

National Fire Plan of August 2000. The NFP was developed in August of 2000 after a substantial wildland fire season. In 2001, the U.S. Congress funded the NFP (NFP 2001) to

reduce hazardous fuels and restore forest and rangeland. The HFRA was established and then signed Public Law to provide improved statutory processes for hazardous fuel reduction projects on public land. HFRA contains provisions to expedite hazardous-fuel reduction projects and forest/rangeland restoration projects on federal lands that are at risk from wildland fire or insect and disease epidemics in order to reduce hazardous fuel and/or improve forest/rangeland health and vigor. The Proposed Action would implement goals outlined by the National Fire Plan of August 2000.

Vya Population Management Unit Population Conservation Plan, 2003. The Vya Sage Grouse Population Management Unit (PMU) encompasses 501,247 acres of Greater sage-grouse habitat in northwestern Washoe County and a small portion of northeastern Modoc County in California including areas within the Barrel Springs Road treatment area and the Bidwell Mountain treatment area. Sage-grouse in the Vya PMU occur over a large geographic area with little or no occurrence of habitat fragmentation. The Proposed Action would facilitate sage-grouse habitat restoration and conservation through the implementation of vegetative treatments to restore ecological conditions consistent with the PMU, as well as the existing BLM General Decision #15 for the Cowhead/Massacre Planning Unit. The Vya PMU Conservation plan is available at: <http://www.ndow.org/wild/conservation/sg/wm/pmu/index.shtm>.

1.4 Proposed Action Location

The North East Warner Fuels Reduction and Habitat Restoration Project areas (Action Area) are located on separate parcels within a 50 mile radius of Cedarville, California (**Figure 1.4-1**).

1.4.1 Individual Treatment Area Name, Location, and Legal Descriptions

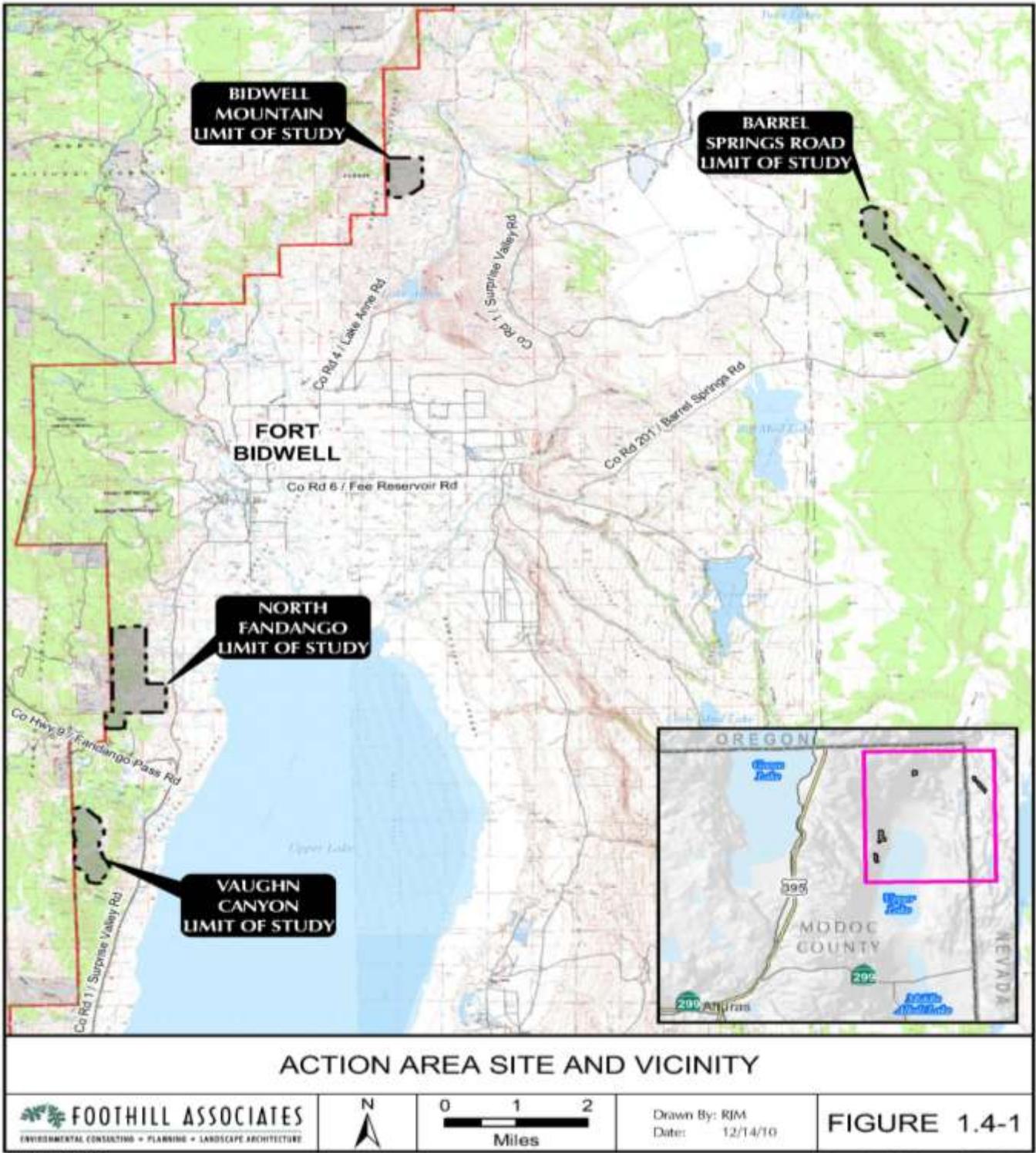
Vaughn Canyon — (289 acres) Located in Modoc County, West of Modoc County Road 1/Surprise Valley Road and south of Fandango Pass Road. The project area is located within the *Fort Bidwell* USGS 7 ½ minute topographic quadrangle within the following legal description, Township 45 North, Range 16 East, within portions of Sections 7 and 18.

North Fandango — (599 acres) Located in Modoc County, north of County Highway 9/Fandango Pass Road west of Upper Lake. The project area is located within the *Fort Bidwell* USGS 7 ½ topographic quadrangle within the following legal description, Township 46 North, Range 16 East, within portions of Sections 30 and 31.

Bidwell Mountain — (193 acres) Located west of County Road 1/Surprise Valley Road and north of Lake Annie. The project area is located within the *Lake Annie* USGS 7 ½ topographic quadrangle within the following legal description, Township 47 North, Range 16 East, within portions of Sections 14 and 23.

Barrel Springs Road — (532 acres) Located south east of County Road 201/Barrel Springs Road and northeast of Big Mud Lake. The project area is located within the *Barrel Springs* USGS 7 ½ topographic quadrangle within the following legal description, Township 46 North, Range 18 East, Section 36, and Township 46 North, Range 18 East, within portions of Sections 9, 14, 15, and 22.

Figure 1.4-1 — Action Area Site and Vicinity



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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Proposed Action would utilize a mix of hand clearing, mechanical thinning, broadcast burning, or pile burning to remove invasive juniper trees on 1,613 acres of sagebrush-steppe and east side pine ecosystems. This project is identified as the North East Warner Fuels Reduction and Habitat Restoration Project Action Area (NE Warner) (**Figure 1.4-1**).

The NE Warner Area consists of four project sites on public lands as described below. Treatments within each project location would be conducted to meet the specific objectives defined for each site. Treatments would take place between 2011 and 2021, and would be completed by either BLM employees or contractors.

No new permanent roads would be constructed to complete work associated with the Proposed Action. It is anticipated that a maximum of one mile of temporary roads per year would be needed to access heavy juniper areas.

2.2 Site Specific Treatments

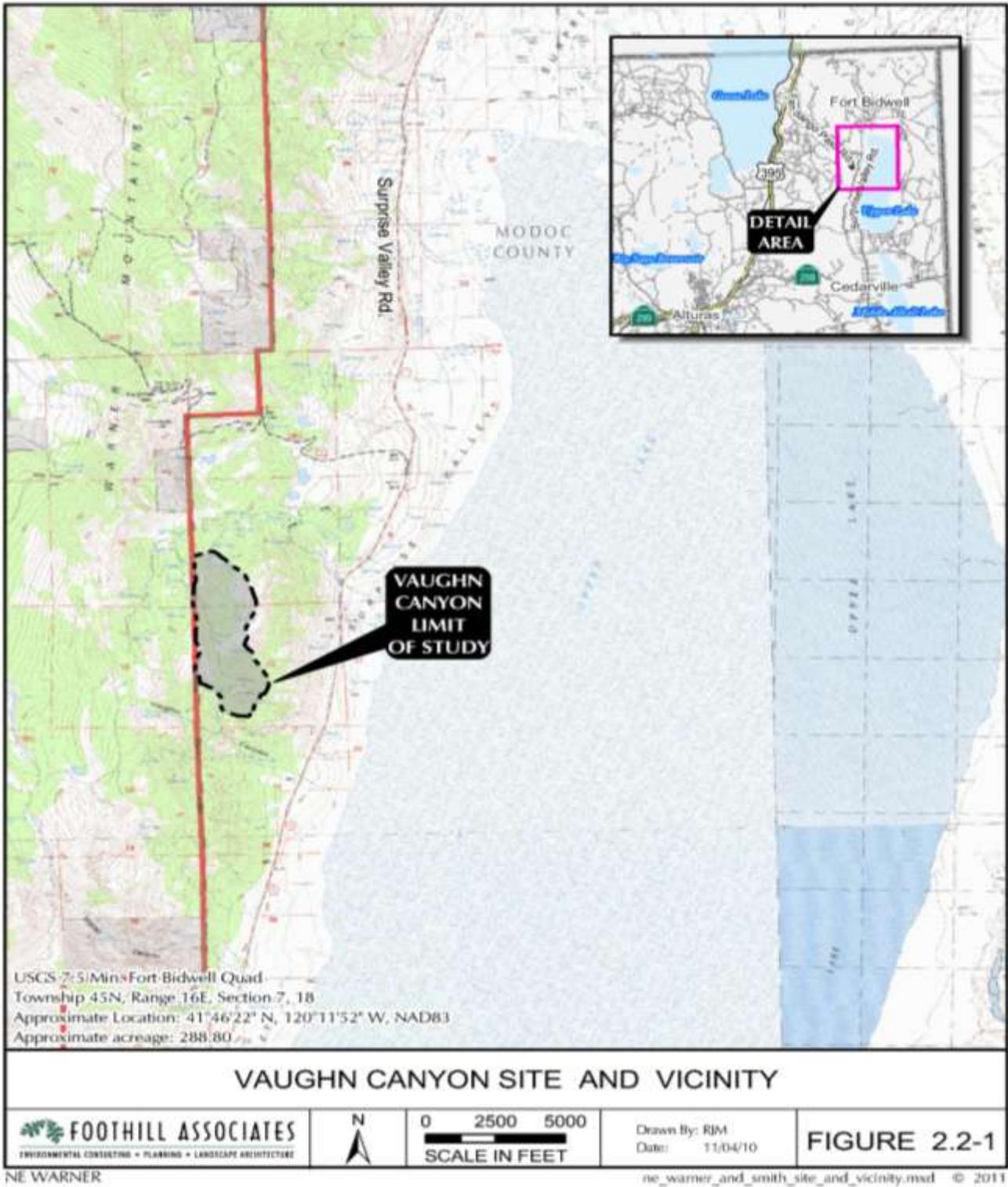
Vaughn Canyon — (289 acres) Located in Modoc County, West of Modoc County Road 1/Surprise Valley Road and south of Fandango Pass Road (**Figure 2.2-1**). The project area is located within the *Fort Bidwell* USGS 7 ½ minute topographic quadrangle within the following legal description, Township 45 North, Range 16 East, within portions of Sections 7 and 18. This project is located in the Upper Lake Allotment.

This site would be treated to reduce fuel levels and vertical fuel continuity between forest lands in the Warner Mountains and private lands in Surprise Valley. Specifically reduce the canopy cover of juniper by at least 75 percent on pine and mountain brush communities on approximately 223 acres (77 percent) of the 289 acre area. Additionally the project would be designed to increase shrub and herbaceous cover in area where juniper trees would be removed.

The selected treatment methods selected for this site would include:

- Mechanical cutting or chipping on up to 140 acres;
- Hand cutting of junipers with chainsaws over the entire site;
 - Cut trees would remain in place and un-limbed on approximately 70-90 percent of the site; and
 - Cut trees would be fully or partially limbed (limbs above the downed bole removed) on approximately 10-20 percent of the site;
- Individual trees and limbs would be piled and burned over the stump on approximately 10-20 percent of the area;

Figure 2.2-1 — Vaughn Canyon Site and Vicinity



Trees would be piled and burned on 10-12 staging/burn pile areas one to two acres in size. Whole trees, limbs or trunks would be carried or dragged from their original location to the burn piles;

- Broadcast burning would be conducted on approximately 140 acres of east side pine timber lands and mountain big sagebrush communities; and
- As identified in **Table 3.5 1**, treatments for all cultural properties recommended eligible or that remain unevaluated to the National Register, would be limited to hand thinning only. For the ineligible site, treatments may include mechanical treatments, but no fire, and the area of the cabin would be avoided.

Livestock grazing would be temporarily restricted within the Upper Lake Allotment for one growing season prior and two growing seasons after broadcast burning to allow for recovery of desirable forage species.

North Fandango — (599 acres) Located in Modoc County, north of County Road 9/Fandango Pass Road west of Upper Lake (**Figure 2.2-2**). The project area is located within the *Fort Bidwell* USGS 7 ½ topographic quadrangle within the following legal description, Township 46 North, Range 16 East, within portions of Sections 30 and 31. This project is located in the Fandango Allotment.

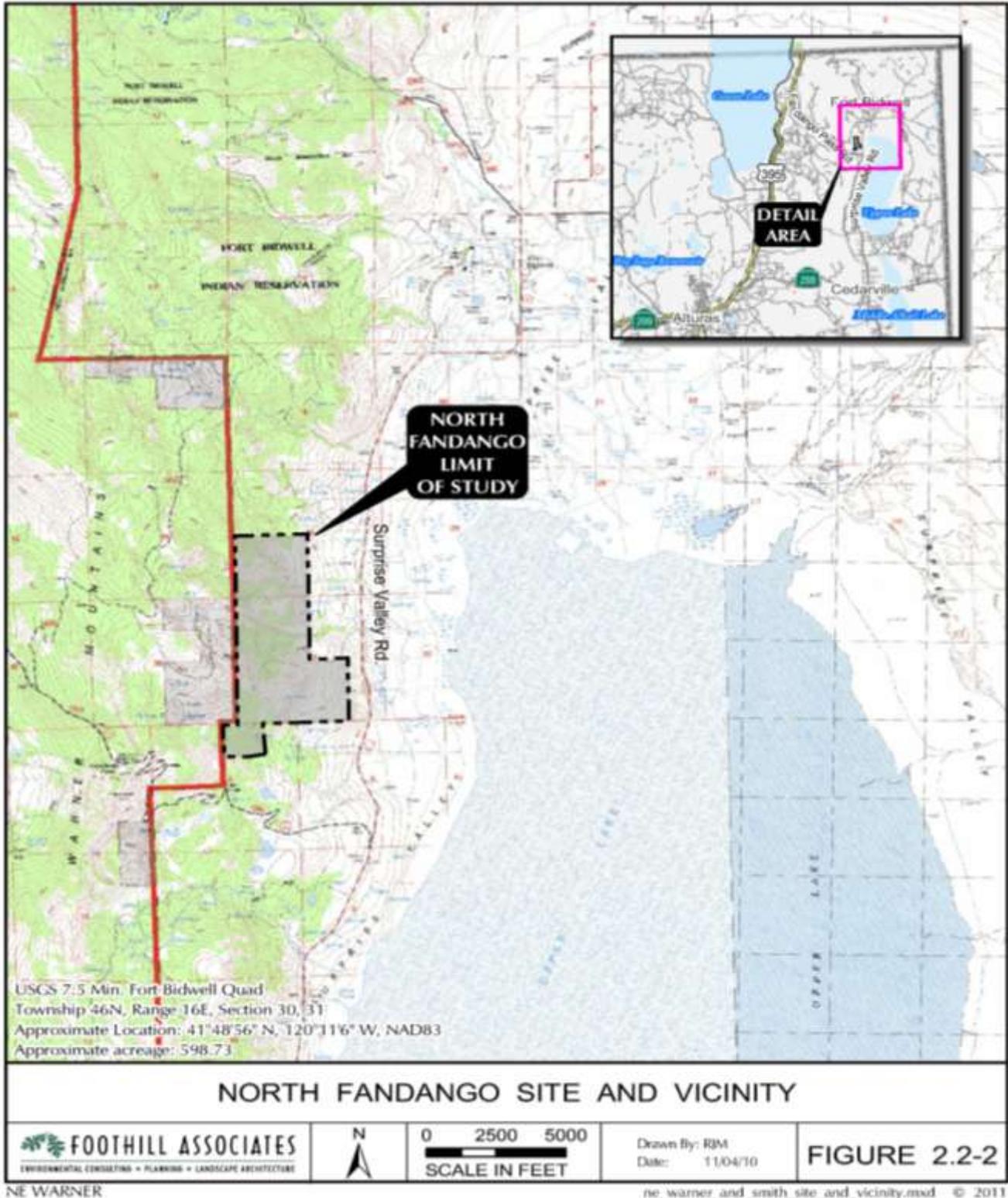
This site would be treated to reduce fuel levels and vertical fuel continuity between forest lands in the Warner Mountains and private lands in Surprise Valley. Specifically reduce the canopy cover of juniper by at least 75 percent on pine and mountain brush communities on approximately 461 acres (77 percent) of the 599 acre area. Additionally the project would be designed to increase shrub and herbaceous cover in area where juniper trees would be removed.

The selected treatment methods selected for this site would include:

- Hand cutting of junipers with chainsaws over the entire site;
 - Cut trees would remain in place and un-limbed on approximately 60-75 percent of the site, and
 - Cut trees would be fully or partially limbed (limbs above the downed trunk removed) on approximately 10-30 percent of the site;
- Individual trees or small numbers of trees and limbs would be piled and burned over the stump on approximately 10-30 percent of the area;
- Broadcast burning would be conducted on up to 599 acres of east side pine timber lands and mountain big sagebrush communities; and
- As identified in **Table 3.5 1**, treatments for all cultural properties recommended eligible or that remain unevaluated to the National Register, would be limited to hand thinning only. For all ineligible sites, treatments may include mechanical treatments or prescribed burning.

Livestock grazing would be temporarily restricted within the portions of the Fandango Allotment north of County Road 9 or one growing season prior and two growing seasons after broadcast burning to allow for recovery of desirable forage species.

Figure 2.2-2 — North Fandango Site and Vicinity



Bidwell Mountain — (193 acres) Located in Modoc County, west of County Road 1/Surprise Valley Road and north of Lake Annie (**Figure 2.2-3**). The project area is located within the *Lake Annie* USGS 7 ½ topographic quadrangle within the following legal description, Township 47 North, Range 16 East, within portions of Sections 14 and 23. This project is located in the West and Lartirigoyen Allotments.

This site would be treated to remove juniper before canopy cover begins to suppress mountain big sagebrush, bitterbrush, mountain mahogany, or herbaceous cover.

The selected treatment methods selected for this site would include:

- Hand cutting of junipers with chainsaws over the entire site;
 - Cut trees would remain in place and un-limbed on approximately 70-85 percent of the site; and
 - Cut trees would be fully or partially limbed (limbs above the downed trunk removed) on approximately 10-20 percent of the site;
- Individual trees and limbs would be piled and burned over the stump on less than 10 percent of the area;
- Broadcast burning would be conducted on up to 150 acres of east side pine timber lands and mountain big sagebrush communities; and
- As identified in **Table 3.5-1**, treatments for all cultural properties recommended eligible or that remain unevaluated to the National Register, would be limited to hand thinning only. For all ineligible sites, treatments may include mechanical treatments or prescribed burning.

Livestock grazing turnout restricted from the project area and herding required to keep livestock out of the project site within the portions of the Lartirigoyen and Bidwell Mountain or one growing season prior and two growing seasons after broadcast burning to allow for recovery of desirable forage species.

Barrel Springs Road — (532 acres) Located south east of County Road 201/Barrel Springs Road and northeast of Big Mud Lake (**Figure 2.2-4**). The project area is located within the *Barrel Springs* USGS 7 ½ topographic quadrangle within the following legal description, Township 46 North, Range 18 East, Section 36, and Township 46 North, Range 18 East, within portions of Sections 9, 14, 15, and 22. This project is located in the Nevada Cowhead Allotment.

Treatments proposed on within the Barrel Springs Road treatment area would reduce the canopy cover of juniper by at least 75 percent on pine as well as Wyoming and low sagebrush communities on approximately 410 acres (77 percent) of the 532 acre area. Additionally the project would be designed to increase shrub and herbaceous cover in area where juniper trees would be removed.

The selected treatment methods selected for this site would include:

- Hand cutting of junipers with chainsaws over the entire site;

Figure 2.2-3 — Bidwell Mountain Site and Vicinity

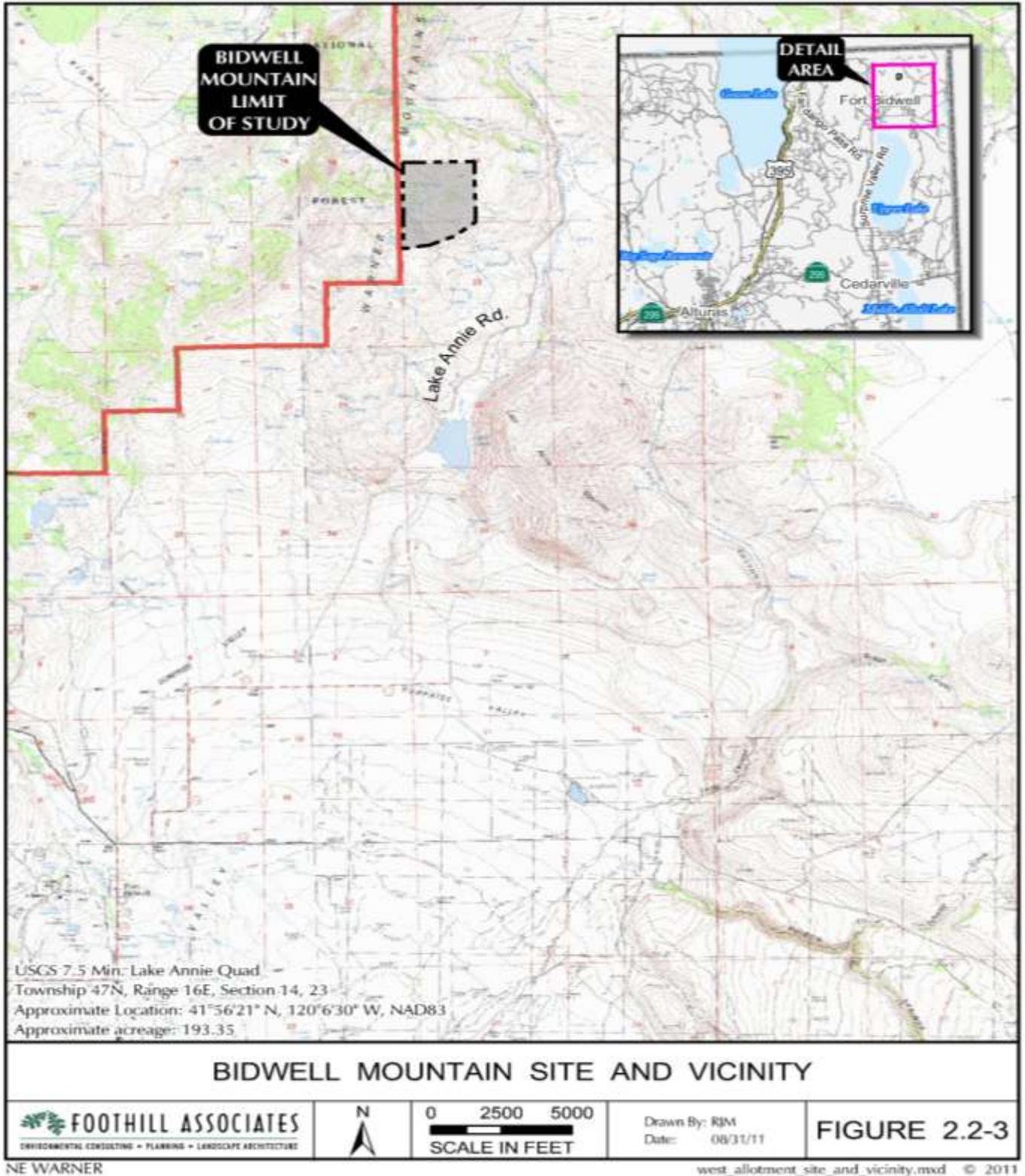
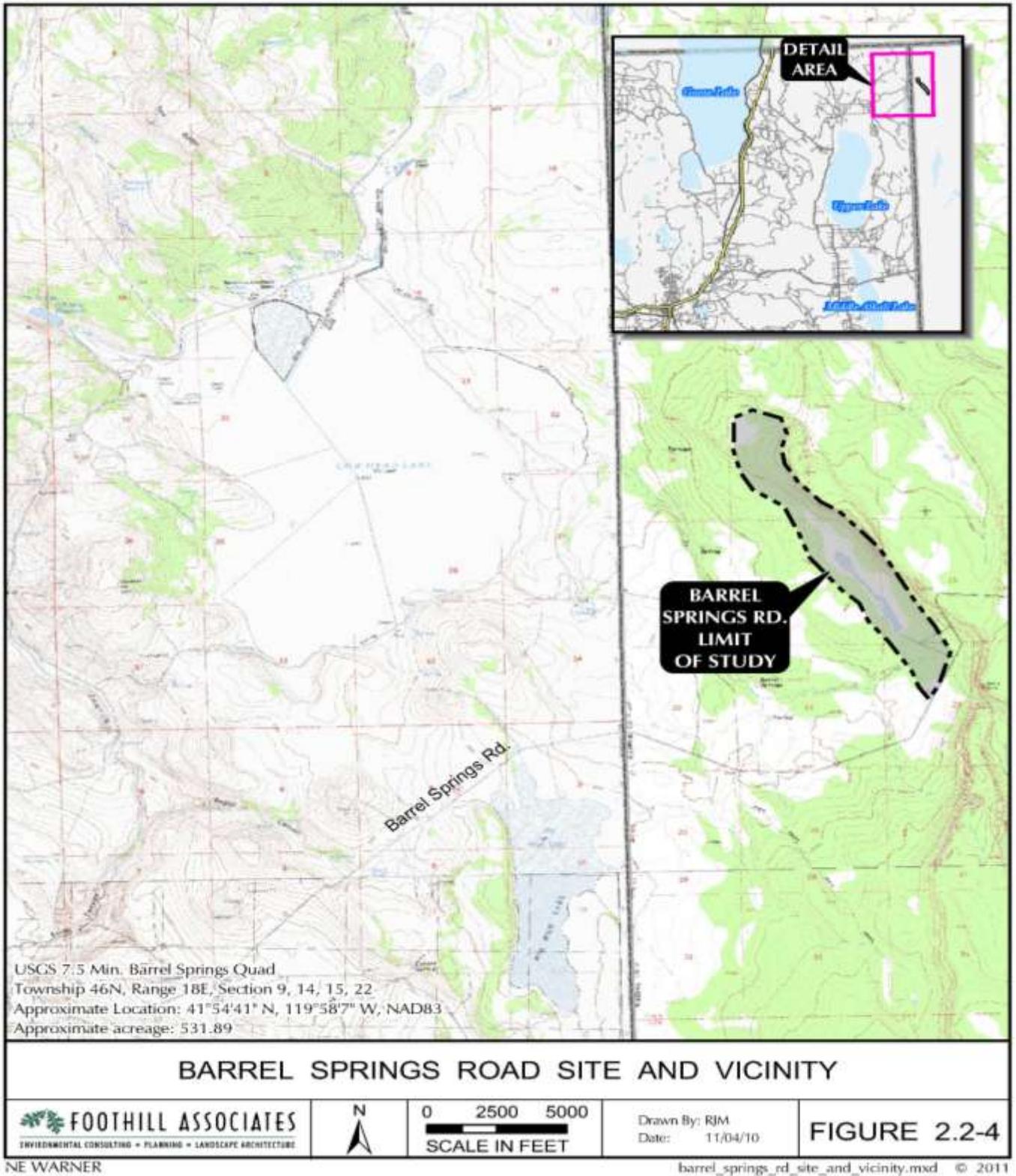


Figure 2.2-4 — Barrel Springs Road Site and Vicinity



Cut trees would remain in place and un-limbed on approximately 75-95 percent of the site;

- Cut trees would be fully or partially limbed (limbs above the downed trunk removed) on approximately 10-15 percent of the site;
- Individual trees and limbs would be piled and burned over the stump on approximately 10-15 percent of the area; and
- As identified in **Table 3.5-1**, treatments for all cultural properties recommended eligible or that remain unevaluated to the National Register, would be limited to hand thinning only. For all ineligible sites, treatments may include mechanical treatments or prescribed burning.

Livestock grazing would be temporarily restricted in the project area for one growing season prior and two growing seasons after the cutting to facilitate establishment of new seedlings of herbaceous and shrub species. Livestock grazing would be restricted through adjustment in turnout practices, turnout areas and use of other pastures.

2.2.1 Mechanical Treatment

Mechanical treatment would involve the use of mechanized equipment to either cut or chip juniper onsite. The equipment could be either rubber tired or track mounted. Mechanical treatment would only be used in the Vaughn Canyon treatment area on slopes less than 30 percent and where juniper canopy cover is greater than 6 percent.

Mechanical treatments in areas greater than approximately 15 percent juniper canopy cover would require piling and burning of juniper limbs and slash.

2.2.2 Hand Treatment

Hand treatment would be accomplished by crews with chainsaws cutting down juniper trees. Following cutting, there are four options for the limbs and slash associated with the down trees:

- 1) Trees would be left where they were cut with no limbing. This treatment would be used in areas with low juniper densities (e.g. less than 6 percent canopy cover) and where the cut trees would not be in the foreground visibility zone from roads.
- 2) Trees would be left where they were cut and the limbs above the bole would be cut and scattered. This treatment would be used in areas with taller brush and where the cut trees would be within the foreground visibility zone from minor roads.
- 3) Trees would be limbed and limbs would be scattered. This treatment would be used in areas of shorter shrubs (e.g. less than 2 feet tall), tree cover less than 10 percent, and within the foreground visibility area from maintained roads.
- 4) Trees would be partially limbed and the limbs would be piled at the site of cutting (may be more than one tree in the pile) for burning. This treatment would be used in areas of tree cover greater than 6-10 percent.

2.2.3 Pile Burning

Pile burning is a method of prescribed burning and would occur in all units where slash is

generated from hand cutting with chainsaws or mechanized cutting of juniper. Piles would be burned in the late fall through spring period when the ground is saturated and frozen to reduce risks of burning piles causing wildfires. Pile burning would require an approved Prescribed Burning Plan.

Piles from hand cutting would generally be small, up to 20 feet in diameter, and would be in the immediate area of the cutting. The number of piles per acre would vary based upon juniper density but would be expected to be in the range of two to 10 piles per acre.

Piles associated with mechanized cutting would be larger, up to 50 feet in diameter, and would involve mechanized equipment dragging trees up to several hundred feet from cutting locations to the piles. The number of piles per acre would vary based upon juniper density but would be expected to be in the range of one to five acres per pile. This treatment would only be used in the Vaughn Canyon treatment area.

2.2.4 Broadcast Burning

Broadcast burning is a prescribed burning technique used to burn vegetation in place. It would be used where young juniper trees would be killed by fire and the vegetation communities expected to return after burning would meet the objectives for the project. Broadcast burning would be used where enough fuel exists to carry a fire, where a fire can be managed safely, and where conditions are good for achieving restoration objectives of removing juniper from the site. Following a fire, it is expected that most of the juniper would be dead but as snags would remain standing for up to several decades. Deferred areas include special wildlife areas that are deferred from fire use for the first twenty years. The location and extent of use would be determined by community protection requirements and management decisions of resource specialists, according to specifications of approved burn plans. Plans would be designed and approved by qualified resource specialists on a project-by-project basis.

This method of treatment would not total more than 900 acres of the project area over the ten year period. No burning is proposed for the Barrel Springs treatment area. Each burn area would be no larger than 200 acres and not be adjacent to each other. These areas of broadcast burning would require the building of hand line no greater than 10 feet wide and would serve as fuel breaks during ignition. The use of natural barriers such as rocky or barren areas would be utilized to reduce the amount of hand line required. The effects of broadcast burning would rely on various factors, including, Fuel Loadings, Fuel Continuity, Slope, Aspect, Wind Velocities, Relative Humidity, Live Fuel Moisture, Dead Fuel Moisture and Seasonality. These aforementioned variables would be studied within the Burn Plan document in detail to ensure prescribed fire and resource objectives are being met. It is planned to mimic naturally occurring fires in the areas of broadcast burn. Areas burned are expected to experience a mixed severity fire and create a mosaic and or patchy pattern.

A Prescribed Burn Plan would need to be developed, reviewed and approved by SFO Fire Management Officer, SFO Manager, NOR CAL Fire Management Officer and the BLM State Fire Management Officer before any prescribed burns occur as required by BLM Standards.

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3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES AND CUMULATIVE EFFECTS

3.1 General Description

The Action Area is located in northern Modoc County, California and Washoe County, Nevada, within Townships 45, 46, and 47 North and Ranges 16, 17 and 18 East. Elevations within the Action Area range from approximately 4,400 to 8,000 feet and slopes range from an estimated 2 to 50 percent. Mean annual precipitation levels range from approximately 8 to 50 inches across the project area. Mean annual precipitation levels by treatment area are shown in **Table 3.1-1** below. Vegetation within the Action Area consists of Western juniper and sagebrush communities, as well as a small area of conifer forest.

Table 3.1-1 — Mean Annual Precipitation Levels by Treatment Area

Treatment Area	Mean Annual Precipitation Levels (inches)
Vaughn Canyon	16 to 30
North Fandango	8 to 30
Bidwell Mountain	16 to 50
Barrel Springs Road	10 to 13*

Source: NRCS 2006.

* Mean Annual Precipitation Levels within small portion of central eastern Barrel Springs Road treatment area range from 8 to 50 inches

3.2 Environmental Effects

The following section describes the affected environment, followed by the environmental consequences for each resource. The direct, indirect and cumulative effects contained in the following chapter include considerations brought forward in both internal and external scoping.

For the purposes of the analyses presented in this document, short-term effects are those project-related effects generally lasting between one and five years. Long-term effects are project-related effects generally lasting between six and twenty years.

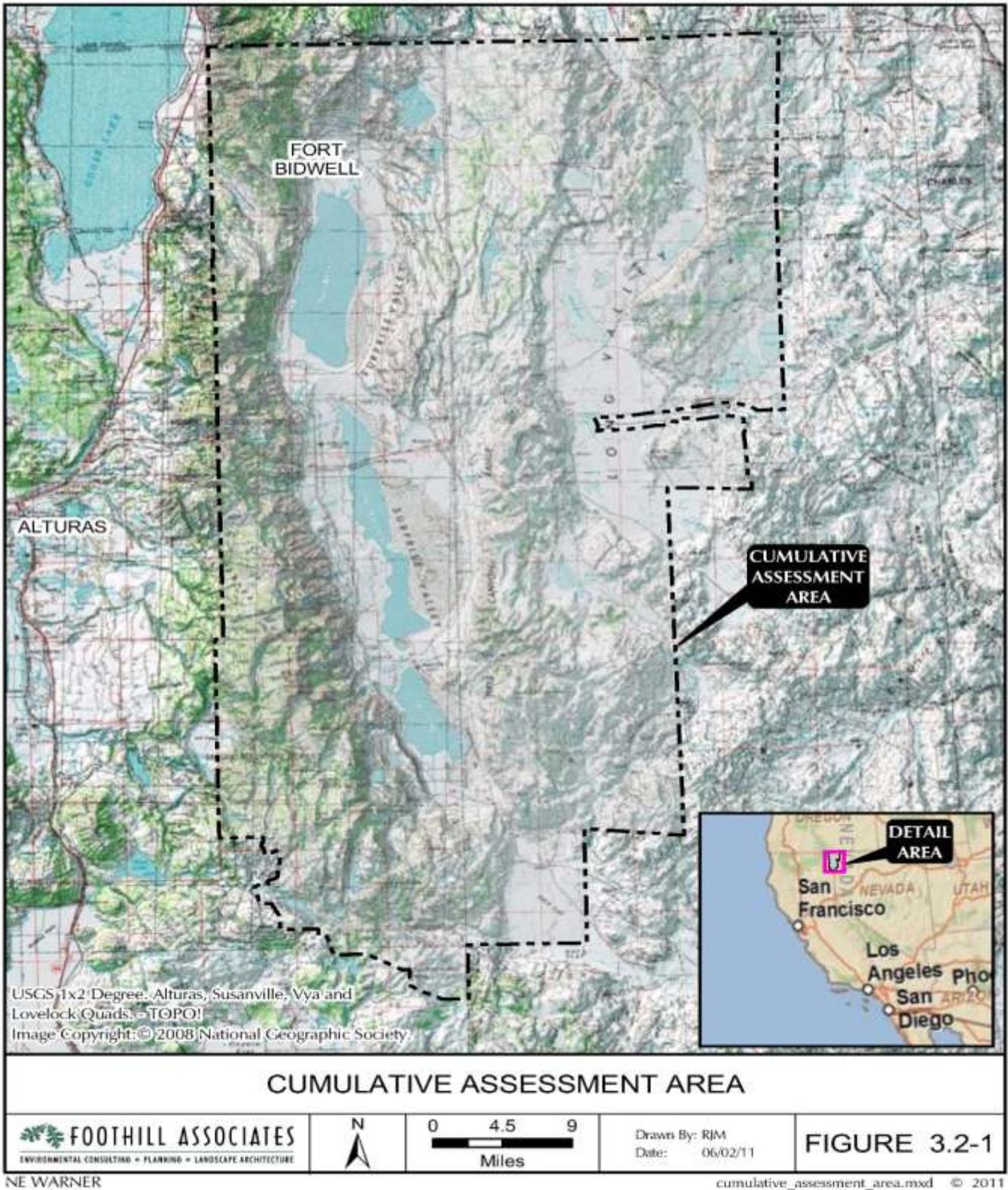
3.2.1 *Direct and Indirect Effects*

Direct effects are defined as effects caused by the action and occurring at the same time and place. Indirect effects are defined as effects caused by the action but occurring later in time or further removed in distance.

3.2.2 *Cumulative Effects*

Past, present, and reasonably foreseeable future actions considered in the cumulative effects analysis include, juniper cutting/removal on public and private lands, domestic livestock grazing, wild horse range within Wild Horse Management Areas (WHMA), range management practices, Integrated Weed Management, recreational uses, off-highway vehicle use, and the Ruby Pipeline Project on lands within the region of the Proposed Action. The Cumulative Assessment Area (CAA) shown on **Figure 3.2-1** defines the area in which cumulative effects are considered in light of the Proposed Action.

Figure 3.2-1 — Cumulative Assessment Area



Juniper Removal

Stands of juniper have expanded greatly from their pre-settlement position on the landscape. Historically junipers were confined to fire safe site associated with rocky areas. The combination of livestock grazing and increased fire suppression is thought to be the primary causes of this expansion (USFS 2008).

Juniper has been cut by local residents for posts and firewood for at least 100 years. Recent averages equate to approximately 30 permits annually and around four cords per permit (BLM 2011). In the past several decades juniper has also been removed through cutting or burning to decrease juniper canopy cover and increase vegetative composition of grasses or shrubs on public and private lands. The first of these efforts was designed primarily to increase forage for livestock. Forage related projects still continue on private land with an estimated 900 acres treated within the past twenty years. Juniper removal projects on public lands originally were conducted with the objective of forage production, but more recently focused on creating fuel breaks and restoring wildlife habitat, including efforts to retain sagebrush cover on Greater sage-grouse habitats. In the past twenty years approximately 12,000 acres have been treated on public lands managed by the Surprise Field Office.

Local residents will continue to cut juniper. The BLM will continue to treat juniper encroached areas using mechanical, hand, and prescribed fire, this work will be focused in Wildland Urban Interface (WUI) areas and important wildlife habitats. This work will be focused at the landscape level and include large blocks of land that are actively being encroached by juniper.

The BLM will continue to actively suppress wildfires within the field office during fire season.

Domestic Livestock Grazing

Domestic livestock grazing has occurred within the CAA for at least 150 years. Initially cattle were turned out in the area to take advantage of vast stands of native bunchgrasses. Cattle grazing had a profound impact on native vegetation in areas within a few miles to existing water sources, primarily springs. Starting in the early 1900's sheep grazing, primarily by itinerant herders was made in addition to the ongoing cattle grazing. Sheep were herded to areas outside the areas heavily grazed by cattle, primarily during the spring months. At times dozens of sheep bands covered the landscape. Sheep grazing began to decrease during the droughts associated with the Dust Bowl Era and the advent of the Taylor Grazing Act, which favored cattle users with established ranches over sheep herders without ranch property. Domestic horses also used the public lands for grazing to supply local, regional and national demand for working animals (Camacho and Kingston 1977, Hedel *e.t al.* 1981).

Since the advent of the Taylor Grazing Act (TGA) in the mid 1930s, levels of grazing in the CAA have decreased dramatically. Prior to the Act, livestock grazing was uncontrolled so exact levels of grazing are unknown. The limited existing records, along with the condition of vegetation and other resources during the 1930s and 1940s provide historic accounts that point to grazing levels many times greater than what are currently harvested by livestock and wild horses. During World War II ranchers were encourage to produce as much meat and hide as possible from public land in support of the war effort.

Over the past forty years the amount of livestock grazing in the five allotments in the CAA has been reduced by seven percent to 55 percent. Additionally, domestic sheep grazing has been eliminated and the number of months grazed in most cattle allotments has been reduced by two to four months. Livestock grazing management practices have been modified to reduce or eliminate impacts to uplands and riparian/wetland sites.

Livestock grazing continues to be authorized under the provisions of the TGA in all or portions of 47 grazing allotments associated with the CAA. Seasons of use are generally three to six months long, and livestock turnout areas and multiple pastures are used to manage the frequency, duration and intensity of grazing on native bunchgrasses.

Wild Horse Management Areas

Wild horse use has continued in the Bitner, Carter Reservoir, Buckhorn, Coppersmith, and Massacre Lakes Horse Management Areas (HMAs) within the CAA since 1971. In years that the populations of wild horses have exceeded the established Appropriate Management Level (AML) range, disturbance to uplands and riparian/wetland sites has occurred in some areas. Since 1979 the BLM has conducted periodic gathers of wild horses with the HMAs in order to remove excess animals to manage the population size within the established AML ranges.

Wild horses will continue to be found and thrive within the HMAs within the CAA. Gathers and removals will be expected to occur on a three to five year schedule in order to manage the populations within or near the designated AMLs for each HMA. Less frequently, resource monitoring information will be used to assess the AML, and potentially adjust AMLs, within each HMA. The direction or magnitude of any AML adjustment is impossible to predict.

Range Management Practices

Several important vegetation communities, riparian/wetland areas, or cultural resource sites have been fenced or partially fenced from livestock grazing and from wild horse use within the CAA. These include the Rock Creek, Horse Creek, Sand Creek and the Bud Brown exclosures.

The BLM will continue to monitor vegetation and land treatments. The BLM will continue to complete Rangeland Health Analysis to assess land health and assess impacts of livestock grazing and land uses. Fencing of riparian/wetland areas will continue to be considered to protect vegetation and cultural resources from grazing and trampling damage by livestock and wild horses.

Integrated Weed Management

The BLM has conducted Integrated Weed Management for the past twenty years to monitor and treat infestations of noxious weeds and invasive species.

Inventory efforts to identify new infestations of noxious weeds will continue, and the BLM will provide treatment of identified infestations.

Recreation

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.

Recreation use will continue at approximately the same levels as presently occur. Recreational uses will be associated with hunting and general sightseeing, primarily within the Black Rock-High Rock National Conservation Area.

Off-Highway Vehicle Use

Some areas of the CAA have been impacted by off-highway vehicle use that has occurred off of established roads and trails. The Surprise RMP, 2008 limited all off-highway vehicle use to designated trails.

Ruby Pipeline Project

The Ruby Pipeline Project is a forty-two inch buried natural gas transmission pipeline being constructed within the eastern part of the CAA. This east-to-west pipeline was completed in the summer of 2011 to transport natural gas from Wyoming to a transfer station located in Malin, Oregon. From this transfer station natural gas would be distributed throughout the western United States, primarily to California, Oregon, and Nevada.

3.3 Resource Issue Areas

The interdisciplinary review has concluded that the following resource issue areas would not be affected by implementation of the Proposed Action or the No Action Alternative.

- Areas of Critical Environmental Concern
- Environmental Justice
- Essential Fish Habitat
- Floodplains
- Native American Religious Concerns
- Paleontological Resources
- Prime and Unique Farmlands
- Threatened or Endangered Species
- Unusual Plant Assemblages
- Waste, Hazardous and Solid
- Wild Horse and Burro Herd Management Areas
- Wild and Scenic Rivers
- Wilderness Study Areas (WSA)

Table 3.3-1 — Resources Potentially Affected by Implementation of the Proposed Action and Supplemental Authorities to be Considered

Resource Issue Area	Supplemental Authority	Not Present	Present Not Affected	Present and Affected	Comments
Air Quality	The Clean Air Act as amended (42 USC 7401 et seq.)			✓	Analysis of the potential for the Proposed Action to result in environmental effects related to Air Quality is presented in Section 3.4 .
Areas of Critical Environmental Concern (ACECs)		✓			There are no ACECs located within the Action Area. Analyses of the potential for the Proposed Action to result in environmental effects related to Cultural Resources are presented in Section 3.5 .
Cultural Resources	National Historic Preservation Act, as amended (16 USC 470)			✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Cultural Resources are presented in Section 3.5 .
Environmental Justice	E.O. 12898, "Environmental Justice" February 11, 1994	✓			Implementation of the Proposed Action would not disproportionately affect low income or minority populations.
	Essential Fish Habitat Magnuson-Stevens Act Provision: Essential Fish Habitat (EFH): Final Rule (50 CFR Part 600; 67 FR 2376, January 17, 2002)	✓			There is no Essential Fish Habitat located within the Action Area.
Farmlands, Prime and Unique		✓			There are no Prime or Unique farmlands located within the Action Area. Relevant discussion pertaining to Grazing Lands is included within Section 3.9 .
Floodplains	E.O. 11988, as amended, Floodplain Management, 5/24/77	✓			There are no FEMA-mapped 100- or 500-year floodplains within the Action Area.

Resource Issue Area	Supplemental Authority	Not Present	Present Not Affected	Present and Affected	Comments
Invasive, Non-native Species				✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Invasive Species are presented in Section 3.11 .
Global Climate Change				✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Greenhouse Gas Emissions and Global Climate Change are presented in Section 3.8 .
Livestock Management				✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Grazing Lands are presented in Section 3.9 .
Native American Religious Concerns	American Indian Religious Freedom Act of 1978 (42 USC 1996)	✓			Based on June 18, 2011 consultation between BLM and the Summit Lake Paiute Tribe, and the decline to participate from the fort Bidwell Tribe, Native American Religious Concerns are not present in the Action Area.
Recreation				✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Recreation are presented in Section 3.12 .
Social and Economic Values			✓		Implementation of the Proposed Action would not result in effects to Social and/or Economic Values.

Resource Issue Area	Supplemental Authority	Not Present	Present Not Affected	Present and Affected	Comments
Soils				✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Soils are presented in Section 0 .
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 (43 USC 6901 et seq.) Comprehensive Environmental Response Compensation, and Liability Act of 1980, as amended (43 USC 9615)	✓			Implementation of the Proposed Action would not result in hazards materials/waste exposure to people or the environment, nor would implementation result in effects related to solid waste.
Water Quality	Safe Drinking Water Act, as amended (43 USC 300f et seq.) Clean Water Act of 1977 (33 USC 1251 et seq.)			✓	Implementation of the Proposed Action would not affect ground water. Analyses of the potential for the Proposed Action to result in environmental effects related to Water Quality are presented in Section 3.16 .
Wetlands /Riparian Zones	E.O. 11990 Protection of Wetlands 5/24/77			✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Wetlands are presented in Section 3.18 .
Wild and Scenic Rivers	Wild and Scenic Rivers Act, as amended (16 USC 1271)	✓			There are no designated Wild and Scenic rivers within the Action Area.
Wilderness (lands with wilderness characteristics)	Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.); Wilderness Act of 1964 (16 USC 1131 et seq.)			✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Lands with Wilderness Characteristics are presented in Section 3.17 .
Wild Horse and Burros		✓			There are no Wild Horse and Burro Herd Management Areas located within the Action Area.

Resource Issue Area	Supplemental Authority	Not Present	Present Not Affected	Present and Affected	Comments
Wildlife and Threatened/Endangered Wildlife Species	Endangered Species Act of 1983, as amended (16 USC 1531) E.O. 131186, "Responsibilities of Federal Agencies to Protect Migratory Birds" January 10, 2001			✓	There are no known federally-listed species in the Action Area. Analyses of the potential for the Proposed Action to result in environmental effects related to Wildlife are presented in Section 3.18.
Vegetation and Threatened/Endangered Vegetation Species	Endangered Species Act of 1983, as amended (16 USC 1531)			✓	Analyses of the potential for the Proposed Action to result in environmental effects related to Vegetation are presented in Section 3.14.

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3.4 Air Quality

3.4.1 Affected Environment

The North East Warner Fuels Reduction and Habitat Restoration Project Area is located in the southern portion of Modoc County, California and the northwestern corner of Washoe County, Nevada. Modoc County is part of the Northeast Plateau Air Basin (NPAB), which includes Siskiyou, Modoc, and Lassen counties. The Modoc County Air Pollution Control District (MCAPCD) has jurisdiction over air quality issues throughout Modoc County and administers air quality regulations developed at the federal, State, and local levels. The Washoe County District Health Department, Air Quality Management Division, Washoe County, has jurisdiction over air quality issues throughout Washoe County and administers air quality regulations developed at the federal, State, and local levels.

Weather in northern California is influenced by the position of a semi-permanent high pressure cell in the North Pacific Ocean. Due to the positioning of this cell southward during winter months, an almost unbroken chain of winter storms occurs in the Action Area, and a bulk of the precipitation in the Action Area occurs during this winter storm period. Weather systems in the region usually result in strong winds and unstable air masses, providing for good dispersion conditions. During fair weather periods, stable air conditions prevail throughout the region. Summers are hot and dry. Winds generally prevail from the south and southwest.

Air quality for the project area is generally good due to the remoteness and the limited amount of development/activity taking place within the project area. Air pollution in the region of the Action Area is predominately characterized by particulate matter (PM₁₀) (CARB 2010), resulting from a variety of sources including fugitive dust from construction and the use of unsurfaced roads, windblown dust, vehicular and equipment emissions, and smoke from prescribed burns and wildfires during summer months, and wood-burning stoves and furnaces used for heating during winter months.

Modoc County is designated by national standards as “Unclassified” for 8-Hour Ozone, PM₁₀, PM_{2.5}, Carbon Monoxide, Nitrogen Dioxide, and Sulfur Dioxide (CARB 2010a). Washoe County is designated by national standards as “Unclassified/Attainment” for 8-Hour Ozone, PM₁₀, PM_{2.5}, Carbon Monoxide, Nitrogen Dioxide, and Sulfur Dioxide (USEPA 2011).

3.4.2 Direct and Indirect Effects of Proposed Action

The Proposed Action would produce smoke from prescribed fires and to a lesser degree particulate matter from mechanical treatments and fuel wood cutting, as well as construction of temporary access roads and landings. Potential effects to air quality from prescribed fire and pile burning could range from reduced visibility, to potential pneumonic irritation, as well as smoke odors affecting people in proximity to the project area when such treatments are underway. However, the duration of these effects is expected to be short (24 hours), with the greatest impact occurring during the actual ignition or active burning phase, and lasting from one to a few days depending on the size or number of actual burn units or number of piles to be ignited. Residual smoke produced from the burnout of large fuels, or slower burning fuel concentrations could also occur, and may last between one to three days following the ignition phase. Effects to air quality from mechanical treatments and wood cutting would be dominated by airborne particulate matter

generated during the operation of mechanical equipment and transport vehicles and may temporarily reduce visibility in the immediate project area. However, these impacts would quickly cease once operations cease. Therefore, for the purposes of this analysis, the evaluation of potential effects related to air quality relies on estimated smoke emissions generated from prescribed fire, extrapolated from the analysis within the SSER FEIS.

The degree of effect would be dependent on atmospheric conditions at the time of ignition. Ecosystems containing more overall biomass would yield more smoke than rangelands and sage-steppe communities. Prescribed fires are planned and implemented when atmospheric stability and wind conditions promote smoke dispersion into the atmosphere and/or transport out of the area. Per BLM Standards for Fire and Aviation and any applicable State and or County regulations, a Prescribed Burn Plan would need to be developed, reviewed and approved by SFO Fire Management Officer, SFO Manager, NOR CAL Fire Management Officer and the BLM State Fire Management Officer before any prescribed burns occur. Close coordination with the SFO resource staff would be needed when establishing Resource Objectives for the Burn Plan.

The areas of greatest impact from mechanical treatments and road and landings construction would include the immediate project area, as well as areas adjacent to unimproved, dirt or gravel roads utilized for project site access.

Smoke from prescribed burning would result in minor short-term adverse effects due to a higher level of emissions annually due to smoke and vegetation loss. Smoke emissions would generally dissipate in the direction of prevailing winds. Estimated PM₁₀ and PM_{2.5} emissions shown in **Table 3.4-1** are extrapolated from the SSER FEIS values based on acreages by treatment area for the Proposed Action.

Table 3.4-1 — Estimated PM₁₀ and PM_{2.5} Emissions Resulting from Implementation of the Proposed Action

Treatment Area	Treatment Area Acreages Proposed for Prescribed Burn	Estimated Emissions (Tons per Acre)*	
		PM _{2.5}	PM ₁₀
Vaughn Canyon	140	7	8
North Fandango	599	30	36
Bidwell Mountain	150	7	9
Barrel Springs Road	0	0	0

*Values extrapolated from SSER FEIS calculations.

All prescribed burning would comply with the California Smoke Management Guidelines for Agricultural and Prescribed Burning and would be required to comply with all standards and conditions specified by the local regulatory authority for Air Quality (MCAPCD and Washoe County). Prescribed fires would be implemented based on approved burn plans and would follow project-specific prescriptions identified by these burn plans. Prescribed fires are planned and implemented to accelerate restoration of ecological processes within biological communities, and in the long-term, beneficial effects would result from reduction of wildland fire potentials.

The Proposed Action would be consistent with the SSER FEIS, SFO RMP FEIS, and State and other federal regulatory directives, including, but not limited to the National Fire Plan, Forest

Land and Resource Management Plans, Resource Management Area Plans, Manual Direction, Standards and Guides. Smoke Management Plans and Prescribe Fire Plans for site-specific projects would include federal and State regulatory mandates of the federal Clean Air Act of 1990, the California Air Resources Board, and the Nevada Bureau of Air Pollution Control.

Smoke Management Plans and Prescribe Burn Plans for site-specific projects would implement State and federal regulatory directives. The determination for compliance with State and federal air quality attainment standards would be assessed through agency coordination at the time of project implementation. The short-term effects on air quality resulting from potential smoke generation and PM₁₀ and PM_{2.5} emissions from prescribed fire would be temporary and would last less than five days. Potential air quality impacts would be monitored and controlled through existing regulatory process, potential adverse impacts would not be allowed to occur, as authorizations would not be issued for prescribed fires proposed under conditions conducive to adverse effects. Mechanical treatments causing temporary short-term impacts from dust and exhaust emissions would last less than an hour. No long-term air quality effects would result from implementation of the Proposed Action. The long-term beneficial effects from fire use and mechanical treatments would reduce the magnitude of negative effects from smoke generated from large wildfires. With implementation of the Standard Operating Procedures identified in **Appendix C**, in addition to compliance with existing regulatory requirements relevant to air quality, no adverse effects are anticipated to result from implementation of the Proposed Action.

3.4.3 Cumulative Effects of Proposed Action

The past, present and future foreseeable effects include hand and mechanical vegetative treatments, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, and range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that these activities would result in degraded air quality throughout the CAA through substantial contributions of pollutants.

Prescribed fire fuel reduction projects are planned throughout the Sage Steppe Ecosystem Restoration Strategy area, including within the CAA. The Proposed Action would utilize prescribed fire within approximately 889 acres, representing an approximate four percent of the total acreage proposed for prescribed fire management within the SSER FEIS. The projected contributions of PM_{2.5} and PM₁₀ resulting from implementation of the Proposed Action would amount to approximately four percent (each) of the total estimated particulate matter emissions projected by the SSER FEIS. Smoke from simultaneous prescribed fires in adjacent areas, including Modoc National Forest, adjacent or neighboring BLM field offices and other private and public lands within the CAA, could affect air quality in the region. However, BLM coordinates prescribed fire planning and implementation with other field offices, as well as the U.S. Forest Service and Cal Fire; therefore with proper planning and management of prescribed fire, as required by existing regulatory requirements, combined with implementation of the Standard Operating Procedures identified in **Appendix C** relevant to air quality, potential cumulative effects are considered negligible.

3.4.4 Direct and Indirect Effects of the No Action Alternative

Under the No Action Alternative no fuel treatments/habitat restoration treatments would occur within the project area. The potential for wildfires to occur would be increased where fuel

treatments are not implemented, as the project area would continue to amass fuel loads in the absence of treatment and continued full suppression management of wildfires. Impacts to air quality resulting from wildfire would likely be greater as wildfires are typically characterized by a longer ignition phase, and/or a longer burn period, and consume more biomass, producing increased volumes of smoke and particulate matter than implementation of prescribed fires or slash pile burning practices typically would. Prescribed fires are ignited and designed to reduce these emissions. In addition, multiple wildland fires burning at one time would substantially degrade air quality. Potential effects related to the No Action Alternative are considered moderate.

3.4.5 Cumulative Effects of the No Action Alternative

Ongoing hand and mechanical vegetative treatments, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, and range management activities would continue throughout the CAA. Construction of the Ruby Pipeline Project was completed during the summer of 2011. It is not anticipated that these activities would result in degraded air quality throughout the CAA through substantial contributions of pollutants.

Continued increases in Action Area and regional fuel loading would result in increased risk from large-scale catastrophic wildfires characterized by a longer ignition phase, increased burning duration and intensity, high biomass consumption, and a long duration. These factors would result in large volumes of smoke, potentially extending over a long duration, depending on the size of the wildfire and atmospheric conditions, as well as the number of wildfires burning concurrently, resulting in significant adverse effects to air quality. Potential cumulative effects related to the No Action Alternative are considered moderate.

3.4.6 Mitigation Measures

No mitigation is proposed.

3.5 Cultural Resources

3.5.1 Affected Environment

The consideration of cultural resources is a critical component of Bureau of Land Management practices on Public Lands in the Surprise Field Office. Cultural resources are locations or objects of human activity, occupation, or use. These resources include archaeological; historic; architectural sites, structures, and places with important public and scientific values; and locations of traditional cultural or religious importance to specific social or cultural groups. Cultural resources discussed in this section include districts, sites, buildings, structures, and objects listed on or eligible to the National Register of Historic Places (NRHP). The cultural resource component of the affected environment is covered by several legislative authorities including Section 106 of the National Historic Preservation Act of 1966 as amended (NHPA), the Archaeological Resources Protection Act (ARPA), the American Indian Religious Freedom Act and Executive Order (E.O.) 13007, and the Native American Grave Protection and Repatriation Act (NAGPRA). Cultural resources within the Barrel Springs Road treatment area also fall under purview of the State Protocol Agreements between BLM Nevada and Nevada SHPO (2009c), and BLM California and California and Nevada SHPO (2007).

The foundations of much of western Great Basin/Northeast California prehistory and ethnology were developed in this region. The Area of Potential Effect (APE) for cultural resources encompasses the surface area and depths to which the Proposed Action and facilities operation could disturb cultural resources. It is extended to an indirect APE to include any sites, buildings, districts, or historic properties that could be indirectly affected by the Proposed Action and its visual effects.

Prehistoric sites in the region played a seminal role in the development and understanding of regional prehistory spanning the last 12,000 years and the historical record has proved equally rich. Regional historic developments became nationally important with westward emigration to California and Oregon Territories in 1849. The region is crossed by historic corridors that carried people, mail, and goods from eastern cities to growing mining, agricultural, and commercial centers of California, and later to the mining towns and agricultural settlements of the Pacific Northwest. The Applegate-Lassen Trail (MOD-2642H) traverses the project area and is managed and protected under the National Trails System Act. The Fort Crook to Fort Bidwell Military Road (MOD-3549H) also occurs within one mile of the project APE.

The Class I Cultural Resources Overview and Research Design for the Alturas, Eagle Lake, and Surprise Resource Areas (King *et al.* 2004) presents a detailed background of regional prehistoric and historic research, research issues, and a site sensitivity model for the project vicinity. McCabe (2010) documents a Class III cultural resource inventory for the project area and synthesizes the more detailed regional overview. The following overview is based in part on these documents.

A number of local and regional chronological schemes have been developed for the region (see Basgall and Hildebrandt 1989; Cressman *et al.* 1977; Hildebrandt and Mikkelsen 1995; Hughes 1986; Manuel 1983; O'Connell 1975; Raven 1984; Sampson 1985). A standardized chronology, developed for the Tuscarora Pipeline and Alturas Intertie Electric Transmission Line projects (Delacorte 1997; McGuire 2002), has the most general applicability. Human occupation in the

region spans a 12,000 year interval. A series of recognized time periods that include six general phases; Early Holocene (7000+ BP), Post Mazama (7000-5000 BP), Early Archaic (5000-3000 BP), Middle Archaic (3500-1300 BP), Late Archaic (1300-600 BP), and Terminal Prehistoric (600 BP to Contact). Each occupation phase is accompanied by a general shift in adaptive and subsistence-settlement strategies that manifest themselves within major changes in assemblage composition. The standardized chronology has the benefit of allowing comparisons over the disparate cultural and environmental zones that characterize the project area.

Ethnographically, the project area lies within the territory of the Northern Paiute. The Northern Paiute, comprising 22 bands occupied a vast territory which was bounded on the west, for some 600 miles, by the western edge and/or the crest of the Sierra Nevada and the watershed separating the Pit and Klamath rivers. These peoples speak dialects of the Northern Paiute language, one of the several closely related Numic languages which are spoken across the Great Basin (Fowler and Liljeblad 1986:435). The study area encompasses the territory of one of the Northern Paiute bands: the Kidutokado (“Marmot-eaters”). Kidutokado settlements focused on Surprise Valley, California, and adjacent territory in southern Oregon and northwestern Nevada (Stewart 1941:365). Their boundary is at Goose Lake, north to the Warner Mountains, south to the southern end of Long Valley, then west past the south end of Lower Lake.

Northern Paiute bands foraged throughout their home territory, and many used resources in their neighbors’ districts as well (Fowler and Liljeblad 1986:437). Settlement and subsistence patterns were closely tuned to fluctuations in the seasonal availability and distribution of wild-food resources. They followed subsistence practices which were closely adapted to the seasonal availability of target resources.

Obsidian sources are abundant in the project area including within the Warner Mountains, the Cowhead Lake area, and northwestern Nevada. Almost 20 identified obsidian sources are located within the Warner Mountains between Goose Lake and Upper Lake in Surprise Valley. Around the current project area of the West Parcel and North Barrel Parcel are several of these known obsidian localities: Cowhead Lake, Schadler Ditch, and Eightmile Creek (Hughes 1986: Map 5).

Historically, land use in this region has been largely dominated by cattle and sheep ranching and farming, with limited mining activity and military development. Early immigrants bound for California or Oregon from the east traveled through the region. A combination of rugged terrain, lack of water, and hostile Native Americans eventually convinced most travelers to use the established routes branching out from the Humboldt Sink to the south. Early transportation through the area included a few rugged routes. For instance, on one trail through Fly Canyon, early pioneer emigrants were forced to use ropes to lower their wagons down steep pitches. Wagon-wheel tracks in these backcountry locations remain today as the only definitive cartographic evidence of this historic migration. Geographic landmarks, such as prominent mountains or gorges, became road signs for immigrants following the trails (Feiereisen 1993). Portions of the Applegate-Lassen Trail (CA-MOD-4642-H) and the Fort Crook to Fort Bidwell Military Road (CA-MOD-3549-H) are located within the project vicinity.

Research Context

The evaluation of cultural sites especially under Significance Criterion D of the National Register requires a consistent framework of research issues and questions, allowing for unique characteristics and data sets. Evaluation of sites discovered during the current project relied on prehistoric and historic-era contexts and research designs outlined within the Class I Overview for the Surprise Resource Area (King *et al.* 2004:Chapter IV). As summarized in McCabe (2010:23-24):

Prehistoric Research Themes

Important research themes identified for the project area include Chronology (which includes refinement of regional projectile point sequences and development of obsidian hydration chronologies for geochemical glass types), Mobility and Land Use, Late Prehistoric Subsistence-Settlement Change, Late Holocene Rise of Large-Game Hunting and Gender-Differentiated Work Organization, and Population Replacements and Ethnic Boundaries.

In general, for sites to contribute significant data for all of these research issues, they must contain one or more of the following data requirements: have a single-component context; have internal, functionally specific assemblages which could be possibly temporally dated using obsidian hydration; have at least one (several preferred) classes of temporal markers such as projectile points or other temporal markers such as beads; and contain a rich cultural assemblage containing obsidian, which could contribute to future studies which data can be linked.

Historic Research Themes

Historic-era sites identified within the project area includes a road segment (26WA8977) assigned to a Transportation theme and three sites (26WA8995, 26WA8997, and CA-MOD-6777-H) attributed to a Ranching theme.

For sites to be eligible under Criterion A, it must be associated with a particular period (e.g., early exploration). It should be a good representative or outstanding example of a property type unlikely to be better represented elsewhere in the region. A road should be a segment of a main road or corridor connecting places and/or communities of major local significance. In addition, if the site or resource can be clearly associated with a particular ethnic group it is also eligible under Criterion A.

For Criterion B, a site should be identified clearly with an individual who was important for developing early travel or ranching activities, or a person who was important in the development or use of a road transportation system in the study area.

To be eligible under Criterion C, a property should exhibit unusual characteristics, such as innovative use of the landscape to surmount an obstacle, have unique or distinctive construction technologies such as culverts, rock walls, and contributes materially to the definition of a landscape. The site should clearly demonstrate the interrelationship of elements integral to a past transportation or ranching system. The site should also contain equipment, tools, or other artifacts and data useful in reconstructing a past transportation system, or add data concerning consumer behavior or demographics of the study area (Criterion D).

Integrity of roads is also vital for determining whether a property is eligible to the National Register. Following are four integrity levels used for assessing linear resources: Level 1 is an unaltered route that is basically intact, has been neither used by motor vehicles nor altered by recent road improvements. It has also avoided significant natural impacts (i.e. erosion). Level 2 is a route that has been used by motor vehicles (less than 25 percent altered). Level 3 is a compromised (between 25 to 50 percent altered) resource where the original route is gone but can be verified by historical records (i.e. General Land Office [GLO] Plat maps) and/or artifacts found along the route. Level 4 is a route difficult to discern and has been subject to relatively significant alternation (i.e. roadbed graded, graveled). In general, properties falling within Levels 1 and 2 are more likely to be eligible to the National Register while properties associated with Levels 3 and 4 are typically not eligible to the National Register even if they meet National Register criteria.

Cultural Resource Inventory

In August of 2008, the BLM Surprise Field Office conducted a Cultural Resources Inventory within the Vaughn Canyon treatment area (Borgi 2008). The project comprises a Class II and Class III inventory covering 288 acres of public lands. Between November 2009 and May 2010, Far Western Anthropological Research Group, Inc. (Far Western) completed an archaeological inventory of the Barrel Springs Road Mechanical/Manual Juniper Treatment Projects (McCabe 2010). This project consists of an inventory of three separate treatment areas: the North Fandango treatment area, the Bidwell Mountain treatment area, and the Barrel Springs Road treatment area. The North Fandango and Bidwell Mountain treatment areas are located in Modoc County, California while the Barrel Springs Road treatment area is located in Washoe County, Nevada; all areas are on public lands administered by BLM Surprise Field Office, Cedarville, California. A mine property located in the southern half of the Vaughn Canyon treatment area was re-visited and evaluated by Julie Rodman of the BLM Surprise Field Office in July 2011. The entire project area encompasses a total of 1,369 acres. Of that acreage, 144 acres were not inventoried due to steep slopes, 140 acres were subjected to a Class II level, and 1,085 acres were completed at a Class III level resulting in a total of 1,225 inventoried acres for the proposed BLM fuels project.

As noted BLM is preparing to reduce juniper densities using a variety of mechanical and manual means (i.e. rubber tire harvesters, skidders, dozers, whole tree chippers, chain saws). This proposed work will be completed in order to reduce wildland fuels and juniper densities. The primary tree targeted for removal is juniper with prescribed burns also planned to help restore meadow grasses. The tree removal will aid in less intense wildfires and provide better habitat for local wildlife. Ground disturbances associated with this project include, but not limited to, debris from fallen trees and vehicle traffic.

Results

As a result of these three cultural resource investigations, a total of 47 sites, five rock stack feature locations, and 75 isolated finds were documented. Within the Vaughn Canyon treatment area, 6 prehistoric sites, one historic site and three isolates were documented (**Table 3.5-1**). One site, 45.16.07.20 is an extensive lithic scatter containing several house depressions and possible midden and ash concentrations. Site 45.16.18.09 is a mining site and associated cabin that may date as early as the later half of the 1910s. Nine sites (eight prehistoric, one historic-era) and 15

prehistoric isolates were documented within the North Fandango treatment area. The Bidwell Mountain treatment area had a total of 11 prehistoric sites and 12 prehistoric isolates. Twenty-two sites were documented within the Barrel Springs Road treatment area comprising 19 prehistoric properties, two historic-era cultural resources, and one resource with both a historic and prehistoric component. Four of the newly recorded prehistoric sites correspond to previously documented resources without site record forms (26WA8991, 26WA8992, 26WA8986, and 26WA8987). Five rock stack feature locations were also documented as well as 45 isolates (44 prehistoric, one historic-era).

Of the 47 sites documented, 11 are recommended eligible for listing on the National Register of Historic Places (26WA8981 through 26WA8985, 26WA8986, 26WA8987, 26WA8991, CA-MOD-6776, CA-MOD-6766, and CA-MOD-6772) and another 17 remain unevaluated (45.16.07.19, 45.16.07.20, 45.16.18.01, 45.16.18.02, 45.16.18.03, 45.16.18.04, 46.18.15.06, 26WA8994, 26WA8996, CA-MOD-6777H, CA-MOD-6762, CA-MOD-6770, and five rock stack feature sites 46.18.15.09 through 46.18.15.11, 46.18.16.09, and 46.18.16.10). The remaining cultural sites are recommended ineligible. The isolated finds have been fully documented and are a resource class considered ineligible to the National Register under the California and Nevada State Protocol Agreements.

Determination of National Register eligibility is critical to this assessment and can only be provided by the federal lead agency, the BLM Surprise Field Office, with concurrence from the Nevada and California SHPO. If a cultural resource (site, building, or district) is eligible to the NRHP, then it is a historic property warranting protection, avoidance, or mitigation. If a cultural resource is unevaluated for the NRHP, it would be managed as if eligible until a determination can be made. If a cultural resource is ineligible for the NRHP, no further mitigation is warranted.

Table 3.5-1 — Site Summary and National Register Treatment Recommendations (after McCabe 2010)

State No.	BLM No.	Field No.	Site Type	Description	National Register Eligibility	Treatment Recommendations
Vaughn Canyon						
	45.16.07.19		LRS	Lithic scatter, utilized flake tools.	Unevaluated	Hand thinning only
	45.16.07.20		LO	Extensive scatter with house depressions, formed tools, midden and ash.	Unevaluated	Hand thinning only
	45.16.18.01		LRS	Lithic scatter with biface tip and 5 stacked rock features.	Unevaluated	Hand thinning only
	45.16.18.02		LRS	Lithic scatter.	Unevaluated	Hand thinning only
	45.16.18.03		HC	Lithic scatter with formed tools and groundstone.	Unevaluated	Hand thinning only
	45.16.18.04		LRS	Lithic scatter with formed tools.	Unevaluated	Hand thinning only
	45.16.18.09		Historic	Mine site and associated cabin	No	Mechanical, no fire, avoid cabin.
North Fandango						
CA-MOD-6773	45.16.06.06	977AG-01	LRS	Lithic scatter with a biface.	No	Mechanical
CA-MOD-6774	46.16.30.01	977AG-10	LRS	Lithic scatter.	No	Mechanical
CA-MOD-6775	46.16.31.01	977AG-02	LRS	Lithic scatter with a biface.	No	Mechanical
CA-MOD-6776	46.16.31.02	977AG-03	LRS	Lithic scatter with a Late Archaic single component assemblage.	Yes	Hand thinning only
CA-MOD-6777H	46.16.31.03	977AG-04	Historic	Historic-era rock structure and possible water diversion feature.	Unevaluated	Hand thinning only
CA-MOD-6778	46.16.31.04	977AG-05	LRS	Obsidian lithic scatter.	No	Mechanical
CA-MOD-6779	46.16.31.05	977AG-06.	LRS	Obsidian lithic scatter with formed tools.	No	Mechanical
CA-MOD-6780	46.16.31.06	977AG-07	LRS	Obsidian lithic scatter.	No	Mechanical
CA-MOD-6781	46.16.31.07	977AG-08.	LRS	Obsidian lithic scatter with formed tools.	No	Mechanical
Bidwell Mountain						
CA-MOD-6762	47.16.14.01	977AG-11	RF	Rock ring feature.	Unevaluated	Hand thinning only
CA-MOD-6763	47.16.14.02	977AG-12	Quarry	Obsidian cobble reduction debris with tools.	No	Mechanical
CA-MOD-6764	47.16.14.03	977AG-13	Quarry	Obsidian cobble reduction debris with tools.	No	Mechanical
CA-MOD-6765	47.16.14.04	977AG-14	Quarry	Obsidian cobble reduction debris with tools.	No	Mechanical

State No.	BLM No.	Field No.	Site Type	Description	National Register Eligibility	Treatment Recommendations
CA-MOD-6766	47.16.14.05	977AG-17	LRS	Obsidian reduction area with an activity locus and formed tools.	Yes	Hand thinning only
CA-MOD-6767	47.16.14.06	977AG-18.	LRS	Obsidian single reduction location.	No	Mechanical
CA-MOD-6768	47.16.14.07	977AG-19	Quarry.	Obsidian cobble reduction debris and formed tools.	No	Mechanical
CA-MOD-6769	47.16.23.01	977AG-15	LRS	Obsidian lithic scatter with formed tools.	No	Mechanical
CA-MOD-6770	47.16.23.02	977AG-16	LRS	Obsidian single reduction location with a rock stack feature.	Unevaluated	Hand thinning only
CA-MOD-6771	47.16.23.03	977AG-20	LRS.	Obsidian single reduction location.	No	Mechanical
CA-MOD-6772	47.16.23.04	977AG-21	Quarry	Obsidian quarry location with complex reduction locations and formed tools.	Yes	Hand thinning only
Barrel Springs Road						
26WA8978	46.18.09.01	977-5	LRS	Obsidian lithic scatter.	No	Mechanical
26WA8979	46.18.09.02	977-6	LRS.	Obsidian lithic scatter with an Early-Middle Archaic single component assemblage.	No	Mechanical
26WA8980	46.18.09.03	977-7	LRS	Obsidian lithic scatter.	No	Mechanical
26WA8981	46.18.09.04	977-9	HC	Complex site with formed tools and 12 rock stack features.	Yes	Hand thinning only
26WA8982	46.18.09.05	977-11	LO	Obsidian scatter with processing formed tools and milling gear.	Yes	Hand thinning only
26WA8983	46.18.09.06	977-19	HC	Prehistoric Hunting Camp with a rock stack feature, dense flaked stone assemblage.	Yes	Hand thinning only
26WA8984	46.18.09.07	977-21	LRS	Obsidian lithic scatter with formed tools.	Yes	Hand thinning only
26WA8985	46.18.09.08	977-22	LO	Obsidian lithic scatter with formed tools, milling gear, thermal feature.	Yes	Hand thinning only
26WA8986	46.18.15.01	977-31	LRS	Obsidian lithic scatter with formed tools.	Yes	Hand thinning only
26WA8987	46.18.15.02	977-25	LRS	Complex site comprised of multiple Lithic Reduction Stations with formed tools; site boundary extends west beyond project area. Likely includes previously recorded site 46.18.22.01 (BLM Report CRR-176).	Yes	Hand thinning only
26WA8988	46.18.15.05	977-1	LRS	Obsidian lithic scatter with formed tools.	No	Mechanical
26WA8989	46.18.15.06	977-3	LRS	Obsidian lithic scatter with formed tools.	Unevaluated	Hand thinning only

State No.	BLM No.	Field No.	Site Type	Description	National Register Eligibility	Treatment Recommendations
26WA8990	46.18.15.07	977-4	LRS.	Obsidian lithic scatter.	No	Mechanical
26WA8977	46.18.15.08	977-33	Historic	Historic-era road segment.	No	Mechanical
—	46.18.15.09	RS-1	RS	Rock stack feature.	Unevaluated	Hand thinning only
—	46.18.15.10	RS-2	RS	Rock stack feature.	Unevaluated	Hand thinning only
—	46.18.15.11	RS-9	RS	Rock stack feature.	Unevaluated	Hand thinning only
26WA8991	46.18.16.01	977-13	LO	Obsidian scatter with formed tools, milling gear, and a potential thermal feature.	Yes	Hand thinning only
26WA8992	46.18.16.02	977-17	LRS	Obsidian lithic scatter with formed tools.	No	Mechanical
26WA8993	46.18.16.03	977-14	LRS.	Obsidian lithic scatter.	No	Mechanical
26WA8994	46.18.16.04	977-15	LRS	Obsidian lithic scatter with an isolated rock feature.	Unevaluated	Hand thinning only
26WA8995	46.18.16.05	977-18	Historic	Historic-era debris scatter.	No	Mechanical
6WA8996	46.18.16.06	977-223	LRS	Obsidian lithic scatter with formed tools and a rock stack feature.	Unevaluated	Hand thinning only
26WA8997	46.18.16.07	977-29	LRS	Historic-era Corral Obsidian lithic scatter with a formed tool and a historic-era remains of a corral.	No	Mechanical
26WA8998	46.18.16.08	977-30	LRS	Obsidian lithic scatter with a formed tool.	No	Mechanical
—	46.18.16.09	RS-6	RS	Rock stack feature.	Unevaluated	Hand thinning only
—	46.18.16.10	RS-8	RS	Rock stack feature with an obsidian flake and a flake tool.	Unevaluated	Hand thinning only
Notes:		HC – Hunting Camp	RS – Rock Stack	LRS – Lithic Reduction Station	RF – Rock Feature	LO – Limited Occupation

3.5.2 Direct and Indirect Effects of Proposed Action

The analysis of potential impacts on cultural resources is based on a pedestrian Class II and Class III cultural resources archaeological inventory and National Register evaluation of nearly 1466 acres within the archaeological APE. One hundred forty-four acres were not subject to pedestrian inventory due to steepness of slope. Historic properties within the NE Warner Fuels Reduction and Habitat Restoration Project cultural resources APEs include prehistoric sites, historic era sites, and trails.

Indicators

Indicators developed to assess potential impacts on cultural resources include the following:

- Project elements located on, over, or near historic properties including prehistoric, historic, and ethnohistoric archaeological sites; trails and roads, districts, and buildings; including ranches, dairies, farmsteads, and residences;
- Project elements that result in direct physical impacts such as those caused by land disturbances from all project implementation activities, including mechanical thinning, hand thinning, public wood cutting, controlled burning, and vehicular access;
- Project elements that result in indirect impacts to historic properties through visual effects on standing structures, historic districts, trails and roads; or
- Project elements that would have an adverse effect on historic properties, their settings, or their integrity under Section 106 of the NHPA (36 CFR 800).

Potential effects on cultural resources, specifically historic and prehistoric properties, would include both direct and indirect effects. Direct impacts resulting from ground disturbance by mechanical harvesting equipment and vegetation removal are expected from the implementation of the whole Action. Indirect impacts resulting from increased human access may lead to artifact collection, and the shade left by standing trees may concentrate livestock disturbance. Hand removal of trees within archaeological sites would reduce direct impacts and lessen indirect impacts from livestock.

Hand thinning within sites and implementation of other avoidance measures outlined in the Barrel Springs Mechanical/Manual Juniper Treatment Project (McCabe 2010) would reduce or mitigate adverse effects to historic properties found within the project APEs. For all of the ineligible cultural properties, including the isolated finds, no further archaeological work is recommended. In regards to the proposed project-related treatment activities for these ineligible sites, the targeted trees and vegetation could be removed mechanically.

3.5.3 Cumulative Effects of the Proposed Action

Cumulative effects on cultural resources, specifically historic and prehistoric properties, from the Proposed Actions combined with other past, present, and reasonably foreseeable future actions would include juniper cutting/removal on public and private lands, domestic livestock grazing, wild horse range within Wild Horse Management Areas (WHMA), range management practices, Integrated Weed Management, recreational uses, off-highway vehicle use, and the Ruby Pipeline Project on lands within the CAA.

The Proposed Actions would contribute incrementally to effects to regional cultural properties. Prescribed and wildland fire would remove vegetation, increasing soil erodability and alteration of site surface components. Intense fire may also damage artifacts on the site surface. Fire has undoubtedly occurred across the landscape over the prehistoric millennia and recent investigations have shown that fire has little effect on a site's overall National Register Eligibility (Zeier *et al.* 2005).

Vegetation removal could increase recreational access to sites, leaving them vulnerable to various types of vandalism including artifact collecting and degradation from off-highway vehicle (OHV) access. Effects from grazing are usually confined to areas where range improvements (like watering troughs, shade from remaining trees, or spring enhancements) create an environment where livestock congregate. With the implementation of proposed measures such as hand thinning within cultural resources, cumulative effects resulting from the Proposed Action would be reduced, and potential adverse effects mitigated.

3.5.4 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, proposed vegetative treatments would not be implemented, and BLM management actions proposed by this EA would therefore not result in increased ground disturbance, soil erosion, or access to sites. Hand and mechanical vegetative treatments, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, and range management activities would continue throughout the CAA. Construction of the Ruby Pipeline Project was completed summer 2011. Ongoing hand treatment used for vegetative management and wild horse range are not anticipated to result in effects to cultural resources. Construction of the Ruby Pipeline Project was implemented under current regulatory requirements thereby minimizing effects, including cumulative effects to cultural resources as a result of implementing this action. Other activities within the CAA including livestock grazing and range management activities, recreational uses, and off-highway vehicle use would have the potential to contribute to cumulative effects to cultural resource through ground disturbance and access to remote areas within which previously unidentified cultural resource may be present and potentially affected. In addition, wildland fires would have the potential to result in vegetation loss, bare soil and increased erosion potentials, as well as increased exposure of sites and artifacts, access to sites, and the additional potential to damage surface artifacts.

3.5.5 Cumulative Effects of the No Action Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. These activities would have the potential to result in increased ground disturbance and exposure of sites. Management actions on BLM lands would be subject to protocols and Standard Operating Procedures (**Appendix C**) and would therefore no result in substantial cumulative effects. Actions implemented by private land owners and other agencies may have the potential to contribute to cumulative effects to cultural resources within the CAA.

3.5.6 Recommendation Summary

For all of the ineligible cultural properties, including the isolated finds, no further archaeological work is recommended. In regards to the proposed project-related treatment activities for these

ineligible sites, the targeted trees and vegetation can be removed mechanically. For all those cultural properties recommended eligible or are unevaluated to the National Register, treatments are limited to hand treatments only within these site boundaries. Eligible and unevaluated sites should be flagged for mechanical avoidance prior to fuels reduction activities. Hand thinning should be utilized within cultural sites. If new roads are required to access portions of the project area, a cultural survey should be conducted prior to any ground disturbing activities.

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3.6 Fire and Fuels

3.6.1 Affected Environment

Fire and fuels resources are primarily described by vegetation and fuel type and are influenced or affected by precipitation, temperature, soils, and seasonal fluctuations. Fuel in the natural environment includes live vegetation, as well as materials such as dead branches, needles, and cones. Fire and fuels on lands within the Action Area have been influenced by active and passive management actions since prehistoric times (BLM 2007).

Fire Regime Condition Classes

Fire regimes represent an index of pre-settlement historical fire processes generated for the period from around 1500 to just prior to the mid-1800s and are described in terms of frequency and severity. As shown in **Table 3.6-1**, five fire regimes have been classified based on average number of years between fires combined with the severity of the fire on the dominant overstory vegetation.

Table 3.6-1 — Fire Regime Classifications

Fire Regime	Frequency	Severity
I	0-35 Year Return Interval	Low
II	0-35 Year Return Interval	High
III	35-100+ Year Return Interval	Mixed
IV	35-100+ Year Return Interval	High
V	200+ Year Return Interval	High

Lands within the Action Area are classified within the Fire Regime I and III indices, as shown in **Table 3.6-2**. Fire Regime I primarily represents forested lands with frequent, low intensity fires with a 0-35+ year return interval. Fire Regime III primarily represents forest, shrub, and grasslands with a longer return interval ranging from 35-100+ years.

Table 3.6-2 — Action Area Acres by Fire Regimes

Treatment Area	Acres	Fire Regime
Vaughn Canyon	60	I
	229	III
North Fandango	122	I
	472	III
Bidwell Mountain	193	III
Barrel Springs Road*	423	III

Source: Fire Regime and Condition Class [ESRI Grid]. 3.2. California: Department of Forestry and Fire Protection, 2003, (<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>). *Source: BLM 2011

Condition classes describe the degree of departure from historical fire regimes resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure. This departure from historical conditions may result from several factors including fire exclusion, timber harvesting, grazing, introduction and establishment of exotic plant species, insects and disease (introduced or native), or other past and present management activities (USFS 2008).

Descriptions for current Condition Classes are presented below in **Table 3.6-3**.

Table 3.6-3 — Fire Regime Condition Class Descriptions

Condition Class	Fire Regime	Example Management Options
Condition Class 1	Fire regimes are within an historical range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.	Where appropriate, these areas can be maintained within the historical fire regime by treatments such as fire use.
Condition Class 2	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). These results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.	Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the historical fire regime.
Condition Class 3	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. These results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.	Where appropriate, these areas may need high levels of restoration treatments, such as hand or mechanical treatments, before fire can be used to restore the historical fire regime.

Source: U.S. Forest Service General Technical Report RMRS-GTR-87

As shown in **Table 3.6-4**, lands within the Action Area are currently characterized as Condition Classes 2 and 3, where fire return intervals have moderate to high departure from the natural regime of vegetative characteristics, fuels accumulations, fire frequency and severity.

Table 3.6-4 — Action Area Acres by Condition Classes¹

Condition Class	Vaughn Canyon	North Fandango	Bidwell Mountain	Barrel Springs Road
Condition Class 1 Low Departure	27 Acres	24 Acres	0	283 Acres
Condition Class 2 Moderate Departure	31 Acres	401 Acres	190 Acres	187 Acres
Condition Class 3 High Departure	204 Acres	161 Acres	0	62 Acres

Source: LANDFIRE Fire Regime Condition Class [ESRI Grid]. 1.1.0. Sioux Falls, South Dakota: U.S. Geological Survey, 2008.

Approximately 27 percent of the Action Area is classified as Condition Class 3, 50 percent of the Action Area is classified as Condition Class 2, and 21 percent of the Action Area is classified as Condition Class 1. The risk of losing key components of the sage-steppe ecosystem within approximately 77 percent of the Action Area is moderate to high. Normally these areas would

¹ Approximately 42 acres are classified as “Barren.”

experience low to mixed intensity wildland fire events every 0-35 years for lands classified in the Fire Regime I index, and every 35-100+ years for lands classified in the Fire Regime II index. In 2005, the Barrel Fire burned 24, 370 acres and is the largest documented fire within the Action Area. Historic fire suppression land management actions have resulted in juniper encroachment which has increased the risk of catastrophic wildfire in the Action Area.

Vegetation Zones and Fire Ecology

Vegetative communities influence fire behavior. The composition of vegetative communities is influenced by several environmental factors, including elevation, aspect, climate and soils. Amongst these factors, precipitation zone plays a significant role, and the association of vegetative community and precipitation zone provide key information relevant to determining the appropriate fire and fuels management strategy. Vegetation within the Action Area is highly variable, but is dominated by big and low sagebrush communities and by areas of juniper woodlands.

Fire Management

Since its enactment in 2000, BLM has been implementing the National Fire Plan (NFP) to reduce wildfire impacts on rural communities, and ensure adequate levels of firefighting resources in the future. NFP prioritizes a change of existing fuel levels and providing increased protection of rural communities referred to as “communities at risk.” These communities are defined within an area called the “Wildland Urban Interface” (WUI). Typically the WUI has flammable vegetation near or in close proximity to improvements (homes, businesses and other structures) at risk of being damaged or destroyed by wildfire.

Human development within and adjacent to the Action Area includes scattered homes, ranches, and associated outbuildings. These areas are considered the WUI and consequently have an influence over fire and fuels management within the Action Area. Fort Bidwell is located within the Surprise Valley Watershed and is designated by the Federal Register list as an urban wildland interface community in the vicinity of federal lands at high risk from wildfire (Federal Register 2001). Although not designated by the Federal Register as a “community at risk,” the Cowhead Communities consist of several large ranches within the Warner Lakes Watershed WUI (BLM 2007).

The project lies within the Surprise Field Office Fire Management area currently designated as “full suppression.” Any wildland fires within the project area would be actively suppressed until controlled. The implementation of a “full suppression” management strategy over the last century has reduced the frequency of medium-sized fires and has resulted in increased fuels buildup, contributing, over time, to an increased risk of large, intense wildfire and fire-related damage, including damages to private landholdings. During high to extreme burn conditions catastrophic wildfire may result from these conditions, potentially requiring additional resources to suppress and rehabilitate fire and fire-related damages.

3.6.2 Direct and Indirect Effects of Proposed Action

The Proposed Action would consist of four Phase I and II juniper treatments where up to 899 acres (77 percent) of three sites would be broadcast burned using hand ignition. Additionally, BLM would implement hand cutting of junipers throughout the treatment areas, and mechanical

treatments are proposed on up to 140 acres within the Vaughn Canyon treatment area, ultimately to reduce the canopy cover of juniper by at least 75 percent on pine and mountain brush communities.

The Proposed Action would decrease fuel loads and could potentially reduce fire line intensities within the Action Area, potentially resulting in an increased ability for fire suppression resources to suppress wildfire in and around private property surrounding the project area. In addition, proposed treatment would facilitate Resource Management Plan objectives for using wildland fires to restore, maintain, and improve ecosystems.

Although dense juniper stands are somewhat fire resistant, juniper is highly intolerant of fire. With an increase in fire frequencies, through implementation of prescribed burns, young juniper seedlings would be eradicated, and the natural fire cycle restored more quickly, resulting in smaller fires, more vigorous plant communities, and reduced rehabilitation costs. Without an understory or a seed bank, Phase III juniper woodland will likely respond to prescribed fire by transitioning into annual grassland. If applied correctly to sites with less than 30 percent canopy cover and/or less than 75 percent dead shrub cover (the upper end of Phase II Juniper Woodland Succession), positive response in perennials and shrubs can be achieved with low intensity fires (USGS 2007). Additionally, the restoration of natural fire regimes and reduction in fuel loads would reduce the probability of large, catastrophic wildfires and would increase the safety for residences and private landholdings within the WUI.

Fuel reductions would result in decreased fire size, intensity and rate of spread. Vegetation management treatments would restore diversity and seral stages within biological communities, resulting in a less homogenous landscape characterized by a diverse mosaic of vegetation types and stages, and subsequently slowing the spread of future wildfires.

As treatments under the Proposed Action are implemented, approximately 1,200 acres of the 1,613 acre Action Area would be moved toward Condition Class 1 through the implementation of proposed treatments for individual treatment areas. A total of 77 percent of the Focus Area would be reduced in Condition Class. As implementation progresses, the historical fire regimes would become more established. Although the risk of large wildfires would still exist, over time the expected fire intensity would be less than that under current conditions, resulting in less severe ecological damage from wildland fire.

The Proposed Action is consistent with the SSER FEIS, SFO RMP FEIS, and State and other federal regulatory directives, including, but not limited to the National Fire Plan, Forest Land and Resource Management Plans, Resource Management Area Plans, Manual Direction, Standards and Guides. Smoke Management Plans and Prescribe Fire Plans for individual treatments would include federal and State regulatory direction of the federal Clean Air Act of 1990, the California Air Resources Board, and the Nevada Bureau of Air Pollution Control.

Implementation of the Proposed Action is not anticipated to result in adverse effects to fire and fuels. Implementation of the Proposed Action would result in long-term moderate benefits.

3.6.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that ongoing wild horse range, recreational uses, off-highway vehicle use, range management activities other than grazing or the construction of the Ruby Pipeline Project (completed summer 2011) would result in or contribute to cumulative effects related to fire and fuels.

Livestock grazing has changed fire regimes throughout the Action Area through the reduction of fine fuels. BLM will manage livestock grazing to achieve restoration objectives using grazing restrictions and compliance with existing standards and guidelines that would determine the timing, duration, and intensity of grazing.

Implementation of the Proposed Action would reduce juniper canopy cover within the Action Area by 75 percent on pine and mountain brush communities, resulting in decreased fuel loads within the CAA, and ultimately reducing the scale and frequency of wildfires. Fire severity and intensity would also be reduced. Implementation of prescribed fire on approximately 889 acres as habitat restoration and fuels reduction proposed within the Action Area, in combination with fire use on an additional 23,000 acres of lands proposed by the SSER FEIS would restore approximately 24,000 acres with fire use, resulting in the return of historical fire regimes within a large area of the CAA and the associated reduction of fire hazard from large, intense wildfires. The Proposed Action would facilitate the restoration of fire as a natural ecological process, potentially resulting in the restoration of more diverse vegetative communities within the area and complementing prescribed fire and fuel reduction actions implemented within adjoining forests, refuges, and BLM field offices encompassing a vast area in northeast California and northwest Nevada. Therefore, implementation of the Proposed Action would not result in cumulative adverse effects related to fire and fuels.

3.6.4 Direct and Indirect Effects of the No Action Alternative

Under the No Action Alternative fuel loading would continue to increase. Considering the current fuel loading, wildfire has the potential to start on BLM land and quickly encroach onto private landholdings within surrounding areas.

Under the No Action Alternative, during an active wildfire, conventional direct attack methods may not be sufficient to suppress wildfires due to fuel loading and increased fire line intensities. In addition, fire access may be increasingly difficult due to juniper density. Under these extreme scenarios for burning conditions, the potential risk of injury to firefighters and the public is increased. Local ranches and improvements would also be at increased risk during wildland fires occurring within lands surrounding the Action Area. Potential effects under the No Action Alternative are considered moderate.

3.6.5 Cumulative Effects of the No Action Alternative

Under the No Action Alternative, proposed vegetative treatments would not be implemented. Hand and mechanical vegetative treatments, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, and range management activities would continue

throughout the CAA. Construction of the Ruby Pipeline Project was completed during summer 2011. It is not anticipated that wild horse range, range management activities, or construction of the Ruby Pipeline Project would result in or contribute to cumulative effects related to fire and fuels. Continued recreational uses and off-highway vehicle use may contribute to the potential for wildfire. Recreational use may result in limited demand and use of fuel wood resources for camp fires.

“Full Suppression” practices would continue within the Action Area. Limited biomass reduction would continue through grazing and fuel wood cutting. However, it is anticipated that wildfires occurring in the future would become more intense and would result in a longer duration required for suppression activities and resources, and would therefore pose an increased threat to private property. Due to continued increases in fuel loading, the potential for severe and intense wildfires would continue to increase, increasing the risk of danger to firefighters, neighboring residents and residences and other private landholdings and improvements. Vegetative communities would continue to succumb to invasion by juniper across the landscape. Potential cumulative effects under the No Action Alternative are considered major.

3.6.6 Mitigation Measures

No mitigation is proposed.

3.7 Fuel Wood Utilization

3.7.1 Affected Environment

Although most of the treatment areas are too remote and/or are not easily accessed, the Action Area lies within an active fuel wood cutting area managed by Surprise Field Office. The majority of the fuel wood that is harvested within the Action Area is juniper and comes from the Barrel Springs Road treatment area. Approximately 20 fuel wood permits are issued yearly on average and approximately 60 cords are removed within the Action Area.

3.7.2 Direct and Indirect Effects of Proposed Action

Under the Proposed Action, effects to the potential for harvesting of commercial products within the Action Area are expected to be minimal. By reducing fuel loads within the Action Area, the risk of a severe, intense wildfire would be reduced, resulting in conserved fuel wood resources. Areas immediately adjacent to and within the Action Area would remain available for the harvest of commercial products, although the availability of juniper would ultimately be reduced as a result of implementing the Proposed Action. Potential effects related to fuel wood cutting result from implementation of the Proposed Action are considered negligible.

3.7.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that ongoing livestock grazing, wild horse range, off-highway vehicle use, or the previous construction of the Ruby Pipeline Project (completed summer 2011) would result in or contribute to cumulative effects related to fire and fuels. Ongoing recreational activities as well as rangeland management would continue to utilize juniper for fuel wood and livestock improvements, resulting in negligible cumulative contributions to effects to fuel wood resources.

A reduction in the overall fuel loading within the Action Area would reduce the potential risk of future severe, intense wildfire and would conserve wood resources within the Action Area. Implementation of the Proposed Action, combined with any past, present or future treatments is not expected to result in any cumulative effects to the harvest of commercial products. Potential cumulative effects related to fuel wood utilization resulting from implementation of the Proposed Action are considered negligible.

3.7.4 Direct, Indirect and Cumulative Effects of the No Action Alternative

Under the No Action Alternative, proposed vegetative treatments would not be implemented. Hand and mechanical vegetative treatments, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, and range management activities would continue throughout the CAA. Construction of the Ruby Pipeline Project was completed in summer 2011. It is not anticipated that wild horse range, off-highway vehicle use, or construction of the Ruby Pipeline Project would result in or contribute to cumulative effects related to fuels and firewood. Recreational use may result in limited demand and use of fuel wood resources for camp fires and range management activities would continue to utilize juniper for rangeland improvements. Cumulative effects resulting from ongoing recreational and range management activities would

result in negligible cumulative contributions to effects related to fuel wood resources.

Under the No Action Alternative, the potential for a severe, intense wildfire would increase which could result in the loss of wood resources within the Action Area, as well as areas immediately adjacent to the Action Area. Potential direct, indirect and cumulative effects related to Fuel Wood Utilization resulting from the No Action Alternative are considered minor.

3.7.5 Mitigation Measures

No mitigation is proposed.

3.8 Global Climate Change

3.8.1 *Affected Environment*

The earth absorbs energy from the sun, and also radiates energy back into space. Much of this energy going back to space is absorbed by gases in the atmosphere. Because the atmosphere then radiates most of this energy back to the earth's surface, our planet is warmer than it would be if the atmosphere did not contain these gases. Without this natural "greenhouse effect," temperatures would be about 60 degrees Fahrenheit, lower than they are now, and life as we know it today would not be possible (USEPA 2009a). Thus, the "greenhouse gases" (GHGs), including carbon dioxide, methane, and nitrous oxide, serve to regulate the earth's surface temperature, keeping the earth's average temperature close to 60 degrees Fahrenheit. Greenhouse gases occur both naturally and as a result of manmade activities (anthropogenic sources).

Climate change refers to any significant change in measures of climate (such as temperature, precipitation or wind) lasting for an extended period (decades or longer). Over the past 200 years, anthropogenic sources, including the burning of fossil fuels (such as coal and oil) and deforestation have caused the concentrations of heat-trapping "greenhouse gases" to increase significantly in our atmosphere (USEPA 2009a). As atmospheric concentrations of greenhouse gases rise, so do temperatures, because less heat is able to escape the atmosphere. This rise in temperature is accompanied by climatic changes that affect how organisms live, adapt, and survive on the planet (CARB 2008a).

In the United States, energy-related activities account for three-quarters of human-generated greenhouse gas emissions, mostly in the form of carbon dioxide emissions from burning fossil fuels. More than half the energy-related emissions come from large stationary sources such as power plants, while about a third comes from transportation. Industrial processes (such as the production of cement, steel, and aluminum), agriculture, forestry, and waste management are also important sources of greenhouse gas emissions in the United States (USEPA 2009b). GHGs from anthropogenic sources which are of most concern include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). The individual GHGs have different global warming potential (GWP) as each traps heat in the atmosphere to a different degree compared to the others. Carbon dioxide is set as the reference gas for climate change analyses, and the emissions from the other gases are typically expressed as CO₂ equivalents. For example, methane is approximately 23 times as effective as CO₂ in trapping heat (i.e. methane has a GWP of 23). Therefore, a ton of methane emissions would be expressed as 23 tons of CO₂ equivalent emissions.

Federal Regulations

The various GHGs that are considered to contribute to global warming have not been regulated by the federal government in the past as "air pollutants" in the sense that ambient air quality standards had not been set for their emissions on the basis of their impacts to health. Beginning in 2003, the stance of the USEPA was that the Clean Air Act did not authorize regulation to address global climate change, based upon the absence of express authority in the Act and no indication of congressional intent to provide such authority. Therefore, to address climate change at the federal level, the United States had established non-regulatory policies outside of

the Clean Air Act to implement its climate change policy through voluntary and incentive-based programs.

In April 2007 the U.S. Supreme Court ruled that the gases that cause global warming are pollutants under the Clean Air Act. The court also found that the U.S. government has the authority to regulate carbon dioxide and other heat-trapping gases. Per the Court's decision, in April 2009 the USEPA issued a proposed finding that greenhouse gases contribute to air pollution and may endanger public health or welfare. The proposed finding identified six greenhouse gases that pose a potential threat.

The finding states, "In both magnitude and probability, climate change is an enormous problem. The greenhouse gases that are responsible for it endanger public health and welfare within the meaning of the Clean Air Act" (USEPA 2009c).

The USEPA finding may lead to federal regulatory action in the future. In addition, legislation concerning climate change, GHGs, and energy independence is being addressed in the U.S. Congress.

State Regulations

The State of California has enacted legislative and executive measures to implement policies and regulatory actions to quantify and reduce GHGs. The most prominent of these is AB 32, Nunez (2006) - The California Global Warming Solutions Act of 2006. AB 32 declares that global warming is a serious threat to the public health, economic well-being, natural resources, and environment of California. AB 32 makes California Air Resources Board (CARB) responsible for monitoring and reducing GHG emissions, and requires CARB to:

- Establish (by January 1, 2008) a statewide GHG emissions cap for 2020, based on 1990 emissions;
- Adopt a plan by January 1, 2009 showing how emissions reductions will be achieved from significant GHG sources via regulations, market mechanisms, and other actions; and
- Adopt a list of discrete early action measures by July 1, 2007 that can be implemented by regulation before January 1, 2010.

Pursuant to AB 32, in December 2007, CARB approved a greenhouse gas emissions target for 2020 equivalent to the state's calculated greenhouse gas emissions level in 1990. CARB developed the 2020 target after extensive technical studies and a series of stakeholder meetings. The 2020 target of 427 million metric tons of CO₂ equivalent (MMT_{CO₂E}) requires the reduction of 169 MMT_{CO₂E}, or approximately 30 percent, from the state's projected 2020 emissions of 596 MMT_{CO₂E} (business-as-usual) and the reduction of 42 MMT_{CO₂E}, or almost 10 percent, from 2002-2004 average emissions (CARB 2008b).

In December 2008, CARB adopted the Climate Change Scoping Plan, containing strategies to achieve the GHG reductions required by AB 32. Strategies include:

- 1) Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;

- 2) Achieving a statewide renewables energy mix of 33 percent;
- 3) Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- 4) Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- 5) Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- 6) Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In October 2007, CARB released a list of 44 early actions, nine of which were recommended as "discrete early actions" as required by AB 32. The nine discrete early actions include:

- 1) Low Carbon Fuel Standard;
- 2) Reduction of HFC emissions from non-professional servicing of motor vehicle air conditioning systems;
- 3) Landfill methane capture;
- 4) SF₆ Reductions in the Non-Electric Sector;
- 5) Reduction of High GWP GHGs in Consumer Products
- 6) Smart Way Truck Efficiency;
- 7) Tire Inflation Program;
- 8) Reduction of PFCs from the Semiconductor Industry; and
- 9) Green Ports (shipping industry).

These actions are primarily transportation related, with commercial actions included as well. They are intended to target the most significant sources of GHGs.

In addition to the AB 32 legislative action, Governor Schwarzenegger has issued Executive Orders relating to climate change and GHG reductions:

S-3-05 (2005): Executive Order S-3-05, on GHG emission targets (issued on June 1, 2005), established State GHG emission reduction targets and requires oversight of the reduction efforts by a climate action team led by the Secretary of the California Environmental Protection Agency.

S-01-07 (2007): Executive Order S-01-07, the Low Carbon Fuel Standard (LCFS) (issued on January 18, 2007), calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020. It instructed the California Environmental Protection Agency to coordinate activities between the University of California, the California Energy Commission and other state agencies to develop and propose a draft compliance schedule to meet the 2020 target. The Executive Order also directed CARB to consider initiating regulatory proceedings to establish and implement the LCFS.

3.8.2 Direct, Indirect and Cumulative Effects

The assessment of GHG emissions and climate change remains in a formative phase. The lack of scientific models designed to predict and quantify climate change on regional or local scales limits the ability to assess potential future effects of projects.

Implementation of the Proposed Action may have the potential to result in an increase in GHGs. Neither MCAPCD nor Washoe County have set specific quantitative criteria for determining the significance of effects resulting from individual project GHG emissions. Due to the global nature of GHG emissions, California has undertaken statewide efforts to reduce these emissions. Many state actions are transportation related, specifically efforts to reduce vehicle miles traveled, improve vehicle gas mileage, and improve gasoline formulations. State and local initiatives are also addressing vehicle miles traveled by encouraging “smart growth” development, specifically encouraging mixed-use development that places goods, services, and facilities such as schools and recreational facilities closer to residential uses. Additional State and local actions focus on reducing energy use by improving building codes.

The Proposed Action consists of four Phase I and II juniper treatments where up to 899 acres of three sites would be broadcast burned using hand ignition. Assuming 80 percent consumption of the fuels on the ground and the canopy of the targeted junipers, and that fire will carry across 77 percent of the project area carbon emissions were estimated. The project area currently has an estimated 0.9 metric tons per acre of biomass consisting of juniper trees, shrubs, grasses, downed wood, litter and duff. The Proposed Action would result in consumption of approximately 0.5 metric tons of biomass per acre. The biomass consumed by the proposed prescribed fire would result in the direct emission of 0.9 metric tons per acre of carbon dioxide (assuming 0.5 metric tons of carbon per metric ton of biomass; and 3.7 metric tons of carbon dioxide per metric ton of carbon). Therefore, the Proposed Action would result in the direct emission of a total of 3,500 metric tons of carbon dioxide from the 1,613-acre project area from the broadcast burning.

Additionally a portion of the trees cut in all four sites would be piled on the stumps and burned. Assuming that that this activity would occur on 136 acres of Phase II juniper communities, that a maximum of 20 percent of the trees cut in these locations would be burned, and that the woody fuel loading is 1.0 metric tons per acre carbon emissions were estimated. The Proposed Action would result in the consumption of approximately 0.2 metric tons of biomass per acre. The biomass consumed by the proposed pile burning would result in the direct emission of 0.05 metric tons per acre of carbon dioxide (assuming 0.5 metric tons of carbon per metric ton of biomass; and 3.7 metric tons of carbon dioxide per metric ton of carbon). Therefore, the Proposed Action would result in the direct emission of a total of 6.8 metric tons of carbon dioxide from the 1,613-acre project area from the pile burning.

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that hand vegetative treatments, ongoing livestock grazing, wild horse range, recreational uses, or range management activities would result in or contribute to cumulative effects related to greenhouse gas emissions. Construction of the Ruby Pipeline Project was completed summer 2011. The operation of heavy equipment associated with pipeline excavation and construction activities may have resulted in negligible contributions to

greenhouse gas emission within the CAA. Implementation of mechanical vegetative treatments and off-highway vehicle use would result in negligible contributions to greenhouse gas emissions.

While the Proposed Action may involve future contribution of GHGs, including an estimated 6.8 metric tons of carbon dioxide related to prescribed fire treatments as analyzed above, these contributions would not substantially affect, independently or cumulatively, a phenomenon occurring at a global scale believed to be related to more than a century of human activities. Potential effects related to implementation of the Proposed Action are therefore considered negligible.

3.8.3 Direct, Indirect and Cumulative Effects of the No Action Alternative

Under the No Action Alternative, during an active wildfire, conventional direct attack methods may not be sufficient to suppress wildfires due to fuel loading and increased fire line intensities. Large-scale, high intensity wildfires would have the potential to result in increased and concentrated carbon dioxide emissions. These emissions would not be planned to occur within the constraints of existing regulatory requirements pertaining to air quality emissions and may coincide with other land use and management activities within the CAA also resulting in emission releases, and would therefore contribute to direct effects related to GHG emissions.

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that these actions would result in major contributions of GHG emissions. Cumulative effects related to the No Action Alternative are considered negligible.

3.8.4 Mitigation Measures

No mitigation is proposed.

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3.9 Livestock Grazing

3.9.1 Affected Environment

Agriculture, including ranching operations, ranks as one of the top three economic activities in the region of the Proposed Action. Grazing on public lands is an integral part of many of these ranching operations. Ranchers typically use public lands for three- to six-month periods while their base (private) property, is devoted to alfalfa and grass hay production for winter feed. Reductions in public land grazing disrupt this ranch/public land balance and will generally result in a decrease in the number of livestock a given ranch operation can support (USFS 2008).

All BLM-administered lands within the area of the Surprise Field Office are included in grazing allotments. Grazing lands throughout Modoc County are currently at capacity. The Action Area is located on lands within five grazing allotments, as shown in **Table 3.9-1**.

Table 3.9-1 — Grazing Allotments within the Action Area

Action Area Location	Grazing Allotment	Number of Permittees	Authorized
Barrel Springs Road	Nevada Cowhead	1	800 Cattle from 4/15 to 7/15 and 200 Cattle from 7/16 to 10/26 for a total of 2,880 Animal Unit Month (AUMs). Cattle are present in the Proposed Action Area for approximately two months each year and spend the remainder of the grazing season on other areas within the same allotment.
Bidwell Mountain	Lartirigoyen	1	55 Cattle from 4/16 to 10/31 for 360 AUMs
	West	3	14 Cattle from 5/1 – 6/15 for a total of 21 AUMs Exchange of Use (EOU); 177 Cattle from 5/1 – 6/15 for a total of 163 AUMs; and 8 Cattle from 5/1 – 6/15 for a total of 12 AUMs EOU
North Fandango	Fandango	2	46 Cattle from 6/16 – 7/15 for a total of 45 AUMs and 47 Cattle from 6/16 – 8/15 for a total of 94 AUMs
Vaughn Canyon	Upper Lake	1	50 Cattle from 5/1 to 7/30 and 9 Cattle from 8/1 to 9/30 for a total of 168 AUMs

Source: Surprise Field Office BLM 2011

3.9.2 Direct and Indirect Effects of Proposed Action

Treatments implemented as components of the Proposed Action would result in short-term effects to livestock grazing. Areas affected by proposed treatments would require exclusion and/or other management practices as necessary to facilitate revegetation to a stage where rangeland success criteria are met for the re-introduction of grazing practices. The exclusion of treatment areas from livestock grazing until vegetation is reestablished sufficiently to accommodate grazing, would result in short-term impacts to livestock grazing due to a loss of available acreage. However, long-term benefits are anticipated to include: soil stability and retention, elimination of noxious and invasive weeds, and rangeland health restoration characterized by productive vegetative communities dominated by perennial species. Short-term impacts to the livestock industry and the local livestock producers would occur; however, in summary, long-term productivity of the local livestock producers would be improved by the Proposed Action.

Grazing management practices would be required within the Action Area to prevent or minimize negative effects. Livestock grazing would be temporarily restricted within the Upper Lake Allotment for one growing season prior and two growing seasons after broadcast burning. Livestock grazing would also be temporarily restricted within the portions of the Fandango Allotment north of County Road 9 for one growing season prior, and two growing seasons after broadcast burning.

BLM would manage livestock grazing to achieve restoration objectives using rest periods and compliance with existing standards and guidelines that would determine the timing, duration, and intensity of grazing. Potential adverse effects related to livestock grazing are therefore not anticipated with implementation of the Standard Operating Procedures described in **Appendix C**. Potential effects related to livestock grazing resulting from implementation of the Proposed Action are considered minor.

3.9.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that hand and mechanical vegetative treatments, ongoing livestock grazing, wild horse range, recreational uses, off-highway vehicle use, range management activities or construction of the Ruby Pipeline Project (completed summer 2011) would result in or contribute to adverse cumulative effects related to livestock grazing.

BLM administers lands within and surrounding the Action Area to accommodate a number of objectives under the mixed-use principle, including livestock grazing. As BLM planning and management strategies focus on individual resources (i.e. fuels reduction and habitat restoration) there are resulting impacts to other resources (i.e. livestock grazing). However, implementation of proposed management activities by BLM, as well as other agencies and non-profit organizations, within the CAA ultimately fosters improved ecological diversity, resulting in improved ecological integrity and subsequent increased forage availability for livestock grazing where appropriate and allowed. If left unmanaged, native rangeland vegetation communities often experience a conversion to non-native and invasive species resulting from wildfire suppression, and disturbance related to adjacent land uses, as well as the development of grazing-related improvements. The changes in vegetative community composition often result in a reduction in forage density and productivity.

The Proposed Action would facilitate improved rangeland health within the Action Area, complementing restoration actions implemented on surrounding lands. Therefore, it is not anticipated that implementation of the Proposed Action would result in adverse cumulative effects to livestock grazing. Potential cumulative effects related to livestock grazing resulting from implementation of the Proposed Action are considered minor.

3.9.4 Direct and Indirect Effects of No Action Alternative

Excessive livestock grazing on lands administered by BLM through the SFO from the late 1800s through the 1930s resulted in significant changes to vegetative communities and productivity on a large portion of these lands. These effects have been compounded by effective fire

suppression, and as a result, rangelands in the area are degraded as a result of changes in vegetation community composition and distribution, and soil erosion, as well as the introduction and establishment of invasive annual grasses, dominated by cheatgrass.

If left unmanaged, native rangeland vegetation would continue to experience a conversion to non-native and invasive species, including cheatgrass and medusahead, as well as juniper, resulting in a reduction in vegetation and forage density and productivity, and ultimately long-term adverse effects to the grazing potential on these lands. The No Action Alternative would allow degraded rangelands to continue to decline, resulting in loss of forage productivity and the need to exclude livestock from greater areas to prevent further degradation. Rangeland productivity and overall health would continue to decline under the No Action Alternative. Potential effects related to livestock grazing under the No Action Alternative are considered moderate.

3.9.5 Cumulative Effects of No Action Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is possible that continued hand and mechanical vegetative treatments, ongoing livestock grazing, wild horse range, recreational uses, off-highway vehicle use, and/or range management activities could result in or contribute to adverse cumulative effects related to livestock grazing through ground disturbance and the potential spread and establishment of invasive plant species. Construction of the Ruby Pipeline Project was completed in summer 2011, and no additional ground disturbing activities are anticipated. However, it is possible that previous ground disturbing activities would have facilitated the potential spread and establishment of invasive plant species.

Federal grazing permits are an essential part of local ranch operations, and consequently the local economy of Modoc County. As rangeland health declines as a result of lack of management and restoration efforts, productivity and availability of grazing lands within the Action Area and surrounding lands would continue to decline, requiring additional resources from local ranch operations and potentially making ranching infeasible for some operators. Potential cumulative effects related to livestock grazing under the No Action Alternative are considered moderate.

3.9.6 Mitigation Measures

No mitigation is proposed.

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3.10 Native American Religious Concerns

3.10.1 Affected Environment

Native American religious concerns are defined under various authorities including Federal Land Policy and Management Act (FLPMA), the American Indian Religious Freedom Act, Executive Order 13007, Native American Graves Protection and Repatriation Act (NAGPRA), and National Historic Preservation Act (NHPA). Under these authorities, federal agencies have the responsibility for managing Native American resources by considering them in land use planning and environmental documentation. These resources are generally defined as places or resources, such as plants and animals, associated with cultural practices or beliefs of a living community that are rooted in a tribal community's oral traditions or history, and are important in maintaining the continuing cultural identity of the community. Where possible, impacts on places or resources important to contemporary Native Americans and federally recognized tribes should be mitigated. From a practical perspective, this means identifying, evaluating, and managing ethnohistoric sites and resources, traditional use areas, sacred and ceremonial sites, and Traditional Cultural Properties (TCPs).

Since tribal heritage resources are defined culturally by the people and groups that value them, these resources can be identified and managed only in consultation with the people infusing them with cultural value. In the final analysis and decision-making, a federal agency has the legal authority to determine how these resources would be managed and what, if any, mitigation would be used to avoid undue and unnecessary impacts on these resources.

Ethnographic information indicates that Northern Paiute occupied the project area. Their philosophy and lifeways are dominated by the concept of living in harmony with the natural environment. Rituals and ceremonies are performed to ensure that plants, animals, and physical elements flourish. Continued welfare of the Northern Paiute people depends on these rituals and ceremonies being performed properly and the resources being available. The manner of performing the rituals and ceremonies, the places at which they are performed, and perhaps even the time of their performance are often prescribed.

Religious expression takes several primary forms including ceremonies, individual prayer, and use of power spots for vision questing, curing, and doctoring. The most frequent form of expression is the individual prayer. Prayers are made to the spirits and were especially important in connection with places where spirits may live or places regarded as power spots.

The concept of Spirit Power or Puha in Northern Paiute, and its impact on places, people, or events provide the basis for understanding the nature and distribution of places important to Northern Paiute people. As described in Fowler (1992; Fowler and Liljeblad 1986, d'Azevedo 1986b) the Northern Paiute believe that the universe is a living thing, in which everything has differing amounts of Puha. The amount or intensity of Spirit Power can change through time and across space in ways that cause events, or allow individuals or groups to do things. Important events happen at particular places because those places have more Puha than others. Important people arise because they have high Puha relative to others, and important groups arise because they have relatively high Spirit Power. Conversely people and places can lose origin locations, or prominent geographic points, such as mountain peaks, waters, especially lakes, rivers, and hot springs, and ceremonial sites.

Sacred Geography

Mountain ranges incorporate mountain peaks and caves. These allow mountains to gather and hold Spirit Power and are important tribal heritage resources throughout the Salt Wells region. Mountains host resources, such as pinyon and stream origins, that are essential to survival. All mythological origin points and creation sites of the region are found at mountain peaks (Fowler 1992). Shamans, doctors, and others seeking supernatural power would find it in mountain caves, and ordinary people went to caves to leave offerings soliciting supernatural help (Fowler 1992).

Waters

Water figures prominently in origin stories and other mythology. Lakes, rivers, major springs, and especially hot springs are centers for shamanistic, medicinal, and ceremonial activities. Shamans, mythological heroes, and mythological villains travel along water (Spirit Power) networks and use them to communicate with the spirit world. People also make offerings at springs and other waters to gain favor with spirit beings (Fowler 1992).

Water babies are small very powerful spirit beings who inhabit deep-water sources, such as major springs, rivers, and lakes (Fowler 1992). They are a source of power for doctors and shamans but can hurt ordinary people (Fowler 1992). Water babies make water flow and an active water source would dry up if they abandon it (Fowler 1992). As water baby habitat, Lake Tahoe, Lake Pyramid, Walker, Soda, and Mono Lakes are sacred, as are the Truckee, Carson and Walker Rivers (Fowler 1992). Because the water in hot springs is heated deep within the earth, hot springs are water baby habitat and thus considered sacred by the Northern Paiute. Marshes and small seeps and springs are too shallow to support water babies and are generally not considered to be strong Spirit Power sources.

Ceremonial Sites

Among the Northern Paiute (Fowler 1992; Bengston 2003) there are places with high Spirit Power where shamans and healers do their work and where ordinary people go to connect with the supernatural. Such places include rock art sites, caves and springs where individuals gain Spirit Power, dance sites, doctor (or medicine) rocks, hot and cold springs, and places where objects have been ritually placed (Bengston 2003). Some of these places contain physical evidence of use; others do not. Shamanistic rock sites are of particular importance to Northern Paiute and are used as prayer/offering places to seek medicinal relief or supernatural favors (Fowler 1992). The rocks themselves usually have numerous cupules pecked into them and have small offerings (coins, bullets, notes, buttons, etc.) left on or near them.

Traditional Cultural Properties

Traditional cultural properties (National Register Bulletin 38) refer to a properties that may be eligible for inclusion on the National Register of Historic Places (NRHP) because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and that are important in maintaining the continuing cultural identity of the community. Properties of traditional religious and cultural importance to an Indian tribe maybe determined to be eligible for inclusion on the National Register. Although the term TCP is not found in the NHPA or its implementing regulations, TCPs are considered when determining National Register eligibility and compliance with Section 106 of the NHPA. The concept of

TCP is used here only when tribes have specifically identified a resource as a TCP.

3.10.2 Direct and Indirect Effects of Proposed Action

BLM consultation with the Summit Lake Paiute Tribe was initiated by Julie Rodman, Archaeologist, Bureau of Land Management, on June 18, 2011. The Summit Lake Paiute Tribe does not object to the Proposed Action and has not expressed any Native American religious concerns. The Fort Bidwell tribe declined to participate in tribal consultation (Rodman 2011). Therefore implementation of the Proposed Action would not affect Native American religious concerns.

3.10.3 Cumulative Effects of Proposed Action

Although no Native American religious concerns have been identified within the Action Area, the possibility exists that Native American religious concerns may be relevant within the CAA. Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. BLM-initiated activities would be subject to the requirements for consultation with relevant tribal governments. Activities occurring on private lands would have the potential to contribute to cumulative effects to Native American religious concerns if resources are present. Construction of the Ruby Pipeline Project occurred within the conditions stipulated by the entitlements required for project construction, based on the results of preliminary technical studies evaluating the project's potential to affect resources. The implementation of project-specific mitigation measures would be required in order to minimize the potential for adverse effects resulting from project development.

Past, present and future foreseeable actions within the CAA may result in cumulative effects to Native American religious concerns where these resources are present. However, no Native American religious concerns have been identified within the Action Area; implementation of the Proposed Action would therefore not contribute to cumulative effects to these resources.

3.10.4 Direct and Indirect Effects of No Action Alternative

No Native American religious concerns have been identified within the Action Area; therefore no adverse effects would result from the No Action Alternative.

3.10.5 Cumulative Effects of No Action Alternative

Although no Native American religious concerns have been identified within the Action Area, the possibility exists that Native American religious concerns may be relevant within the CAA. Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. BLM-initiated activities would be subject to the requirements for consultation with relevant tribal governments. Activities occurring on private lands would have the potential to contribute to cumulative effects to Native American religious concerns if resources are present. The construction of the Ruby Pipeline Project was implemented under the conditions stipulated by the entitlements required for project construction, based on the results of

preliminary technical studies evaluating the project's potential to affect resources. The implementation of project-specific mitigation measures would be required in order to minimize the potential for adverse effects resulting from project development.

Under the No Action Alternative, past, present and future foreseeable actions within the CAA may result in cumulative effects to Native American religious concerns where these resources are present.

3.10.6 Mitigation Measures

No mitigation is proposed.

3.11 Noxious Weed Species

3.11.1 Affected Environment

The BLM defines a weed as a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition and diversity of the site it occupies. The presence of weeds results in deterioration in the health of a site, it makes efficient use of natural resources difficult, and it may interfere with management objectives for that site. It is an invasive species that requires a concerted effort (manpower and resources) to remove from its current location, if it can be removed at all. Invasive species are defined as an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. “Noxious” weeds refer to those plant species which have been legally designated as unwanted or undesirable. This includes national, State and county or local designations.

Known noxious weeds within the Surprise Valley Watershed and the Warner Lakes Watershed include:

<i>Cirsium vulgare</i>	Bull thistle
<i>Cirsium arvense</i>	Canada thistle
<i>Isatis tinctoria</i>	Dyer’s woad
<i>Salvia aethiopsis</i>	Mediterranean sage
<i>Taeniatherum caput-medusae</i>	Medusahead
<i>Lepidium latifolium</i>	Perennial pepperweed
<i>Acroptilon repens</i>	Russian knapweed
<i>Onopordum acanthium</i>	Scotch thistle
<i>Centaurea solstitialis</i>	Yellow starthistle

Adjoining Cooperative Weed Management Areas (CWMA) are participants in a Memorandum of Understanding with BLM in an effort to coordinate noxious weed abatement efforts.

Within the Action Area, extensive noxious weed populations within the proposed treatment areas are mostly not apparent, with only minimal infestation in the area associated with the access road within the Barrel Springs Road treatment area. The general remoteness of the treatment areas appears to be the primary reason for relatively undisturbed conditions.

3.11.2 Direct and Indirect Effects of Proposed Action

Disturbances within the Action Area related to implementation of proposed treatments could facilitate the introduction, establishment, and/or spread of invasive non-native plants and noxious weeds. The combination of a reduction of shade, exposure of mineral soil, and flush of nutrients resulting from fire is conducive to promoting colonization of a wide variety of invasive or noxious weeds. These invasive species not only effectively out compete native species for resources, but also contribute to changes fire seasonality, facilitating fire during the active growing season for native perennials (Whisenant 1990).

Ground or surface soil disturbance provides an environment conducive to the establishment of invasive and noxious weeds. Proposed mechanical treatments implemented on 140 acres within the Vaughn Canyon treatment area may facilitate the establishment of invasive or noxious weeds through ground disturbance or by transport on contaminated equipment. Proposed conservation

measures would minimize potential transport of noxious weeds to or from proposed treatment areas by requiring equipment to be pressure washed prior to transport in or out of proposed treatment areas. Hand treatments would result in relatively small, localized areas of soils disturbance. Mechanical treatments would target juniper, while retaining the shrub and herbaceous undergrowth, and therefore not resulting in disturbance or damage to the root systems and runners of native perennial vegetation. It is anticipated that native vegetation would re-establish within areas of disturbance relatively quickly in areas resulting from hand treatments. All vegetation manipulation areas will be managed following treatment to ensure that noxious and invasive weeds do not become established per BLM standards.

Although mechanical and hand treatments would not be expected to result in the establishment of noxious weeds, susceptibility would potentially increase in areas of prescribed fire. Proposed conservation measures include provisions for monitoring and managing disturbed areas to prevent the establishment and colonization of noxious weeds, in addition, all equipment would be required to be washed prior to transport in or out of the Action Area.

In the short-term, implementation of the Proposed Action may increase the risk of noxious weed introduction and spread. However, BLM management and restoration efforts, including implementation of Standard Operating Procedures described in **Appendix C** would prevent or minimize potential negative effects. The long-term effects of reducing fire risk and intensity, combined with reducing juniper encroachment into adjacent plant communities and juniper canopy cover densities would facilitate restoration of ecological diversity through the restoration and enhancement of a mosaic of vegetative communities and early seral stages, ultimately resulting in an ecological community capable of effectively resisting invasion from noxious and invasive weeds. Potential effects related to noxious weeds resulting from implementation of the Proposed Action are considered minor.

3.11.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that recreational activities or rangeland management activities including exclusion fencing, would result in cumulative effects related to noxious weeds.

Areas of wild horse range, areas used off-highway vehicle use, and disturbed areas within the construction area of the Ruby Pipeline Project may be susceptible to establishment and spread of noxious weeds within areas of disturbed ground. However, in comparison to the area encompassed by the Action Area (1,613 acres), these areas would represent small contributions to potential cumulative effects within the over 1.3 million acre CAA.

Future wildfire events within the Action Area are anticipated, as are additional fuels management activities and livestock grazing. Pre-existing infestations of noxious weeds may be discovered and eradication or control actions would be initiated. Similar effects could be expected in the Action Area following proposed or future unplanned disturbances due to the spread and establishment of adjacent undetected noxious weed populations outside of the Action Area, but within the CAA. With implementation of planned disturbances such as mechanical treatments or

other treatment methods, the identification of, and subsequent application of Best Management Practices (BMPs) for noxious weed infestations prior to disturbance would be possible. Implementing the Proposed Action may improve the ability of native vegetation communities to resist noxious weed and invasive species establishment through the development of a more vigorous, diverse and productive ecosystem. In addition, implementing individual treatments over time would reduce the potential of invasions from noxious weeds or invasive species over a large area. Potential cumulative effects relate to noxious weeds resulting from implementation of the Proposed Action are therefore considered negligible.

3.11.4 Direct, Indirect and Cumulative Effects of No Action Alternative

Future wildfire events within the CAA are anticipated, as are additional fuels management activities and livestock grazing. Each of these actions implemented within the Action Area, as well as within surrounding lands would have the potential to facilitate the establishment of noxious and invasive weed populations. Pre-existing, yet undetected stands of noxious weeds may be discovered and eradication or control actions would be initiated per BLM protocols. Similar effects could be expected in the Action Area following proposed or future unplanned disturbances due to the spread and establishment of adjacent undetected noxious weed populations outside of the Action Area. Under the No Action Alternative, noxious weeds populations may eventually increase within the Action Area, particularly along traveled roads, but populations may also potentially spread into areas of bare soil resulting from juniper encroachment. In addition, understory species in sagebrush and woodland sites declining as a result of juniper encroachment may not be able to resist noxious weed and invasive species establishment following a natural disturbance (i.e. wildfire) due to the lack of vigor and diversity in desirable, native perennial grasses and forbs. Ongoing increased densities in woodland canopy cover would also increase the potential severity and intensity of future wildfires, indirectly providing potentially expansive areas for noxious weeds and invasive species establishment following a wildfire event. Potential effects related to noxious weeds resulting from the No Action Alternative are considered moderate.

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project (completed summer 2011). It is not anticipated that recreational activities or rangeland management activities including exclusion fencing, would result in cumulative effects related to noxious weeds.

Areas of wild horse range, areas used off-highway vehicle use, and disturbed areas within the construction area of the Ruby Pipeline Project maybe susceptible to infestations of noxious weeds due to areas of disturbed ground. However, these areas would represent small contributions to potential cumulative effects within the CAA.

3.11.5 Mitigation Measures

No mitigation is proposed.

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3.12 Recreation

3.12.1 *Affected Environment*

Public Recreation activities within the Action Area include dispersed primitive camping, hiking, fishing, photography, rock hounding, fossil hunting, mountain biking, horseback riding, and sightseeing. Peak seasons for recreational use include spring, summer, and fall, with the highest number of visitors during Memorial Day weekend, Fourth of July, and opening day of antelope, deer, and upland game hunting seasons. Recreational values offered by the Action Area include quiet solitude, scenery, and the perception of rugged untamed country (BLM 2007).

A large segment of the Barrel Springs Backcountry Byway crosses the Surprise Valley Watershed, while the northernmost portion of the Byway extends across the Warner Lakes Watershed.

3.12.2 *Direct and Indirect Effects of Proposed Action*

Hand treatments would either have no effect or a negligible effect on recreation resources due to the low number of acres that would be treated annually as well as the limited area of effect. Mechanical treatments would generate noise, traffic, and dust. Prescribed fire would result in visual effects, as well as possibly the smell of smoke during and immediately after prescribed burning. Fire may also result in a temporary decline in wildlife populations within individual treatment areas.

Direct effects from all alternatives would include increased noise, dust, and traffic along roads used to access units during mechanical treatment or prescribed burning. Since the majority of the acres treated would involve prescribed burning, the effects of increased noise, dust and traffic along roads would be short-term. However, these effects would only temporarily alter recreation settings, and would be short-term in nature. If treatments occur in areas where undesignated recreation sites occur, such as those associated with recreational hunting, additional effects may include temporary loss of recreation use for these types of recreation use.

Indirect effects for all alternatives would include changes in views from scenic byways or viewpoints. Effects to views from scenic byways or viewpoints would be both adverse (short-term) and beneficial (long-term). However, as discussed in detail in **Section 3.15**, with implementation of proposed mitigation measures, effects related to visual resource management would be minor.

Implementation of the Proposed Action project would result in short-term effects, ultimately leading to long-term benefits. Habitat restoration would facilitate re-establishment of stands of grasses, forbs and shrubs in varying seral stages, more typical of the sagebrush-steppe ecosystem, and would subsequently support more upland birds and deer; providing for enhanced scenic quality, as well as recreational hunting opportunities and improved wildlife viewing opportunities.

Appendix C describes Standard Operating Procedures proposed to reduce potential effects to recreation resources resulting from implementation of the Proposed Action. Short-term effects to recreation resources from restoration activities such as noise, dust and traffic would not result in a loss of long-term productivity of those resources to support future recreation use. All effects

to recreation resources would be short-term and consistent with the SSER FEIS and SFO RMP FEIS. Implementation of the Proposed Action would not result in unavoidable adverse effects to recreation resources. Potential effects related to recreation resulting from implementation of the Proposed Action are considered minor.

3.12.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project.

Habitat restoration and fuels reduction treatments proposed by BLM within the Action Area, in combination with land uses and management actions proposed on surrounding lands within the CAA would have the potential to result in modifications to existing natural resources and recreational opportunities provided by these resources. Proposed management actions would affect recreational resources during implementation over a short duration and would be temporary by nature; however, as a result of these management actions, recreational opportunities and the visual quality of the region would improve as ecosystems are restored. Implementation of the Proposed Action, in combination with reasonable foreseeable activities within the CAA would not result in substantial cumulative effects related to recreation. Potential cumulative effects related to recreation resulting from implementation of the Proposed Action are considered minor.

3.12.4 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, juniper canopy cover would continue to increase in density across former sage-steppe ecosystems resulting in increased bare soils, declining soil, moisture and potential colonization of noxious or invasive weeds. Juniper would continue to encroach into adjacent habitats, displacing a diverse assemblage of vegetative species. The direct effects of these changes in habitat would result in a decline in natural resources available to promote viable diverse populations of vegetation, as well as wildlife. Recreation activities within the Action Area rely on these natural resources and associated ecosystems as the mechanism for enjoyment. Hunting, fishing, sight-seeing, hiking and other recreational opportunities within the Action Area depend on a successful and diverse ecosystem. The decline in vegetative diversity and wildlife populations would lead to a decline in recreational appeal within the Action Area, and the subsequent reduction of recreational users, resulting in localized effects as a result of lack of opportunity, but also increasing demand for additional recreational opportunities within the region. Potential effects related to recreation resulting from the No Action Alternative are considered moderate.

3.12.5 Cumulative Effects of No Action Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, or the previous construction of the Ruby Pipeline Project would result in cumulative effects related to

recreation.

Under the No Action Alternative, juniper canopy cover would continue to increase in density across former sage-steppe ecosystems resulting in increased bare soils, declining soil, moisture and potential colonization of noxious or invasive weeds. Juniper would continue to encroach into adjacent habitats, displacing a diverse assemblage of vegetative species. The effects of these changes, in combination with reasonably foreseeable management actions on surrounding lands within the region, would potentially result in increased resources required to implement land management on these surrounding lands to maintain and or improve habitats within these lands. Lands within the Action Area would harbor increased juniper densities and facilitate juniper encroachment on surrounding lands, potentially resulting in the perpetuation of an assortment of undesirable ecological characteristics, as well as wildfire potential, resulting in the degradation of recreational resources and opportunities within the region and the potential for substantial cumulative effects to Recreation resources. Potential cumulative effects related to recreation resulting from the No Action Alternative are considered moderate.

3.12.6 Mitigation Measures

No mitigation is proposed.

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3.13 Soils

3.13.1 Affected Environment

Soils mapped within the Action Area include the following map units by treatment area, based on the 2006 Natural Resource Conservation Service (NRCS) Surprise Valley/Home Camp Soil Survey and the 1999 Soil Survey of Washoe County, Nevada North Part, as well as 2005 SSURGO Digital Soil Survey Data for Modoc and Washoe Counties.

Vaughn Canyon

As shown on **Figure 3.13-1**, soil map units identified within the proposed Vaughn Canyon treatment area include: 352, Crazybird-Warnermount association, and 452, Lyonman gravelly ashy sandy loam, 4 to 30 percent slopes. These soil map units are generally characterized by shallow to moderately deep, well-drained very gravelly, ashy loamy soils on mountains, derived from Volcanic parent materials. Erosion hazards for these soils range from moderate to severe.

North Fandango

As shown on **Figure 3.13-2**, soil map units identified within the proposed North Fandango treatment area include: 352, Crazybird-Warnermount association, 381, Donica gravelly ashy sandy loam, 15 to 30 percent slopes, 382, Donica gravelly ashy sandy loam, 30 to 50 percent slopes, 451, Lyonman gravelly ashy sandy loam, 30 to 50 percent slopes, 452, Lyonman gravelly ashy sandy loam, 4 to 30 percent slopes, and 559, Schamp stony loam, 30 to 50 percent slopes. These soil map units are generally characterized by shallow to deep, well- to excessively-drained, very gravelly, ashy loamy soils on mountains, derived from Volcanic parent materials. Erosion hazards for these soils range from moderate to severe.

Bidwell Mountain

As shown on **Figure 3.13-3** soil map units identified within the proposed Bidwell Mountain treatment area include: 520, Paynepeak-Pyropatti-Fingerridge association, and 584, Warnermount-Burningman association. These soil map units are generally characterized by moderately deep to deep, well-drained extremely cobbly ashy sandy loamy and gravelly ashy loam soils on mountain slopes, derived from Volcanic parent materials. The erosion hazard for these soils is moderate.

Barrel Springs Road

As shown on **Figure 3.13-4**, soil map units identified within the proposed Barrel Springs Road treatment area include: 1165, Devada-Nitpac-Bidrim association, 1170, Devada-Bucklake association, 1175, Ferver-Tunnison association, and 1367, Dosie-Fiddler-Rubble land association. These soil map units are generally characterized by shallow to moderately deep, well-drained very gravelly loam, very cobbly loam and very cobbly silt loam, soils along plateaus. These soils are derived from Volcanic parent materials. Erosion hazards for these soils range from moderate to severe, with an erosion hazard rating of slight for the Ferver-Tunnison association.

Figure 3.13-1 — Vaughn Canyon Soils

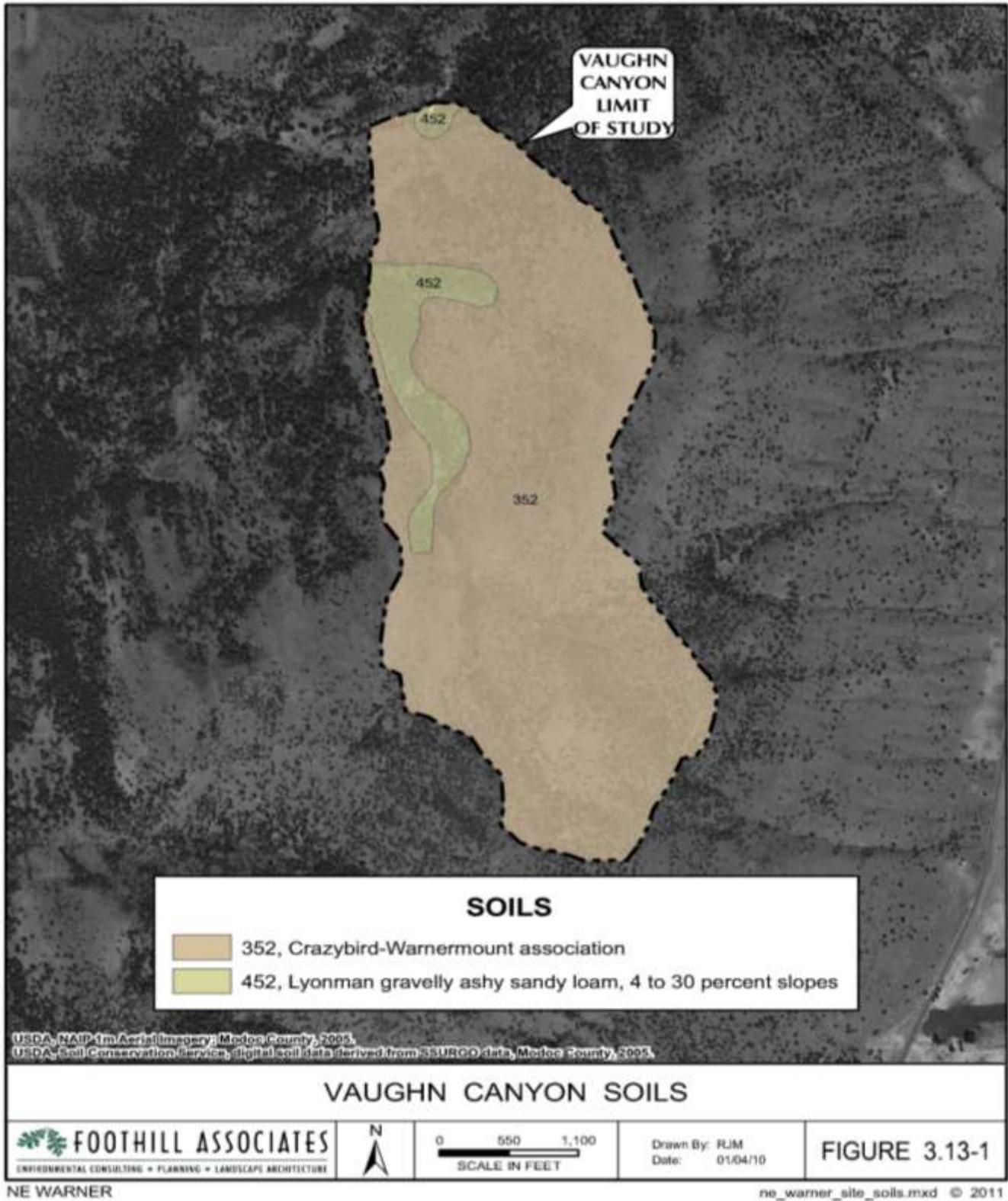


Figure 3.13-2 — North Fandango Soils

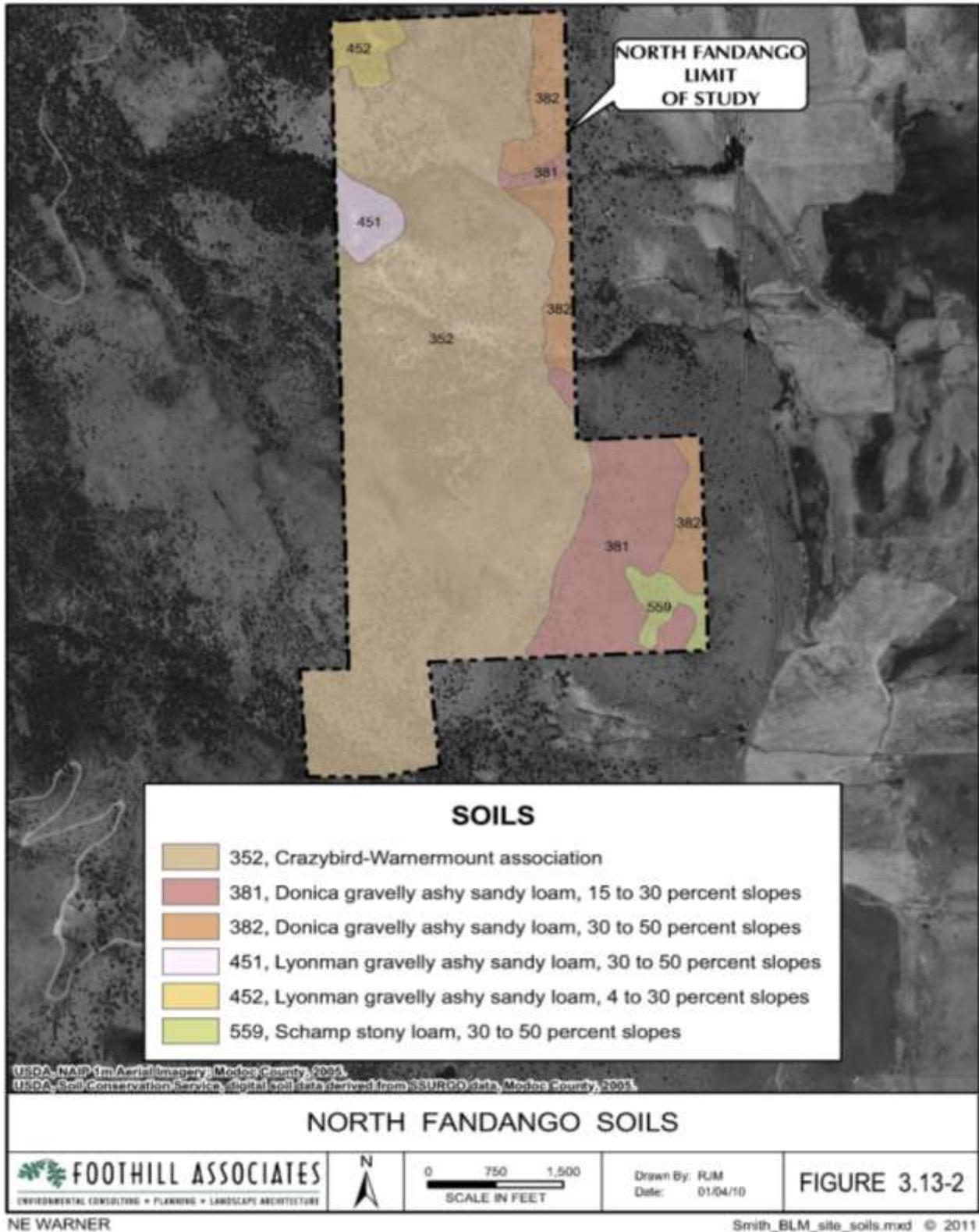
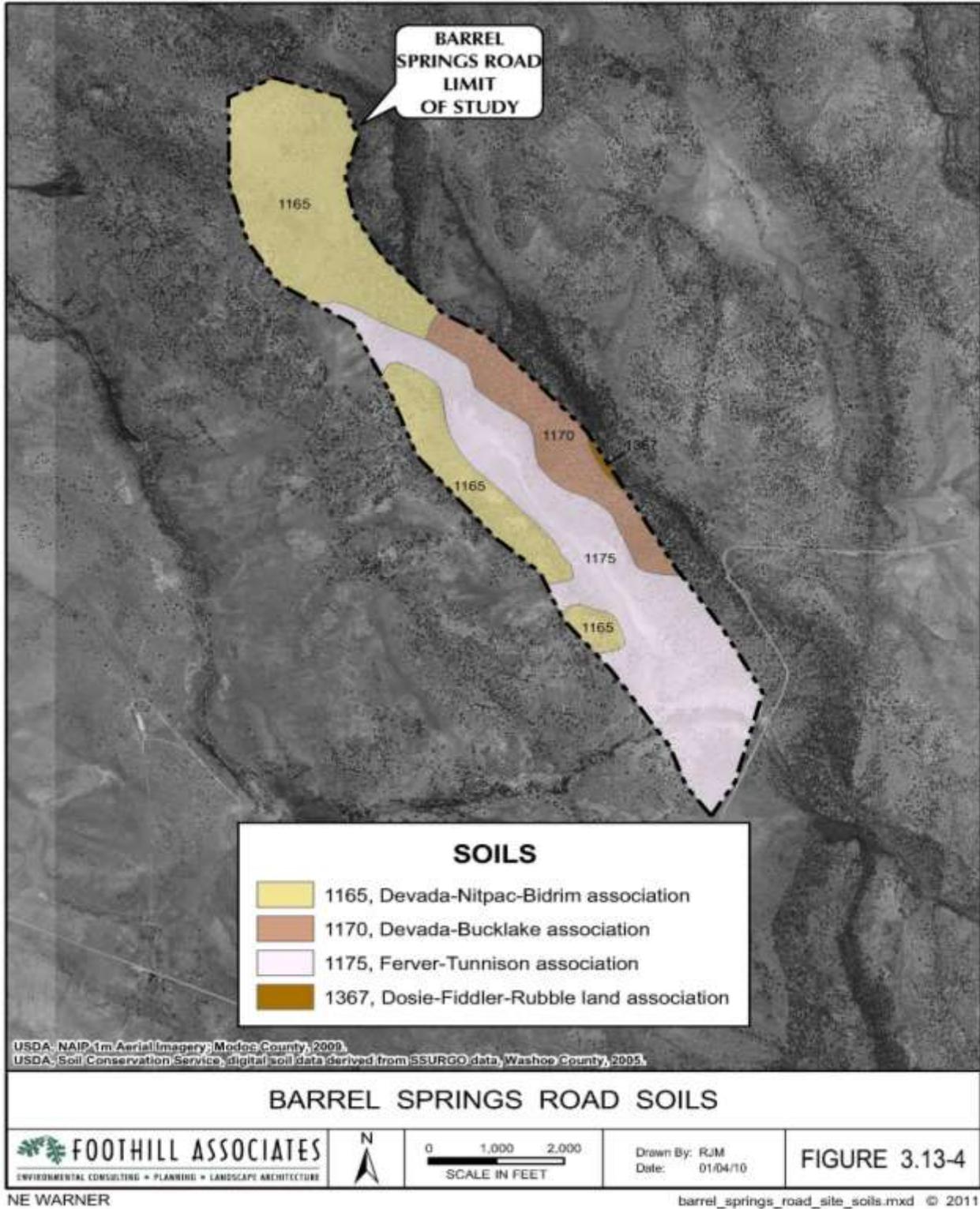


Figure 3.13-3 — Bidwell Mountain Soils



Figure 3.13-4 — Barrel Springs Road Soils



3.13.2 Direct and Indirect Impacts of Proposed Action

Implementation of the Proposed Action would result in ground disturbance within the Action Area. Mechanical treatments within 140 acres proposed in the Vaughn Canyon treatment area (0.001 percent of the CAA) and the construction of temporary roads and landings would create areas of ground disturbance, that if not properly managed could result in erosion and sediment loss, facilitating an overall decline in soil stability and hydrologic functions, as well as soil productivity. Action Area soils are generally characterized by a moderate to severe potential for erosion.

Proposed treatments, including prescribed burning, mechanical treatment, and temporary road construction could result in short-term adverse effects to soil resources, including compaction and decreased infiltration, erosion and sediment loss. However, Standard Operating Procedures described in **Appendix C** would minimize adverse affects. In the long-term, it is anticipated that proposed treatments will result in improved soil stability and hydrologic function for the long-term benefit of soil resources.

Potential effects to water quality resulting from erosion and sediment loss are discussed in detail in **Section 3.16**.

Potential effects to soil resources resulting from implementation of the Proposed Action are considered negligible. It is anticipated that implementation of the Proposed Action would result in long-term benefits to soil resources within the Action Area.

3.13.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as remnant areas of disturbance related to the Ruby Pipeline Project. It is not anticipated that recreational use within the CAA will substantially contribute to cumulative adverse effects related to soils.

BLM will continue to manage lands used for livestock grazing, wild horse range, and other rangeland management activities to minimize the potential for adverse effects related to soils. Surrounding lands within the CAA may be susceptible to adverse effects related to soils (erosion and sediment loss) due to a lack of proper management. This lack of management on surrounding lands would contribute to cumulative effects to soil resources within the CAA.

Off-highway vehicle use within the CAA would contribute to adverse cumulative effects related to soils.

Post-construction Best Management Practices (BMPs) associated with the Ruby Pipeline Project are subject to compliance with the National Pollution Discharge Elimination System, and would be required to implement, monitor, and maintain effective BMPs related to erosion and sediment control. It is not anticipated that the Ruby Pipeline Project would contribute to cumulative adverse effects related to soils.

Implementation of the Proposed Action would contribute to erosion and sediment loss within the

Action Area during and immediately following proposed treatments on approximately 1,200 acres (approximately 0.09 percent of the CAA). This contribution may be exacerbated by management actions on surrounding lands within BLM administered lands, as well as lands administered by other agencies and entities within the CAA. It is anticipated that BLM would continue to coordinate management activities with surrounding stakeholders to minimize potential cumulative effects of proposed management actions. Potential adverse effects related to soil resources resulting from implementation of the Proposed Action would be short-term and temporary. Implementation of the Proposed Action would result in long-term benefits to the Action Area, potentially facilitating and complementing proposed restoration on surrounding lands as well. Potential cumulative effects to soil resources related to implementation of the Proposed Action are considered negligible.

3.13.4 Direct and Indirect Impacts of No Action Alternative

Under the No Action Alternative, proposed restoration treatments involving ground disturbing activities and prescribed fire would not be implemented. However, the risk of soil disturbance and accelerated erosion following a large-scale wildfire would increase as fuels continue to accumulate over time. Areas of bare ground beneath juniper woodland canopies would expand and increase the potential for surface erosion and sediment loss.

Soil productivity within the Action Area would decline as a result of increased juniper densities and the associated loss of the native shrub/perennial grass ground cover. Soil surface layers may degrade as organic matter, nutrients, and shrub and perennial grass cover are depleted. Potential effects related to soil resources resulting from the No Action Alternative are considered moderate.

3.13.5 Cumulative Impacts of No Action Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project (completed summer 2011). It is not anticipated that recreational use within the CAA will substantially contribute to cumulative adverse effects related to soils.

BLM will continue to manage lands used for livestock grazing, wild horse range, and other rangeland management activities to minimize the potential for adverse effects related to soils. Surrounding lands within the CAA may be susceptible to adverse effect related to soils due to a lack of proper management. This lack of management on surrounding lands would contribute to cumulative effects within the CAA.

Off-highway vehicle use within the CAA would contribute to adverse cumulative effects related to soils resulting in areas of erosion and sediment loss.

Construction activities associated with the Ruby Pipeline Project would have been subject to compliance with the National Pollution Discharge Elimination System, and would be required to implement, monitor, and maintain effective Best Management Practices related to erosion and sediment control. It is not anticipated that the Ruby Pipeline Project would contribute to cumulative adverse effects related to soils.

The risk of soil damage and accelerated erosion following a large-scale wildfire would increase as fuel accumulates over time. Bare ground beneath juniper woodland canopies would increase over time and risk of surface erosion would increase. The potential decline in soil stability and productivity would have the potential to adversely affect surrounding lands and watersheds resulting in cumulative effects to soil resources. Potential cumulative effects related to soil resources resulting from the No Action Alternative are considered moderate.

3.13.6 Mitigation Measures

No mitigation is proposed.

3.14 Vegetation, Including Threatened and Endangered Plant Species

3.14.1 Affected Environment

The Action Area is inhabited by a variety of vegetative resources including terrestrial and aquatic plant species including BLM sensitive species. The following sections describe habitats and vegetation species present within the Action Area. Wildlife communities are discussed in greater detail in **Section 3.18**.

Primary Habitats

Major habitat types are largely synonymous with the wildlife communities described in **Section 3.18** and include: big sagebrush, low sagebrush, juniper woodland, timber, bitterbrush, and wetland meadows, with important habitat inclusions including curleaf mountain mahogany, intermittent and ephemeral drainages, and riverine seasonal wetlands. Wildlife composition of these habitat types and inclusions are discussed in further detail in **Section 3.18**. The Action Area encompasses 1,613 acres in northeastern California and western Nevada dominated by big sagebrush and low sagebrush habitats. Terrestrial habitat types and acreages within the Action Area are summarized by treatment area in **Table 3.14-1**.

Table 3.14-1 — Terrestrial Habitat Types by Treatment Area

Treatment Area	Major Habitat Types (acres)				Inclusions ² (acres)		
	Big Sagebrush ³	Low Sagebrush	Antelope Bitterbrush	Timber	Curleaf Mountain Mahogany	Mixed Juniper Riparian Woodland	Aspen
Vaughn Canyon	126.60	160.93 ⁴	-	-	-	-	0.98
North Fandango	436.82	-	124.77	14.07	-	2.35 (14.05 Riparian)	6.05
Bidwell Mountain	121.86	62.85	-	-	8.30	-	-
Barrel Springs Road	73.99 ⁵	457.28	-	-	-	-	-

² Aquatic, wetland, and open water community acreages are not included in this table, as a formal delineation of waters of the United States was not conducted for this project. The larger areas of potential waters of the United States are included on **Figure 3.14-1 through Figure 3.14-4**.

³ Juniper woodland is a large component of this habitat type to greater or lesser degrees depending on the treatment area. The aerial photographs in **Figure 3.14-1 through Figure 3.14-4** clearly show the encroachment of juniper woodland in the big sagebrush habitats. **Figure 3.14-1 through Figure 3.14-4** also show habitat subcategories (e.g. mountain big sagebrush), and those are all grouped in this table.

⁴ This habitat type in this treatment area (160.93 acres) is actually a hybrid, and is mapped as a combination of low sagebrush and bitterbrush (**Figure 3.14-1**).

⁵ 71.59 acres of this habitat type are actually a combination of low sagebrush and Wyoming big sagebrush in this treatment area (**Figure 3.14-4**).

Vegetation Communities

Big Sagebrush

Big sagebrush (*Artemisia tridentata*) vegetation includes mountain, Wyoming, and basin sagebrush associations. Sagebrush plants are very well adapted to living in xeric climates and generally tend to out-compete other plants within three times the size of their crown. As a result, the sagebrush habitat often grows uniformly and exclusively depending on topography, soil composition, and moisture. Other shrub species with similar adaptations also occur, including bitterbrush (*Purshia tridentata*), rabbitbrush (*Chrysothamnus nauseosus*), and curleaf mountain mahogany (*Cercocarpus ledifolius*); or herbaceous species such as Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoregneria spicata*), penstemons (*Penstemon* spp.), paintbrushes (*Castilleja* spp.), balsamroots (*Balsamorhiza* spp.), and lupines (*Lupinus* spp.).

Big sagebrush (including mountain, Wyoming, and basin associations) occurs interspersed on approximately 43 acres of the North Fandango treatment area, while mountain sagebrush occurs on approximately 393 acres. Mountain sagebrush occurs on 127 acres of the Vaughn Canyon treatment area, and 122 acres of the Bidwell Mountain treatment area. A combination of big sagebrush associations occurs on 72 acres of the Barrel Springs Road treatment area (**Figure 3.14-1 through Figure 3.14-4**). Habitat type inclusions within sagebrush vegetation zones include seasonally and perennially wet meadows, intermittent and ephemeral drainages, curleaf mountain mahogany, aspen, and juniper woodland.

Low Sagebrush

Low sagebrush (*Artemisia arbuscula*) vegetation includes early, Lahontan, and black sagebrush associations. In general, low sagebrush occurs on open, rocky soils (and supports a wider diversity of native herbaceous species. Species such as bitterroot (*Lewisia* spp.), phacelia (*Phacelia* spp.), phlox (*Phlox* spp.), wild onion (*Allium* spp.), and locoweed (*Astragalus* spp.) thrive in these open low sagebrush habitats.

Low sagebrush (including all associations) occurs within approximately 63 acres of the Bidwell Mountain treatment area and within 233 acres of the Barrel Springs Road treatment area, while a combination of low sagebrush and juniper occurs within 224 acres of the Barrel Springs Road treatment area. A combination of low sagebrush and bitterbrush occurs on the 161 acres of the Vaughn Canyon treatment area, while bitterbrush covers 125 acres of the North Fandango treatment area (**Figure 3.14-1 through Figure 3.14-4**). Habitat inclusions identified within low sagebrush vegetation communities include: bitterbrush, early Lahontan, black sagebrush, and rabbitbrush, as well as intermittent and ephemeral drainages and wet meadows.

Figure 3.14-1 — Vaughn Canyon Vegetation Communities

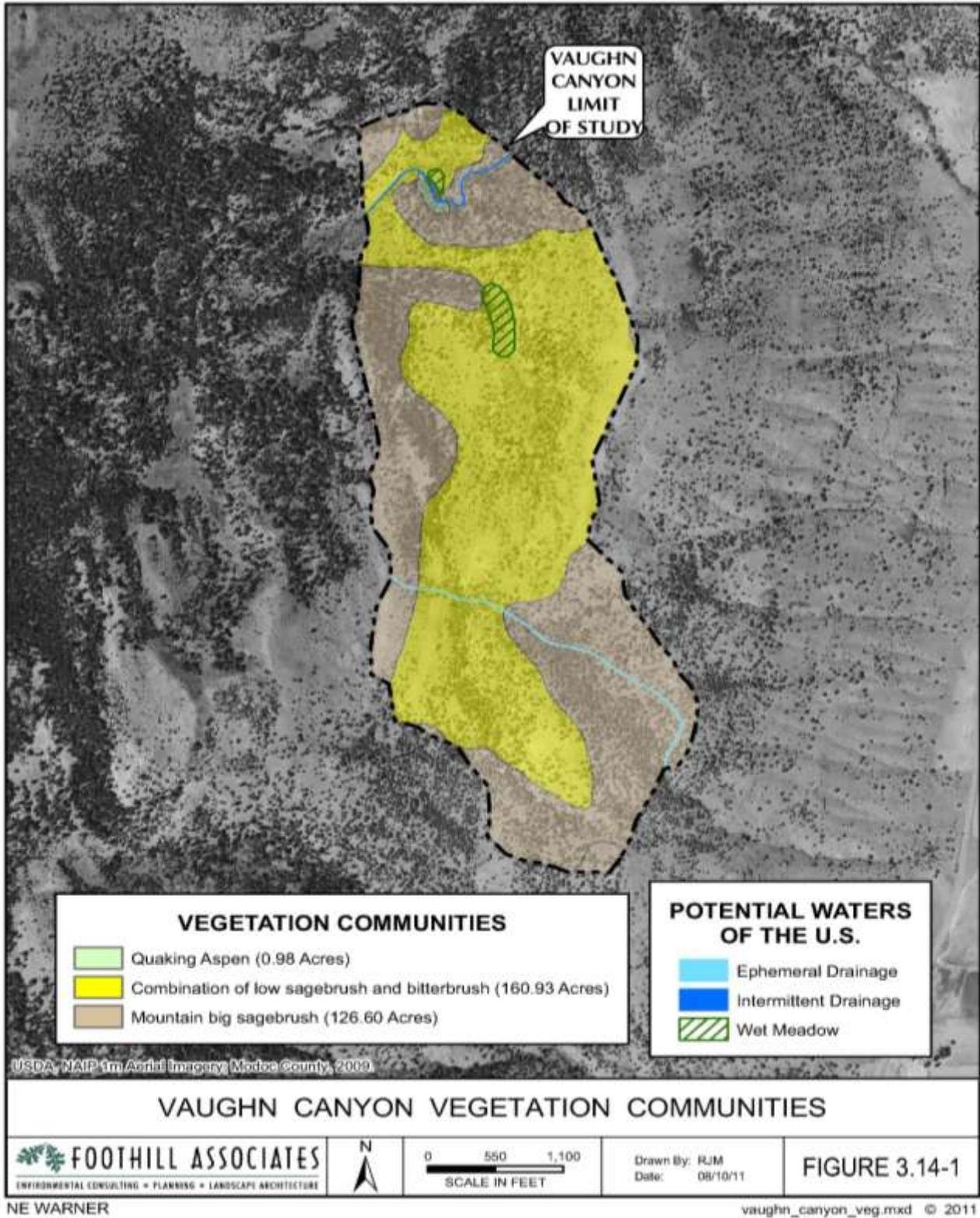


Figure 3.14-2 — North Fandango Vegetation Communities

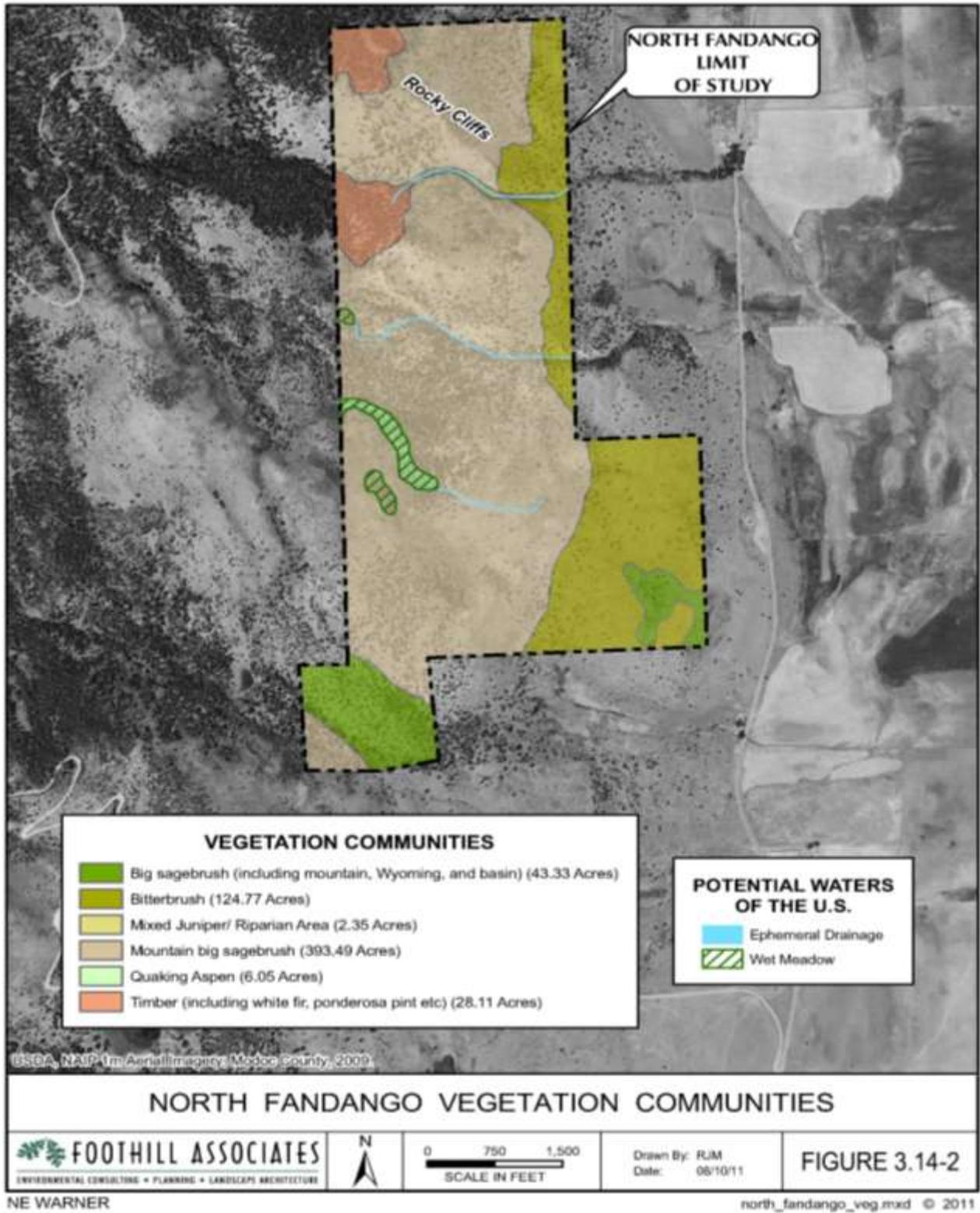


Figure 3.14-3 — Bidwell Mountain Vegetation Communities

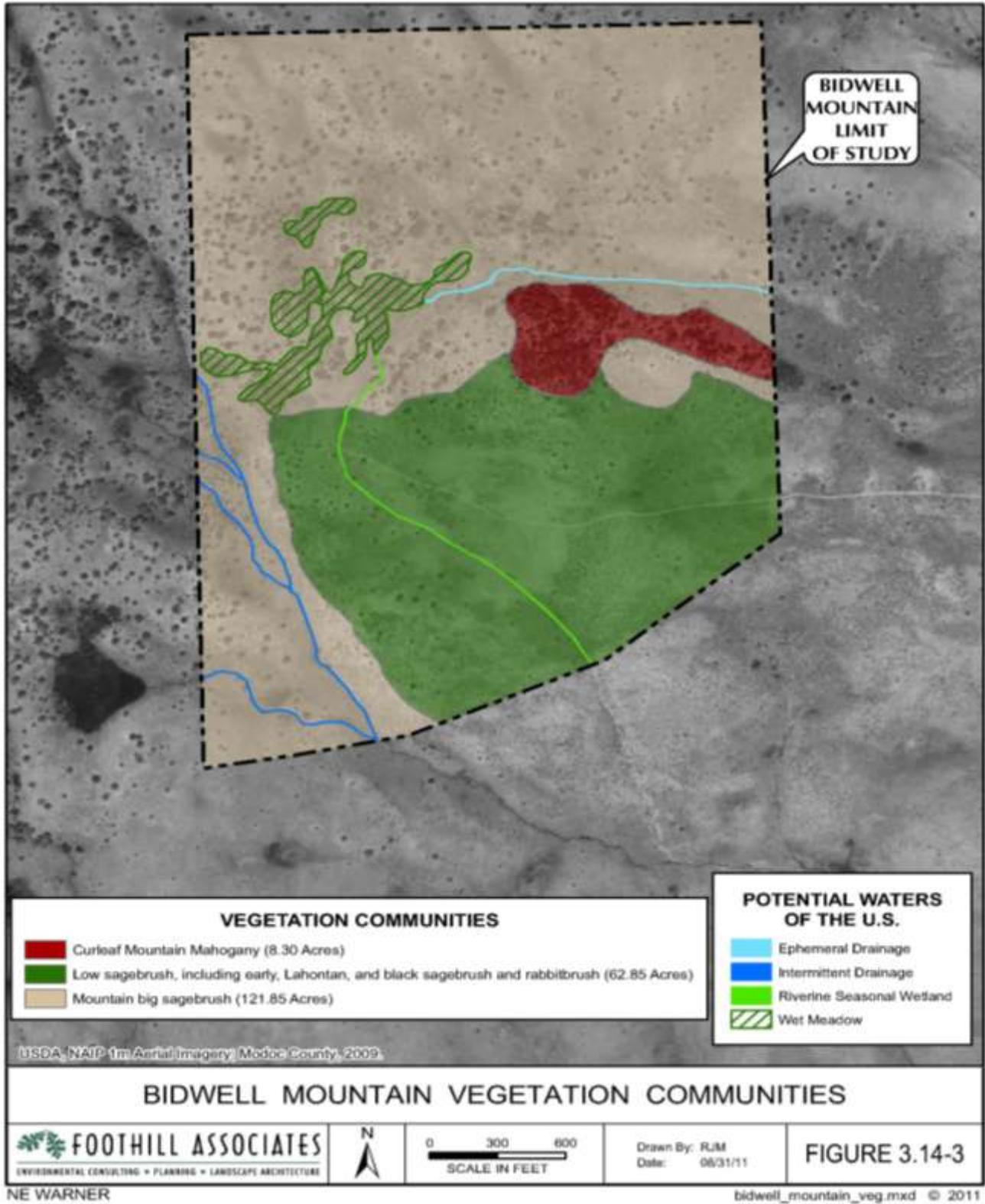
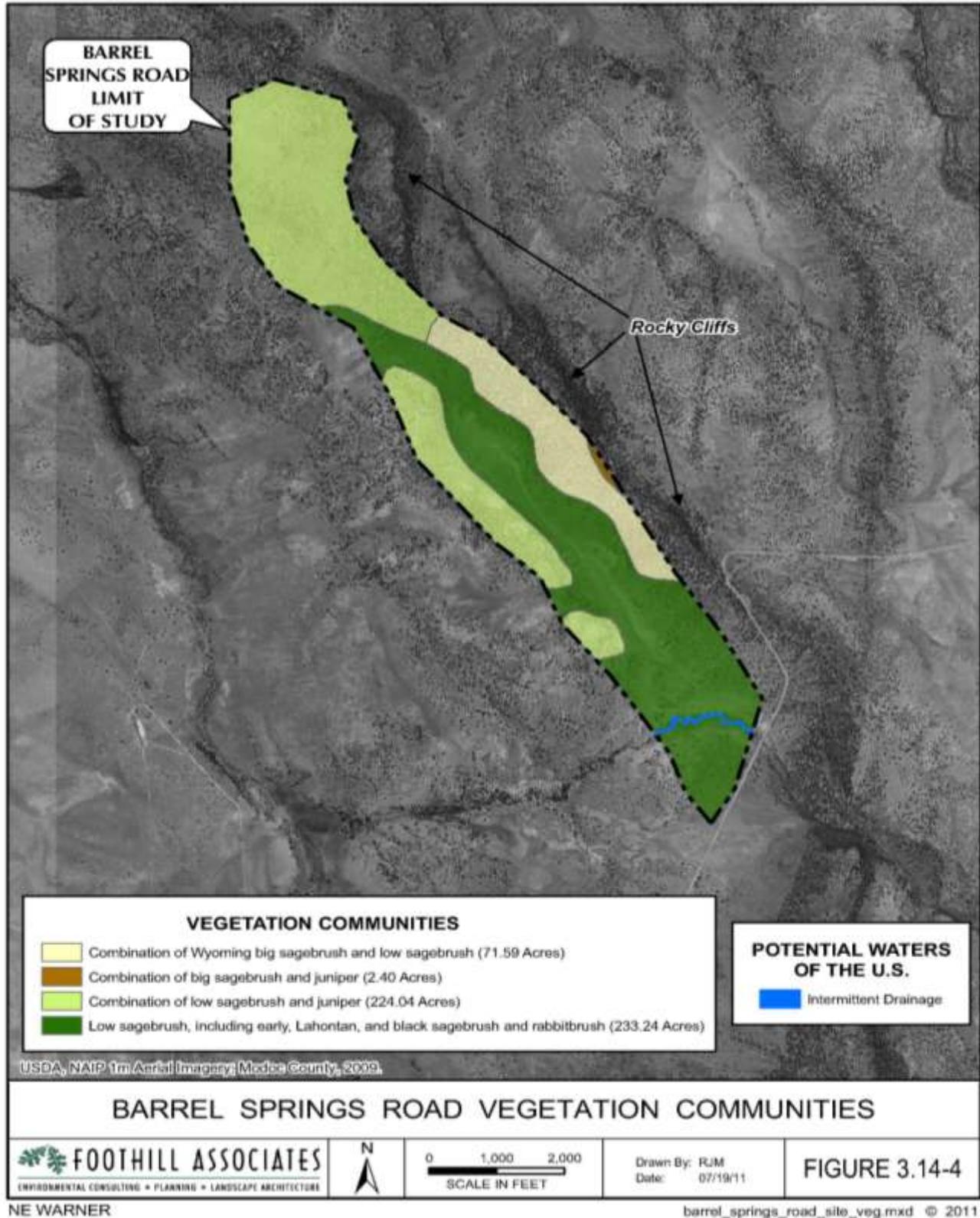


Figure 3.14-4 — Barrel Springs Road Vegetation Communities



Timber

Timber vegetation within the Action Area includes stands of mixed incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*), and ponderosa pine (*Pinus ponderosa*), with western juniper trees also occurring in association with these stands. Shrub species such as serviceberry (*Amelanchier* spp.) and curleaf mountain mahogany (*Cercocarpus ledifolius*), and herbaceous species such as yellow prairie violet (*Viola nuttallii*), penstemon (*Penstemon* spp.), larkspur (*Delphinium* spp.), and lupine (*Lupinus* spp.) form the typical understory in this habitat type.

Timber vegetation (including white fir, ponderosa pine etc) occurs only on approximately 28 acres of the North Fandango treatment area (**Figure 3.14-2**). Habitat inclusions within the timber habitat include intermittent and ephemeral drainages.

Antelope Bitterbrush

Antelope bitterbrush (*Purshia tridentata*) communities generally occur in complex association with big and low sagebrush communities. They are tolerant of a wide variety of soil textures, though they generally occur on deeper soils or soils with higher water holding capacities that are neither saline nor alkaline. Antelope bitterbrush is adapted to a wide variety of communities, including some with very short natural fire return rates. However, bitterbrush is killed by hot fires, particularly on more marginal sites. Antelope bitterbrush response to fire varies widely based on soil type, soil moisture, plant moisture, fire temperature, plant growth form, and time of year. As a member of the rose family, bitterbrush communities tolerate, and may actually require a level of disturbance (mechanical, such as browsing and trampling, fire, etc.) to be maintained. In the absence of disturbance, bitterbrush may become decadent and non-reproductive. Antelope bitterbrush leaves and stems are palatable to a wide variety of species, including most large ungulates. Seedlings and young plants are particularly palatable to livestock, deer, and antelope, and they are particularly vulnerable to over utilization. Flowers and seeds are produced on the previous year's stem growth. Antelope bitterbrush reproduction is highly dependant on wildlife populations. Seeds are vulnerable to insect damage and are consumed by many species of birds and rodents.

Antelope bitterbrush habitat is present as an inclusion on the Vaughn Canyon treatment area (**Figure 3.14-1**). While scattered bitterbrush shrubs were observed in the big sagebrush habitats, Vaughn Canyon is the only treatment area where the species occurred in a density great enough to warrant a specific habitat type designation.

Aspen

Aspen (*Populus tremuloides*) is adapted to a much broader range of environments than most plants found associated with it. It is one of the few plant species able to grow in all mountain vegetation zones, from subalpine tundra to the basal plains (Daubenmire 1943). Aspen reproduces vigorously by root suckers following fire. Grazing has contributed to the variability of aspen forests: the lush undergrowth of aspen forests is considered excellent summer range. More than a century of grazing (frequently intense in the late 1800s and early 1900s) has left its mark in both pronounced and ill-defined alterations in species composition and production (Mueggler 1988). In the Action Area, aspen is considered a sparse but valuable forage plant for livestock, and aspen stands provide shade and resting cover for livestock.

Small isolated aspen communities were observed during summer surveys within the Vaughn Canyon and North Fandango treatment areas (**Figure 3.14-1 and Figure 3.14-2**). Foothill Associates' biologists identified both types of aspens groves, snow pocket induced and riparian, on the two treatment areas, but there were not large contiguous stands present that warranted a separate vegetation community type on the habitat community maps. Consequently, aspen can be seen as inclusions within the timber and mountain big sagebrush communities. While aspen habitat did not exist in the Bidwell Mountain treatment area, large groves of mature riparian aspen occur just off the treatment area, downstream (**Figure 3.14-3**).

Curleaf Mountain Mahogany

Most curleaf mountain mahogany (*Cercocarpus ledifolius*) stands are small and limited in distribution. In the Action Area, mahogany grows in combination with big sagebrush, and with a mixture of big and low sagebrush. Curleaf mountain mahogany grows on rocky ridges and steep slopes with thin soil. This plant can form nearly closed single-dominant species communities or be a secondary component in other tree-dominated communities (Sawyer and Keeler-Wolf 1995). Curleaf is intolerant of fire. Because the species' seeds have low establishment success in the shallow, rocky soils in which the plant grows, plant reproduction rates are slow. Rabbits, rodents, and mule deer feed on mahogany seedlings—further reducing reproductive success. Mahogany is a valuable fuel wood, though sparse and difficult to access. Private harvesting of dead mahogany is currently allowed, although there is little demand. Mahogany is also a valuable forage plant and source of shade and resting cover for livestock and wildlife.

Curleaf mountain mahogany communities occur as inclusions in the big sagebrush community in the Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas (**Figure 3.14-1 through Figure 3.14-4**). The Bidwell Mountain community is easily discernable on the vegetation community map with a dark green, monotypic signature. Occurrences on the other units were not as large and monotypic.

Juniper Woodland

Juniper woodland habitats can be found at elevations ranging from sea level to above 10,000 feet above mean sea level (MSL). They generally form transitional habitats, depending on elevation, such as with Great Basin sagebrush scrub at lower elevations, and Jeffery pine (*Pinus jeffreyi*) at higher elevations. Juniper trees (*Juniperus* sp.) are relatively slow growing and can live up to 1,000 years. The berries they produce are a food source to numerous wildlife species and their foliage feeds several species of mammals. Dense stands of juniper woodland generally are associated with grassy understory whereas open stands of juniper woodland usually have a shrub understory. Plant species that can be found within this diverse vegetation type include Jeffery pine, bitterbrush, sagebrush, white fir (*Abies concolor*), ponderosa pine (*Pinus ponderosa*), California buckwheat (*Eriogonum fasciculatum*), curleaf mountain mahogany, clover (*Trifolium* spp.), and oatgrass (*Danthonia* spp.).

Juniper woodland habitat onsite provides food, water, protection, nesting habitat and thermal cover, as well as migration and dispersal corridors for a number of wildlife species. Juniper woodland can be found as inclusions within the big sagebrush habitats of the Barrel Springs Road and North Fandango treatment areas (**Figure 3.14-4 and Figure 3.14-2**).

Aquatic Habitats

Ephemeral Drainage

Ephemeral drainages within the Action Area can be characterized as seasonal waterways that become inundated after the onset of rain or snowmelt, which is followed by a dry period. Therefore, these areas typically do not support riparian vegetation and the banks of the drainage are typically composed of herbaceous grasses. The banks of the drainages onsite were vegetated according to the surrounding habitat, juniper woodland or big sagebrush, as they do not flow long enough to support a riparian fringe and its associated hydrophytic vegetation.

Intermittent Drainage

Intermittent drainages are those with discernible channels, which show evidence of annual deposition or scour, but do not carry flow year round. Sources of hydrology include both stormwater runoff and groundwater discharges. Within intermittent drainages, topographic depressions within the channel may influence vegetation patterns. Often, intermittent drainages are lightly vegetated due to seasonal rapid flow events and the resulting scouring of the channel, bed, and bank. Intermittent drainages on the Vaughn Canyon treatment area have a narrow strip of hydrophytic vegetation and occasional aspen habitat that provide important bank stability and wildlife ecotones for nearly all wildlife species present (**Figure 3.14-1**). The Bidwell Mountain drainages, which are fed by springs and the resulting wet meadows upstream, also support a hydrophytic vegetation community fringe transitioning to the surrounding habitat community (i.e. big sagebrush, low sagebrush, etc.) (**Figure 3.14-3**). The intermittent drainage on the Barrel Springs Road treatment area also supports hydrophytic vegetation, but more herbaceous in nature, and appears to be an important source of water in the relatively xeric location (**Figure 3.14-4**).

Riverine Seasonal Wetland

Riverine seasonal wetlands are characterized by the seasonal flow of water induced by the onset of the rainy season and are typically vegetated with hydrophytic species. These features can be supported by groundwater and surface water sources and therefore are typically more expansive than other seasonal wetlands, often flowing linearly across the landscape.

The Bidwell Mountain treatment area includes a riverine seasonal wetland feature that flows linearly from north to south from wet meadow habitat through to the low sagebrush habitat (**Figure 3.14-3**).

Wet Meadow

Wet meadows can be found at all elevations and generally occur as ecotones between fresh emergent wetlands and perennial grasslands or mesic meadow types. Wet meadows occur in depressional sites with heavy-textured soils and/or shallow bedrock which hold water at the surface for most of the growing season. Water in wet meadows comes primarily from upstream sources and leaves via downstream runoff. There are two wet meadows located onsite, both adjacent to the slough. The plant species composition can vary greatly and there is no general plant community for this habitat. Common genera found include *Salix*, *Agrostis*, *Juncus*, *Carex*, *Scirpus* and *Danthonia*. Wet meadows usually have a single plant layer, although they sometimes have shrubs or trees along the edge of the meadow.

Wet meadows occur on the Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas (**Figure 3.14-1 through Figure 3.14-3**). The wet meadows on the Bidwell Mountain treatment area are fed by springs in relatively level slopes. The wet meadow on the steeper, more mountainous Vaughn Canyon treatment area occur in areas where creeks and intermittent drainages transition from steep terrain to more level terrain that allows the water to spread out over a wider area.

Special-Status Plant Species

Special-status plant species are plant species that have been afforded special recognition by federal, State or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under the federal endangered species act (FESA);
- Protected under other regulations (e.g. BLM Sensitive Species);
- Listed under the California Native Plant Society (CNPS) Rare Plant Ranks, formally known as the CNPS Lists
- Listed as species of concern by United States Fish and Wildlife Service (USFWS); or
- Receive consideration during environmental review under NEPA.

The USFWS Listed, Proposed and Candidate Species, BLM Sensitive, and CNPS ranked species that may occur in Modoc County, California were compiled from respective agency websites, CNDDDB records, and BLM Surprise Field Office literature review and staff interviews.

Table 3.14-2 includes the common name and scientific name for each species, regulatory status (FESA, CNPS, and BLM), habitat descriptions, species identification period and potential for occurrence on the various treatment areas. The following set of criteria has been used to determine each species' potential for occurrence on the Action Area:

- **Present:** Species is known to occur on the site, based on known records, and/or was observed onsite during the field survey(s).
- **High:** Species is known to occur on or near the site (based on known records within a five-mile radius of the site, and/or based on professional expertise specific to the site or species) and there is suitable habitat onsite.
- **Low:** Species is known to occur in the vicinity of the site, and there is marginal habitat onsite. **-OR-** Species is not known to occur in the vicinity of the site, however there is suitable habitat onsite.
- **No:** Species is not known to occur on or in the vicinity of the site and there is no suitable habitat for the species onsite. **-OR-** Species was surveyed for during the appropriate season with negative results.

Table 3.14-2 — Special-Status Plant Species Determined to Potentially Occur on in the Action Area

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Plants				
Adobe lomatium <i>Lomatium roseanum</i>	--;--;--;-- BLM Sensitive CNPS 1B.2	Open, dry, basalt talus scree fields overlying clay soils on gentle slopes in low sagebrush vegetation and montane coniferous forest. Known to occur between 4,800 and 7,041 feet MSL.	Year-round;	High ; suitable habitat is present in the treatment areas, however, the species was not found during surveys.
Baker’s globe mallow <i>Iliamna bakeri</i>	--;--;--;-- BLM Sensitive CNPS 4.2	Volcanic lava fields and dry rocky slopes where wildfire has occurred within 5-10 years, typically in juniper, sagebrush scrub, and lower montane coniferous forest vegetation communities.	Year-round; Flowering June – September.	High ; according to 2011 CNPS records, this species are known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Black rock potentilla <i>Potentilla basaltica</i>	--;--;--;-- BLM Sensitive CNPS 1B.3	Moist alkaline meadows, seeps, and marsh habitats, occasionally bordering thermal springs, outflows, and meadow depressions on southeast slopes from 4,330 - 5,200 feet MSL.	Year-round; Flowering May – July.	Low ; suitable habitat is present in the North Fandango treatment area, however, the species was not found during surveys.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Crosby's buckwheat <i>Eriogonum crosbyae</i>	--;--;--;-- BLM Sensitive	White volcanic ash or deep clay soils in hydrothermal vent areas with rhyolite, from 5,100 to 6,000 feet MSL. Usually occurs in sparsely vegetated outcrops in sagebrush community. Often occurs with Tiehm's milk-vetch or Schoolcraft's cryptantha.	Year-round. Flowering June – July.	Low ; suitable habitat is present in the North Fandango treatment area, however, the species was not found during surveys.
Doublet <i>Dimeresia howellii</i>	--;--;--;-- CNPS 2.3	Xeric, volcanic soils in lower montane coniferous forest and juniper woodlands from 4,400 – 7,800 feet MSL.	Year-round; Flowering: May – September.	High ; according to 2011 CNPS records, this species are known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Dwarf resin birch <i>Betula glandulosa</i>	--;--;--;-- CNPS 2.2	Mesic soils in bogs, meadows, seeps, acidic rocky slopes, open subalpine summits, and montane/subalpine coniferous forest from 4,265 – 7,545 feet MSL.	Year-round; Flowering: May – June.	High ; according to 2011 CNPS records, this species are known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Geyer's milk-vetch <i>Astragalus geyeri</i> var. <i>geyeri</i>	--;--;--;-- BLM Sensitive CNPS 2.2	Sandy soils in sagebrush scrub from 4,000 – 4,400 feet MSL.	Year-round; Flowering: May – August.	High ; suitable habitat is present; however, the species was not found during surveys.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Great Basin nemophila <i>Nemophila breviflora</i>	--;--;--;-- CNPS 2.3	Generally occurs in streambanks, meadows, and thickets in sagebrush, yellow pine forest, red fir forest, and northern juniper woodland communities from 4,002 – 7,906 feet MSL.	Year-round; Flowering May – July.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Green buckwheat <i>Eriogonum umbellatum</i> var. <i>glaberrimum</i>	--;--;--;-- BLM Sensitive CNPS 1B.3	Sandy to gravelly slopes in sagebrush, aspen, and montane coniferous forest communities from 5,250 – 7,500 feet MSL.	Year-round; Flowering July – September.	High ; suitable habitat is present; however, the species was not found during surveys.
Grimy ivesia <i>Ivesia rhypara</i> var. <i>rhypara</i>	--;--;--;-- BLM Sensitive	Loose, loamy, volcanic ash slopes in sagebrush scrub between 4,000 and 5,500 feet MSL.	Year-round. Flowering May – October.	Low ; suitable habitat is present in the North Fandango treatment area, however, the species was not found during surveys.
Hairy marsh hedge-nettle <i>Stachys palustris</i> ssp. <i>pilosa</i>	--;--;--;-- CNPS 2.3	Mesic soils in Great Basin sagebrush, meadows, and seeps.	Year-round. Flowering June – August.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Howell's thelypodium <i>Thelypodium howellii</i> var. <i>howellii</i>	FSC;--;--;-- BLM Sensitive CNPS 1B.2	Moist alkaline meadows, seeps, and flats in sagebrush and saltbush from 3,900 – 5,090 feet MSL.	Year-round. Flowering late May – early/mid August.	High ; suitable habitat is present in the North Fandango treatment area, however, the species was not found during surveys.
Long bluebells <i>Mertensia longiflora</i>	--;--;--;-- CNPS 2.2	Occurs in Great Basin sagebrush scrub and montane coniferous forest vegetation communities from 5,003 – 7,217 feet MSL. Often associated with springs.	Year-round; Flowering April – June.	Present ; occurs in association with wet meadows in the North Fandango treatment area.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Little ricegrass <i>Oryzopsis exigua</i>	--;--;--;-- BLM Sensitive CNPS 2.3	Open, steep dry soil and talus slopes in Great Basin sagebrush scrub from 6,400 – 8,000 feet MSL.	Year-round; Flowering June – August.	High ; suitable habitat is present; however, the species was not found during surveys.
Modoc bedstraw <i>Galium glabrescens</i> ssp. <i>Modocense</i>	--;--;--;-- BLM Sensitive CNPS 1B	Gravelly and rocky slopes, talus slopes, and below rock edges in Great Basin sagebrush scrub and white fir/pine forest from 5,200 – 9,000 feet MSL.	Year-round; Flowering July.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Playa phacelia <i>Phacelia inundata</i>	--;--;--;-- BLM Sensitive CNPS 1B.3	Occurs in alkaline soils in flats and dry lake margins, Great Basin sagebrush scrub, and lower montane coniferous forest from 4,000 – 6,400 feet MSL.	Year-round; Flowering May - August.	High ; suitable habitat is present in the North Fandango treatment area, however, the species was not found during surveys.
Prostrate buckwheat <i>Eriogonum prociduum</i>	--;--;--;-- CNPS 1B	Dry, barren, rocky slopes and flats with shallow volcanic tuff or rhyolite substrate, usually in sagebrush scrub (low and mountain big sagebrush) from 4,600 – 8,300 feet MSL.	Year-round; Flowering June - July.	High ; suitable habitat is present in the North Fandango treatment area, however, the species was not found during surveys.
Rigid pea <i>Lathyrus rigidus</i>	--;--;--;-- CNPS 2.2	Great Basin sagebrush scrub and juniper woodland from 2,600 – 5,000 feet MSL.	Year-round; Flowering April - July.	High ; suitable habitat is present; however, the species was not found during surveys.
Sagebrush bluebells <i>Mertensia oblongifolia</i> var. <i>amoena</i>	--;--;--;-- CNPS 2.2	Great Basin sagebrush scrub, meadows, and seeps from 5,347 – 7,595 feet MSL.	Year-round; Flowering April - July.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Sagebrush loeflingia <i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>	--;--;--;-- BLM sensitive CNPS 2.2	Sandy substrate in sagebrush scrub and desert dunes from 2,296 – 5,298 above MSL.	Year-round; Flowering April - May.	High ; suitable habitat is present; however, the species was not found during surveys.
Schoolcraft's buckwheat <i>Eriogonum microthecum</i> ssp. <i>Schoolcraftii</i>	--;--;--;-- CNPS 1B.2	Coarse, well drained gravelly to sandy loams from decomposed granite in Great Basin sagebrush scrub, big sagebrush, rabbitbrush, horsebrush, and juniper from 4,265 – 5,741 feet MSL.	Year-round; Flowering July – September.	Low ; suitable habitat is present; however, the species was not found during surveys.
Schoolcraft's cryptantha <i>Cryptantha schoolcraftii</i>	--;--;--;-- -- BLM Sensitive CNPS 2.2	Dry white ashy barren outcrops in Great Basin sagebrush scrub from 5,298 – 5,993 feet MSL.	Year-round; Flowering June – July.	Low ; suitable habitat is present in the North Fandango treatment area, however, the species was not found during surveys.
Smooth goldenrod <i>Solidago gigantea</i>	--;--;--;-- CNPS 2.2	Mesic soils in bogs, meadows, seeps, marshes, swamps, lake margins, and streambanks from 3,280 – 4920 feet, MSL.	Year-round; Flowering: July – September.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Tiehm's milk-vetch <i>Astragalus tiehmii</i>	--;--;--;-- -- BLM Sensitive	Barren, dry, white ash outcrops in Great Basin sagebrush communities.	Year-round; Flowering June – July.	Low ; suitable habitat is present; however, the species was not found during surveys.
Warner Mountains bedstraw <i>Galium serpticum</i> ssp. <i>Warnerense</i>	--;--;--;-- BLM Sensitive CNPS 1B	Steep talus slopes around bases of rocks, meadows, and seeps in juniper woodland and subalpine coniferous forest communities from 4,757 – 9,022 feet MSL.	Year-round; Flowering June – July.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Western valerian <i>Valeriana occidentalis</i>	--;--;--;-- CNPS 2.3	Mesic soils in lower montane coniferous forest from 4,921 – 5,905 feet MSL.	Year-round; Flowering June – August.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Yakima birds-beak <i>Cordylanthus capitatus</i>	--;--;--;-- CNPS 2.2	Sagebrush scrub, coniferous forest, and juniper woodland from 5,900 – 7,800 feet MSL.	Year-round; Flowering July – September.	High ; according to 2011 CNPS documentation, this species is known to occur in the area. Suitable habitat is present, however, the species was not found during surveys.
Federally-Listed Species: FE = federal endangered FT = federal threatened FSC = federal species of concern FC = candidate PT = proposed threatened FPD = proposed for delisting FD = delisted		California State Listed Species: CE = California state endangered CT = California state threatened CR = California state rare CSC = California Species of Special Concern	CNPS* List Categories: 1A = plants presumed extinct in California 1B = plants rare, threatened, or endangered in California and elsewhere 2 = plants rare, threatened, or endangered in California, but common elsewhere 3 = plants about which we need more information 4 = plants of limited distribution Other Special-Status Listing: SLC = species of local or regional concern or conservation significance	
<i>Source: Foothill Associates</i>				

Species Determined to Have a High Potential for Occurrence

Based on records search of the FESA list, BLM Sensitive species list, and CNPS ranking list, the following special-status plant species have the potential to occur onsite or in the vicinity of the Action Area.

Adobe lomatium

Adobe lomatium is a BLM Sensitive Species and CNPS 1B.2 plant species that typically occurs on open, dry, basalt talus scree fields overlying clay soils on gentle slopes, typically in low sagebrush and lower montane coniferous forest vegetation communities. The species is documented by CNPS (2011) as occurring in southern Modoc County, and although suitable

habitat was determined to be present, no plants were found in the Action Area during field surveys.

Baker's globe mallow

Baker's globe mallow is a BLM Sensitive Species and CNPS 1B.3 plant species that is moderately distributed across northeastern California. This species occupies open, xeric scrubland habitats, lava flows, barren south-facing slopes, and occasionally dried creek beds and roads at high elevations (Meinke 2001 in Arneson *et al.* 2004) on the Modoc Plateau and other portions of the American west. Baker's globe mallow is known to occur within the *Fort Bidwell* quad map area in the jurisdiction of the Action Area (CNPS 2011). The presence of suitable onsite habitat observed during field surveys, in combination with CNPS occurrence documentation, indicated a high potential for this species to occur within the Action Area. However, this species was not found.

Black rock potentilla

Black rock potentilla is a BLM Sensitive Species and CNPS 1B.3 plant species. The species typically grows in moist alkaline, sandy, or volcanic substrate in meadows, seeps, and occasionally bordering thermal springs. It is often found on southeast slopes. Suitable habitat was observed to be present onsite, however, this species was not found in the Action Area during surveys.

Crosby's buckwheat

Crosby's buckwheat is a BLM Sensitive Species, typically occurring on white volcanic tuffaceous substrate with little soil in sagebrush vegetation communities in northeastern California. Habitat conditions suitable for this species in the treatment areas are present, however, after a focused search in these areas, this species was not found in the Action Area. Therefore, there is a low potential for Crosby's buckwheat to occur within the Action Area

Doublet

Doublet is classified as a CNPS 2.3 plant species, growing in volcanic gravel in sites that collect spring runoff and precipitation surrounded by sagebrush scrub vegetation. It is loosely associated with some *Eriogonum* species, but does not directly occur with any other plant species. Doublet typically grows larger and is more populous in Nevada (BLM 1986). Suitable habitat for this species was observed during field surveys to be present onsite, and this species is documented by CNPS (2011) as occurring within the *Lake Annie* and *Bidwell Mountain 7.5'* USGS quad map areas. However, this species was not found during surveys.

Dwarf resin birch

Dwarf resin birch is classified as a CNPS 2.2 plant species. This shrubby rhizomal plant is the characteristic dwarf birch of upland areas throughout much of the mountainous west (elforas.org 2011). This species typically occurs in moist soils in bogs, meadows, and seeps, as well as in drier locations on rocky slopes, open subalpine summits, and intermixed with montane and subalpine coniferous forest. Dwarf resin birch is documented by CNPS as occurring in the *Fort Bidwell*, *Lake Annie*, and *Mt. Bidwell* quad map areas within the Action Area (CNPS 2011), and suitable habitat was found during field surveys to be present onsite. However, this species was not found.

Geyer's milk-vetch

Geyer's milk-vetch is a BLM Sensitive Species and CNPS 2.2 plant species, typically occurring in sandy soils in sagebrush scrub vegetation communities. Suitable habitat for this species was observed during field surveys to be present within the Action Area. Consequently, there is a high potential for occurrence for Geyer's milk-vetch to occur onsite. However, this species was not found during surveys.

Great Basin nemophila

Great Basin nemophila is a CNPS 2.3 plant species, occurring in moist areas along streambanks, meadows, and thickets from southern British Columbia south along the east side of the Cascade Mountains to northern California, and east to Colorado and Montana (Slichter 2007). CNPS species distribution records list occurrences of this species in the areas of *Lake Annie* and *Mt. Bidwell 7.5'* USGS quad maps. Suitable habitat was observed during field surveys to be present onsite, however, this species was not found during surveys.

Green buckwheat

Green buckwheat is a BLM Sensitive Species and CNPS 1B.3 plant species, typically growing in sandy to gravelly slopes in sagebrush, aspen, and montane coniferous forest vegetation communities. Suitable habitat for this green buckwheat was observed during field surveys to be present in the treatment areas, however, this species was not found to occur.

Grimy ivesia

Grimy ivesia is a BLM Sensitive Species, typically growing in loose, loamy, volcanic ash slopes in sagebrush scrub communities. Suitable habitat for this species was observed onsite in the North Fandango treatment area during field surveys; however this species was not present during surveys. Therefore, there is a low potential for grimy ivesia to occur within the Action Area.

Hairy marsh hedge-nettle

Hairy marsh hedge-nettle is classified as a CNPS 2.3 plant species. It typically grows in mesic soils in meadows and seeps surrounded by sagebrush scrub. CNPS species distribution records list occurrences of Hairy marsh hedge-nettle in the areas of *Lake Annie* and *Mt. Bidwell 7.5'* USGS quad maps (CNPS 2011), and suitable habitat was observed during field surveys to be present onsite. Consequently, there is a high potential for this species to occur in the treatment areas, however, this species was not found during surveys.

Howell's thelypodium

Howell's thelypodium is a BLM Sensitive Species and CNPS 1B.2 plant species. It generally grows in moist alkaline soils in meadows, flats, and seeps in sagebrush scrub, coniferous forest, and juniper woodland vegetation communities. Suitable habitat was observed during field surveys to be present, however, this species was not found during surveys.

Long bluebells

Long bluebells is a CNPS 2.2 plant species, typically occurring in sagebrush scrub and montane coniferous forest vegetation communities. CNPS (2011) records indicate that this species is present in the area and this species was found in association with meadow edges in the North Fandango treatment area.

Modoc bedstraw

Modoc bedstraw is a BLM Sensitive Species and a CNPS 1B plant species, endemic to Modoc County. It typically grows in thin, xeric soils on gravelly, rocky, or talus slopes in sagebrush scrub vegetation communities. Suitable habitat was observed to be present during field surveys, and the species is known to be present in the *Lake Annie 7.5'* USGS quad map area (CNPS 2011). Consequently, there is a high potential for occurrence of Modoc bedstraw in the treatment areas. However, this species was not found during surveys.

Playa phacelia

Playa phacelia is CNPS 1B.3 plant species, typically occurring in alkaline soils in flats and dry lake margins, sagebrush scrub, and lower montane coniferous forest. Although marginally suitable habitat for this species was observed during field surveys to be present in the area, this species was not found.

Prostrate buckwheat

Prostrate buckwheat is a CNPS 1B plant species. It grows on dry, barren, rocky slopes and flats with shallow volcanic tuff or rhyolite soils, typically in sagebrush scrub, but also found in juniper woodland and upper montane coniferous forest. This species is documented by CNPS as occurring in quad map areas adjacent to the Action Area (CNPS 2011). The combination of suitable habitat present in the North Fandango treatment area and known presence of the species in adjacent quad map areas within the Action Area, prostrate buckwheat has a high probability of occurrence within the North Fandango treatment area. Conversely, this species is not expected to occur in other treatment areas due to lack of suitable habitat. This species was not found during focused botanical surveys.

Rigid pea

Rigid pea is designated as a CNPS 2.2 plant species. It generally occurs in disturbed areas within sagebrush scrub and juniper woodland vegetation communities. This species is documented (CNPS 2011) as occurring in quad map areas directly adjacent to the treatment areas and suitable habitat was observed to be present onsite during field surveys. However, this species was not found in the treatment areas.

Sagebrush bluebells

Sagebrush bluebells is a CNPS 2.2 plant species, typically occurring in sagebrush scrub, meadows, and seeps. Sagebrush bluebells is documented by CNPS as occurring within the *Mt. Bidwell* and *Lake Annie* quad map areas in the Action Area, and suitable habitat was observed during field surveys to be present, however, this species was not found.

Sagebrush loeflingia

Sagebrush loeflingia is a BLM Sensitive Species and CNPS 2.2 plant species, typically occurring in sandy soils in sagebrush scrub and desert dune communities. Suitable sagebrush scrub habitat was observed during field surveys to be present onsite, however, this species was not found during surveys.

Schoolcraft's buckwheat

Schoolcraft's buckwheat is a CNPS 1B.2 plant species, typically occurring in decomposed

granite or coarse well drained gravelly to sandy loams in sagebrush scrub, big sagebrush, rabbitbrush, horsebrush, and juniper vegetation communities. Suitable habitat for this species was observed during field surveys. However, this species was not found during surveys, resulting in a low probability of occurrence within the North Fandango treatment area.

Schoolcraft's cryptantha

Schoolcraft's cryptantha is a BLM Sensitive Species and CNPS 2.2 plant species. It grows on dry, barren white volcanic tuff slopes and outcrops in sagebrush scrub. Suitable habitat for this species was documented in the North Fandango treatment area during field surveys. However, this species was not found during surveys of the treatment area, resulting in a low probability of occurrence within the North Fandango treatment area.

Smooth goldenrod

Smooth goldenrod is a CNPS 2.2 plant species known to occur in the Mt. Bidwell quad map area (CNPS 2011). The species commonly grows in moist soils in bogs, meadows, seeps, marshes, swamps, lake margins, and streambanks. These habitat areas were observed to be present during field surveys, however, this species was not found.

Tiehm's milk-vetch

Tiehm's milk-vetch is a BLM Sensitive Species, occurring on dry, barren outcrops of white volcanic tuff on slopes and low hilltops in Great Basin sagebrush vegetation communities, such as those found in the North Fandango treatment area. This species often occurs in conjunction with Schoolcraft's cryptantha and/or Crosby's buckwheat. Tiehm's milk-vetch is documented by BLM (2010) as occurring in western Humboldt County, Nevada, in Action Area. Suitable habitat for this species was documented in the North Fandango treatment area during field surveys. However, this species was not found during surveys, resulting in a low probability of occurrence within the North Fandango treatment area.

Warner Mountains bedstraw

Warner Mountains bedstraw is classified as a BLM Sensitive Species and CNPS 1B plant species. It typically grows on steep talus slopes around bases of rocks, meadows, and seeps in juniper woodland and subalpine coniferous forest communities. This species is documented by CNPS (2011) as occurring in the Mt. Bidwell quad map area in the Action Area, and suitable habitat was observed to be present onsite during field surveys, however, this species was not found during surveys.

Western valerian

Western valerian is a CNPS 2.3 plant species, typically occurring in mesic soils in lower montane coniferous forest. In California, the range of this species is strictly limited to the Warner Mountains. CNPS records (2011) indicate that Western valerian is known to occur in the area, and suitable habitat was observed to be present onsite during field surveys. However, this species was not found during surveys.

Yakima birds-beak

Yakima birds-beak is a CNPS 2.2 plant species, typically growing in sagebrush scrub, coniferous forest, and juniper woodland vegetation communities. Fewer than ten occurrences of this species

are documented within California, including occurrences in the *Lake Annie* and *Mt. Bidwell* quad map areas in the jurisdiction of the Action Area (CNPS 2011). Suitable habitat was observed during field surveys to be present onsite, however, this species was not found during surveys.

3.14.2 Direct and Indirect Effects of Proposed Action

Implementation of the Proposed Action would facilitate improved sage steppe habitat, while resulting in a decline in juniper woodland vegetation. Project activities associated with the Proposed Action would result in both temporary and long-term effects to vegetation and individuals, and would include both beneficial (vegetation changes) and adverse (primarily related to disturbance) effects.

Prescribed burning of approximately 889 acres would result in the loss of vegetation depending on the severity of burning and amount and species of sagebrush in each project unit to be burned.

Long-term effects related to prescribed burning are expected to be positive. Positive restoration effects resulting in the initial restoration of diverse assemblages of forbs and grasses would likely result from proposed prescribed burning, although species composition and trends would likely change as the ecosystem transitions to later seral stages. These shifts in seral stages and vegetative community composition are anticipated to result in overall increased vegetation quality.

Both hand treatment and mechanical treatments would cause some short-term disturbances to vegetation, but would have less long-term negative effect. Mechanical treatment is expected to have reduced direct effects due to its speed of operation compared to hand treatments. Like fire, long-term beneficial effects are expected to understory plant species however understory changes would be more gradual with this treatment.

While mechanical operations would disturb vegetation over about 140 acres of the Vaughn Canyon treatment area, handcutting operations would affect a much smaller area concentrated no more than a few hundred feet (direct and noise) from travel routes. Short-term disturbance would probably last no more than three years after which all wood is removed from a site. An undetermined amount of shrubs would likely be crushed or removed during mechanical operations however shrubs, including valuable forage species such as bitterbrush, may respond positively to proposed treatments, resulting in increased foraging opportunities, as well as cover for wildlife.

Numerous springs that feed intermittent and ephemeral drainages are present within all four treatment areas. Mechanical operations implemented within the vicinity of these areas would have the potential to result in erosion and sediment loss into the adjacent or connected aquatic habitats. Erosion and sediment loss are of increased concern within the Bidwell Mountain and North Barrel Springs treatment areas, which drain to the Warner Lakes Watershed. Implementation of Standard Operating Procedures detailed in **Appendix C** is anticipated to reduce the potential for erosion and sediment loss in areas adjacent to aquatic features and riparian areas.

Implementation of the Proposed Action would result in short-term effects to vegetation for some sage steppe obligate species. However, long-term habitat productivity for sage steppe obligate

species would improve following restoration. Juniper-dependent species would experience short-term and long-term effects resulting from proposed treatments and resultant restoration activities. It is anticipated that implementation of the Standard Operating Procedures identified in **Appendix C**, in combination with proposed mitigation measures relevant to wildlife would minimize potential adverse effects. Effects associated with implementation of the Proposed Action are therefore considered minor.

3.14.3 Cumulative Effects of Proposed Action

The use of temporary roads could result in increased future use by hunters, fire wood collectors and to some degree campers. Some amount of future permanent use could be expected which would directly negatively affect vegetation within the Action Area. If temporary roads are decommissioned, additional potential effects would be greatly reduced.

An unknown amount of juniper reduction has occurred on private lands within the project area and would continue to occur in the foreseeable future, resulting in continued positive effects on sage steppe obligate species as well as potential negative effects on juniper woodland species.

Continued practices of fencing riparian, and wetland sites would most likely have positive effects on the habitat and the wildlife in the area. These practices would also decrease the potential for erosion and sediment input into aquatic habitats.

Continuing integrated weed management will result in additional native habitat and thus improved wildlife habitat conditions. Wildlife in the treatment areas would benefit from these practices and few adverse effects would occur as a result.

Continued recreation in the form of hunting, camping, and hiking, and to a lesser extent wildlife observation, nature study and archaeological sightseeing would result in potential impacts to vegetation populations. The project is not expected to result in increased recreation over the long-term. Unauthorized off-highway vehicle use may increase due to more open habitat conditions, but restricting all vehicles to designated trails would reduce long-term cumulative effects from these activities to negligible.

Continued juniper woodland thinning and removal would result in impacts similar to those outlined in the direct and indirect effects section above. Short-term impacts to vegetation would transition to long-term benefits for most sensitive and non-sensitive species that inhabit the treatment areas. Continued treatment would result in long-term cumulative benefits resulting from increased acreage of productive ecosystems characterized by diverse vegetative communities optimizing habitat values for wildlife within the Action Area. Cumulative effects resulting from implementation of the Proposed Action are considered minor.

3.14.4 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, distribution, viability, and diversity of plant species and vegetation would reflect increased juniper densities. Overall range health and ecological potential in the area would continue to decline, and native sage steppe vegetation would continue to be reduced in extent, as well as vigor. Juniper encroachment would continue to negatively affect suitable habitat for sagebrush obligate species. However, according to USFS (2008), “The more tree dominated piñon and juniper woodlands become, the less likely they are to burn

under moderate conditions, resulting in infrequent high intensity fires.” Over time more extreme fire behavior could result from the No Action Alternative, resulting in potentially widespread and unpredictable modifications to habitats within the Action Area. Potential effects are considered moderate.

3.14.5 Cumulative Effects of No Active Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, and range management throughout the CAA, as well as construction of the Ruby Pipeline Project (completed summer 2011). As described in detail above, these activities may have the potential to result in adverse effects to vegetation.

The distribution, viability, and diversity of plant species and vegetation within the Action Area would reflect increased juniper densities. Overall range health and ecological potential in the Action Area would continue to decline, and native sage steppe vegetation would continue to be reduced in extent, as well as vigor. Juniper encroachment would continue to negatively affect suitable habitat for sagebrush obligate species. Woodland and/or juniper-associated species would likely experience benefits from the increased number of trees available for shelter and cover. However, according to USFS (2008), “The more tree dominated piñon and juniper woodlands become, the less likely they are to burn under moderate conditions, resulting in infrequent high intensity fires.” Over time more extreme fire behavior could result from the No Action Alternative, resulting in potentially widespread and unpredictable modifications to habitats throughout the CAA. Cumulative effects under the No Action Alternative are considered moderate.

3.14.6 Mitigation Measures

The mitigation measures presented in **Section 3.18.6** for wildlife are proposed to also reduce potential effects to vegetation.

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3.15 Visual Resource Management

3.15.1 Affected Environment

The Surprise Field Office Resource Management Plan establishes Visual Resource Management (VRM) objectives for all land administered by BLM within the Action Area. All four VRM Classes exist within the Action Area; however Class II predominates in the Surprise Valley and surrounding mountain ranges.

3.15.2 Visual Resource Management Classes

All of the treatment areas within the Action Area are considered Class II VRM areas.

Objectives for Visual Resource Management classes are as follows:

- Class I — Preserve existing character of the landscape. Provides for ecological changes and a very low level of management activity provided actions do not attract attention.
- **Class II — Retain existing character of the landscape. Level of change should be low; must repeat form, line, texture and color of existing landscape; and should not attract attention of casual observers.**
- Class III — Partially retain existing character of the landscape. Level of change should be moderate; may attract but should not dominate a casual observer's view, and should repeat form, line and color of predominant natural features.
- Class IV — Allow for major modifications to the existing character of the landscape. Level of change can be high and may dominate the view. Every attempt should still be made to minimize visual impacts.

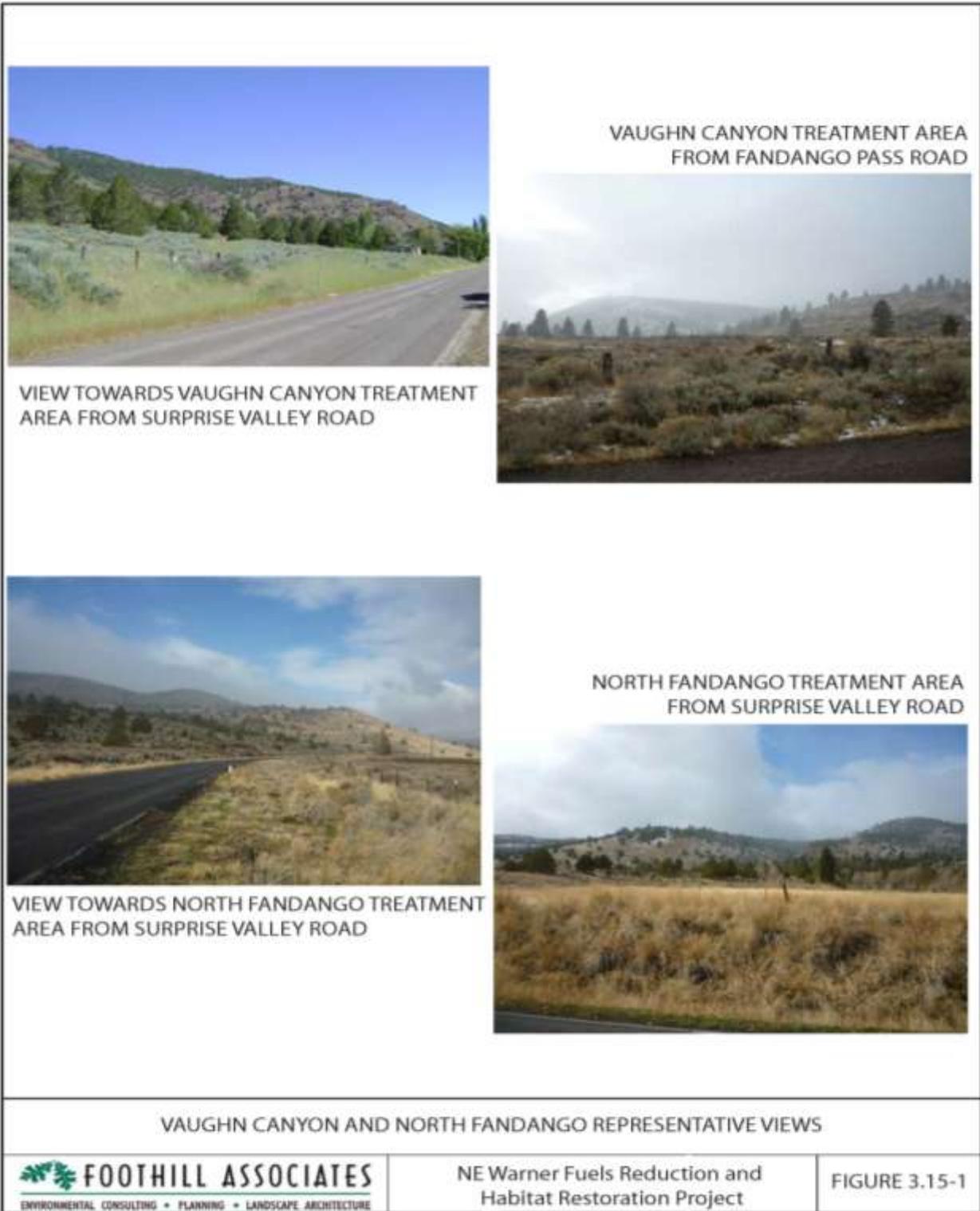
3.15.3 Visual Quality and Characteristics

Scenic quality varies among the four treatment areas. The Vaughn Canyon and North Fandango treatment areas are located in rugged, sparsely wooded, mountainous terrain overlooking the Surprise Valley and Upper Lake. Land forms are generally rugged with moderate to steep slopes, mostly natural with some evidence of human-induced changes, primarily roads and fences. Lines are bold and curving with both vertical (vegetation) and horizontal (fence line) elements. Colors are muted tans, greens and grays (**Figure 3.15-1**).

The Bidwell Mountain treatment area is remote and sparsely vegetated with open sweeping views. Landforms are rugged, jagged high desert steppes with rock formations and dissected drainages. Vista views predominate to the south and southeast with mountainous peaks to the west.

The Barrel Springs Road treatment area lies in a shallowly sloping drainage. Woody vegetation to the east is moderate and increasingly sparse to the west. Some evidence of past fuels management activity is apparent to the east of this treatment area, primarily boles and branches piled, and left where they were cut. Landforms visible from this treatment area are dominated by low rounded hills with horizontal rock shelves. The primary evidence of human disturbance visible within this treatment area is Barrel Springs Road, which just touches the south end of this treatment area (**Figure 3.15-2**).

Figure 3.15-1 — Vaughn Canyon and North Fandango Representative Views



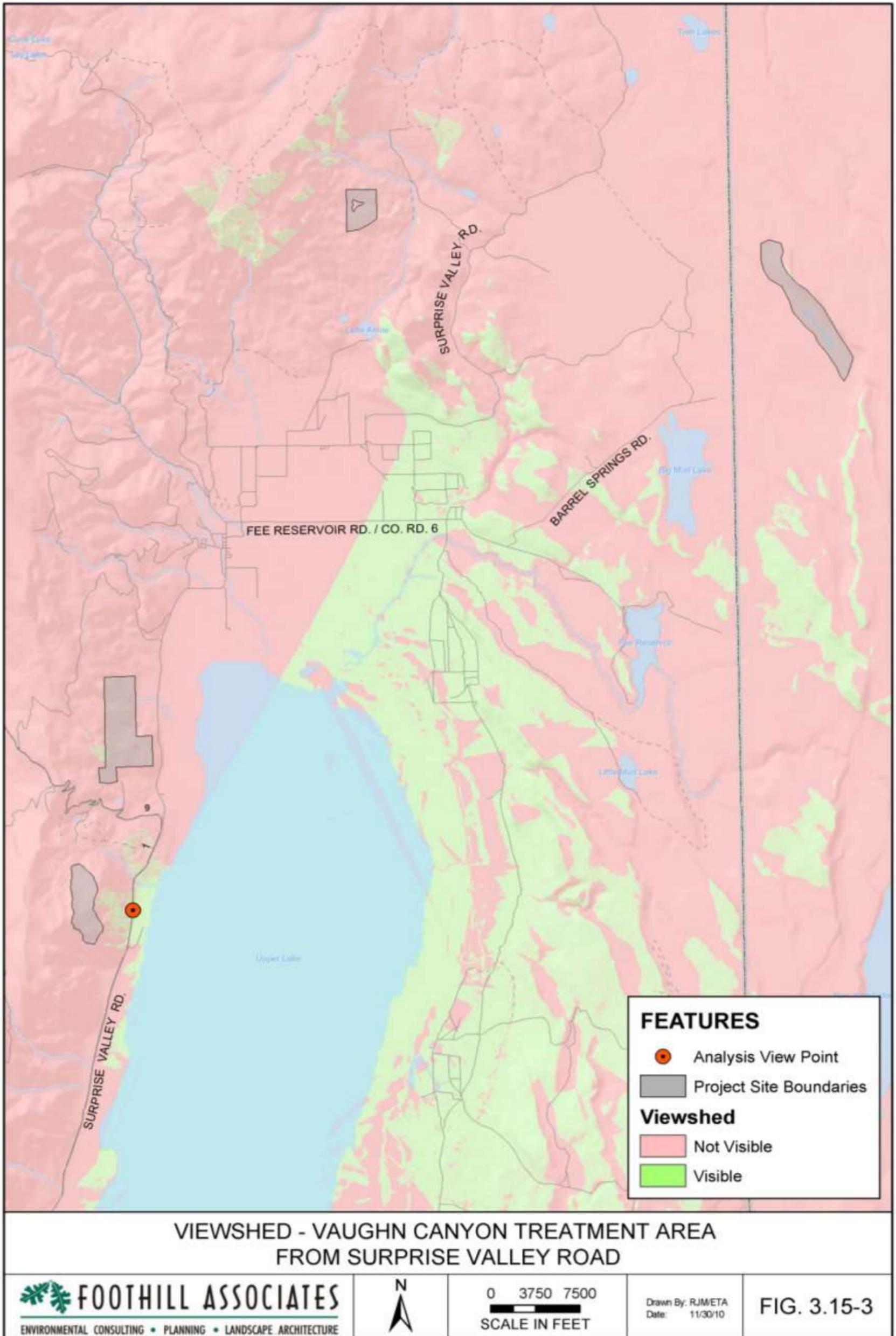
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Figure 3.15-2 — Barrel Springs Road and Bidwell Mountain Representative Views



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Figure 3.15-3 — Viewshed – Vaughn Canyon Treatment Area from Surprise Valley Road

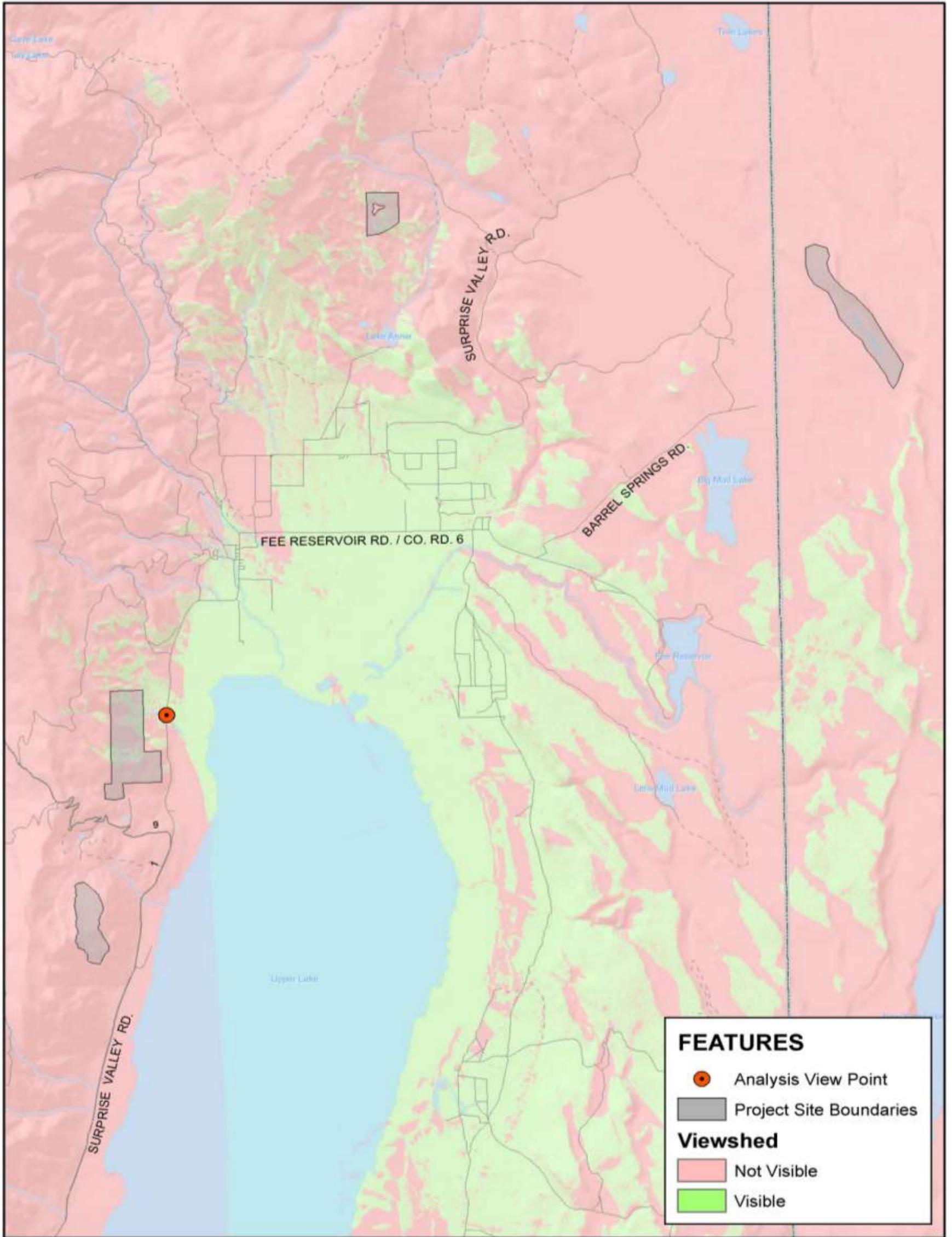


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Figure 3.15-4 — Viewshed – North Fandango Treatment Area



VIEWSHED - NORTH FANDANGO TREATMENT AREA

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0 3750 7500
 SCALE IN FEET

Drawn By: RJM/ETA
 Date: 11/30/10

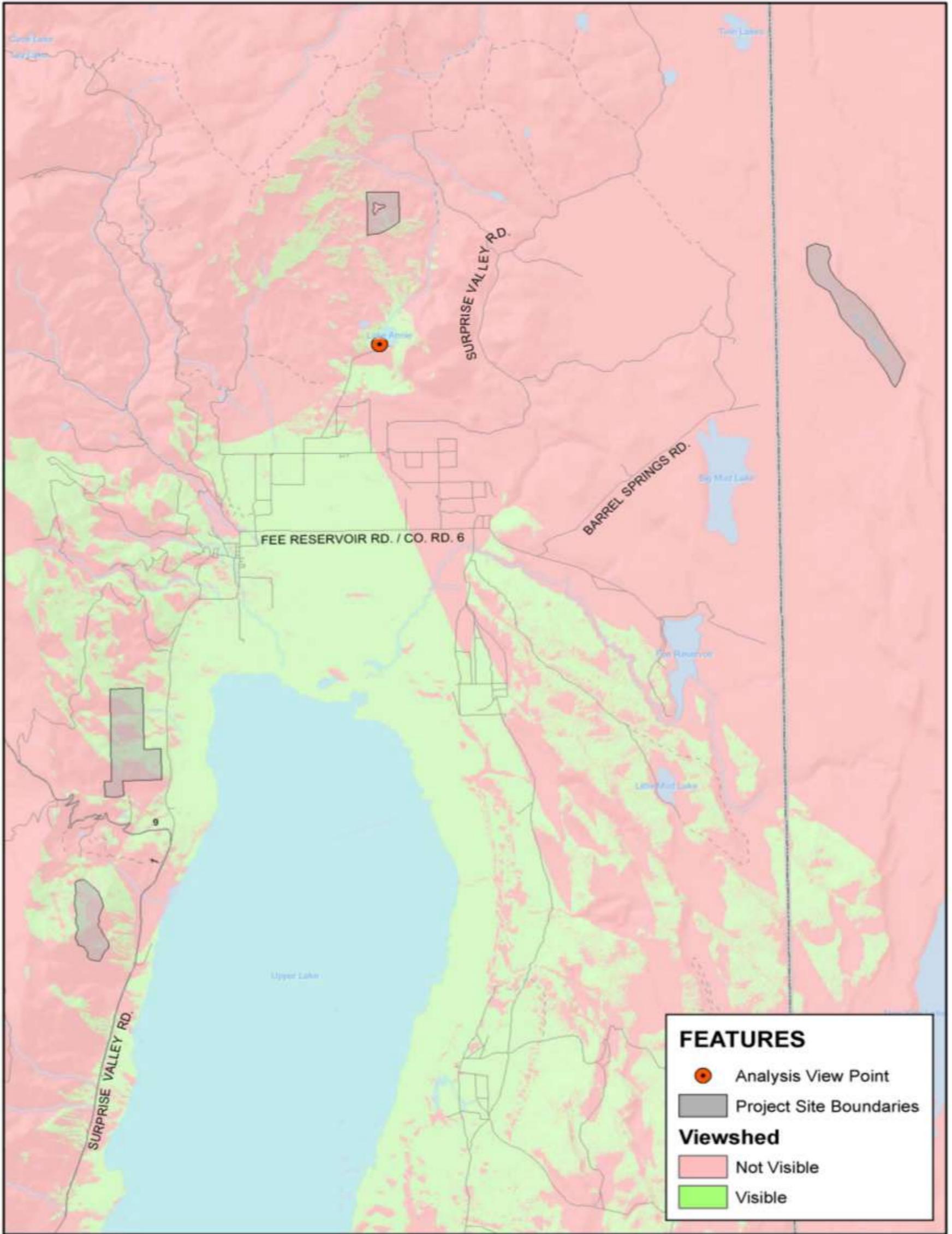
FIG. 3.15-4

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Figure 3.15-5 — Viewshed – Bidwell Mountain Treatment Area



VIEWSHED - BIDWELL MOUNTAIN TREATMENT AREA

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0 3750 7500
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Drawn By: RJM/ETA
 Date: 11/30/10

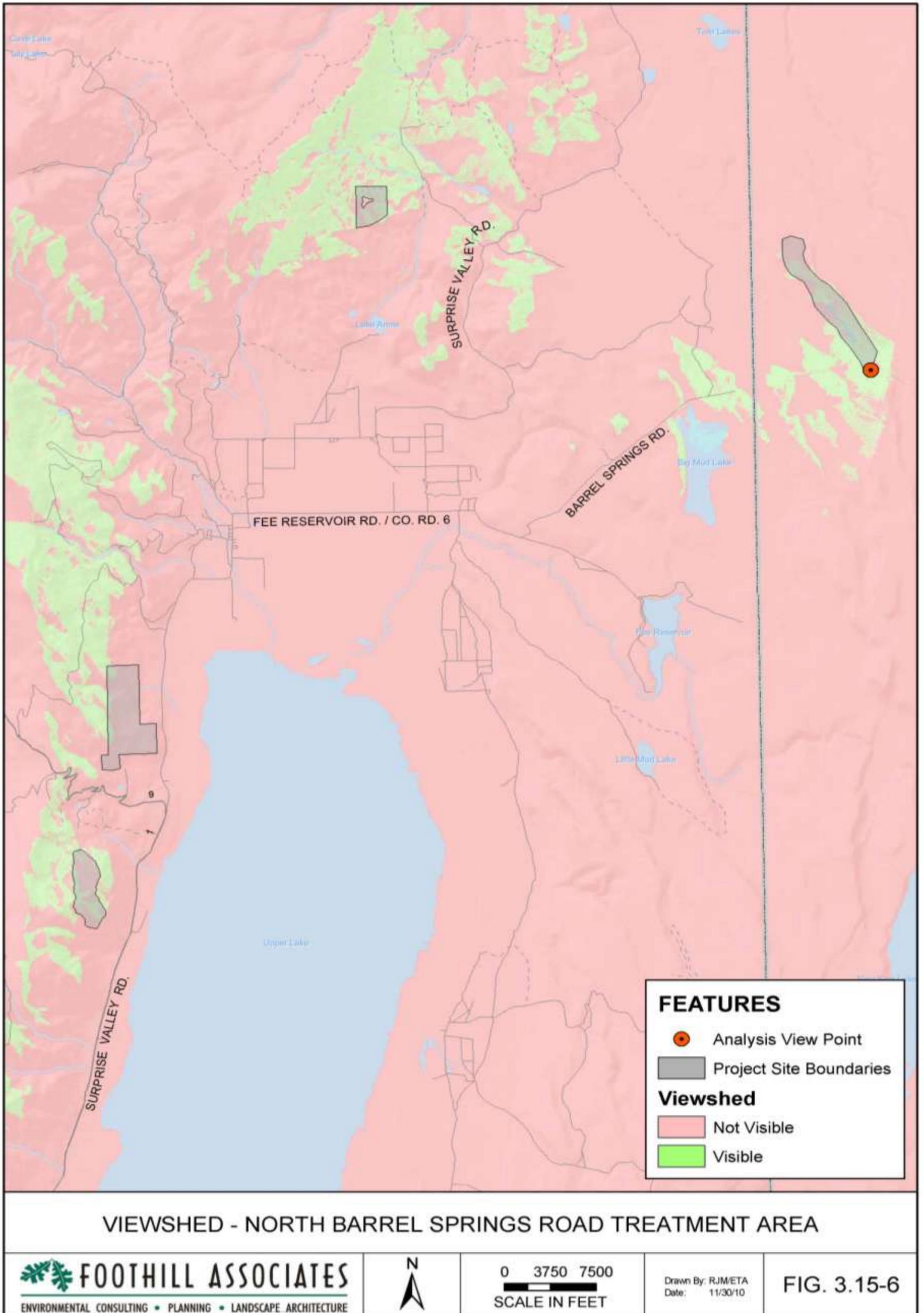
FIG. 3.15-5

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Figure 3.15-6 — Viewshed – Barrel Springs Road Treatment Area



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Public Visibility

The Vaughn Canyon treatment area and the North Fandango treatment area are located just west of Surprise Valley Road, and are the closest treatment areas within the Action Area to frequently traveled routes. The Vaughn Canyon treatment area is almost completely screened by existing landforms (**Figure 3.15-3**), although portions of this treatment area may be visible from Fandango Pass Road, which is less heavily traveled than Surprise Valley Road, and from further south on Surprise Valley Road. Viewshed analysis shows that only a very small portion of the site is visible, from these locations. Substantially greater percentages of the North Fandango treatment area are visible from points along Surprise Valley Road, as shown in **Figure 3.15-4**. Proposed treatments in this area would have the most exposure to public scrutiny than any of the other three treatment areas.

The remoteness of the Bidwell Mountain treatment area would significantly reduce the visibility of treatments. One infrequently traveled dirt road, inaccessible during field assessments due to mud and snow, provides access to the site. The closest potentially sensitive viewpoint that receives significant levels of public visitation is Lake Annie. From that location the site is in the distant middle-ground range and individual treatments would likely not be visible (**Figure 3.15-2** and **Figure 3.15-5**). This treatment area is also visible from points along Barrel Springs Road and Surprise Valley Road; however, as a background view, treatments would primarily only be visible as patches of light and dark colors and would not likely significantly impact this viewshed.

The most highly visible point within the Action Area is from Barrel Springs Road, looking into the Barrel Springs treatment area. From that viewpoint, individual boles and ground-plane disturbance would be readily identifiable, and while Barrel Springs Road is not a heavily traveled route, this route does receive some public use (**Figure 3.15-6**). Currently, the heaviest public use of Barrel Springs Road may result from construction of the Ruby Pipeline Project (complete summer 2011); however, pipeline workers may be less sensitive to visible signs of human disturbance than the general public. Other members of the public viewing the four treatment areas primarily consist of cattle ranchers, fishermen and hunters, who are likely accustomed to viewing the effects from treatments identified by the Proposed Action. Occasional visitors such as sight-seers are infrequent within the Action Area, but would be more likely on Surprise Valley and Fandango Pass Roads.

3.15.4 Evidence of Existing Disturbance

Evidence of disturbance throughout the Action Area is low. Past treatments are visible along Barrel Springs Road in the vicinity of the proposed treatment area. Strong visual elements of disturbance resulting from past treatments include light gray contrasting boles and branches from harvested trees that appear to have been left where they were felled. Evidence of disturbance visible from roadways near the Vaughn Canyon and North Fandango treatment areas is rare.

3.15.5 Direct and Indirect Effects of Proposed Action

Methodology

The methodology used to assess impacts of the Proposed Action included the following:

A GIS-based reverse-viewshed map was generated based upon centroids of the treatment areas.

The reverse-viewshed map shows the locations from which the centroids are visible, which is an approximation of locations from which the treatment areas are visible.

Key observation points (KOPs) were identified based upon the reverse-viewshed maps, locations of treatment areas to traveled routes and other public use areas, and input from BLM personnel.

The KOPs were visited, photographed, and Visual Contrast Rating Worksheets were completed. In addition, other areas with prior treatments similar to the Proposed Action were visited and photographed to assess the visual impacts of those activities. Prior treatment areas visited included a variety of treatment ages and techniques.

The visual impacts of the Proposed Action were evaluated for each treatment area.

Analysis Assumptions

The assumptions used in this study primarily follow those utilized in the Sage Steppe Ecosystem Restoration Strategy, namely:

- Visual impacts from treatments viewed in the background (distances greater than 3 miles) would be largely indistinguishable and therefore negligible.
- Effects from mechanical treatments would be visible for up to 10 years.
- Effects from prescribed fire would primarily be visible during project implementation and would become indistinguishable within one to two years.

Direct and Indirect Effects

The Proposed Action would have the potential for both positive and negative direct effects to visual resources. Positive effects would include an increase in visual quality due to increased sage-steppe areas, with a corresponding increased variety in form, line, color and texture between clumps of juniper and sage-steppe areas. Potential negative effects would primarily be short-term but may persist for up to 10 years. The degree of short-term impact from hand and mechanical treatment is primarily contingent upon what is done with harvested material. If slash is burned, short-term effects would be similar to prescribed burning, and would primarily consist of smoke emissions. Effects of burning would persist for the duration of the burn, including flaming and smoldering portions. Emissions may appear as a point source (single plume) or as a dispersed cloud. Depending on smoke dispersion, this could result in concentrated effects of smoke emissions in one portion of the Action Area, while other areas would experience highly dispersed impacts.

If whole trees are left unburned following felling, they may be visible for several years following treatment. Boles are less visible if smaller branches are cut and burned. Negative effects would primarily consist of elements dominating foreground views, though larger masses of slash may also be visible in middle-ground views.

The Barrel Springs Road treatment area and the North Fandango treatment area both represent the foreground views from routes traveled by the general public. The North Fandango treatment area is located along Surprise Valley Road, in a location superior to the road and on top of a

ridge. The Barrel Springs Road treatment area is located below Barrel Springs Road on approach from either direction.

Some areas within the Vaughn Canyon treatment area are visible from middle-ground distances on Surprise Valley Road south of Fandango Pass Road; however this treatment area is largely screened by landform.

Due to the remote location of the Bidwell Mountain treatment area, visual effects from proposed treatments are expected to be negligible. Only a small portion of this treatment area is visible from Lake Annie as a distant middle-ground view; otherwise, Bidwell Mountain treatments would only be viewed by the infrequent backcountry visitor, primarily hunters or fishermen.

Typically, visual effects primarily result from changes to the degree of contrast in the elements of form, line, color and texture. As related to the Proposed Action, these changes are generally weak or negligible; however, some form and line impacts may be moderate due to treatment of slash or alterations to the canopy cover. Canopy cover modifications would largely result in positive changes to visual quality, therefore treatment of slash would be the primary factor in negative impacts. As stated in the Project Description, the majority of cut trees would remain in place and un-limbed for all treatment areas (ranging from 60 percent to 75 percent of the site on North Fandango, 75 percent to 95 percent of the site on Barrel Springs Road). Visual impacts of slash, if not burned, masticated or otherwise removed, could remain up to 10 years, though visual effects would be substantially reduced within three to six years following treatment. Guidelines indicate that in the foreground zone of maintained roads, trees will be limbed and limbs will be scattered, which will help reduce visual impacts. Other treatment techniques, including partial and full limbing, piling and burning, and broadcast burning, would create lower visual impacts, with evidence of human disturbance decreasing in the order in which the techniques are listed.

Temporary roads may affect the visual quality of the Action Area during construction and use. These effects however would fade within several years after decommissioning of roads, unless significant cut or fill slopes were created.

Some effects may result in viewsheds within the Action Area trending more towards Class III, rather than Class II, VRM Objectives over the short-term. Proposed treatments associated with the Proposed Action would result in unavoidable adverse short-term effects to scenic resources in some portions of the Action Area. In the short-term (less than 10 years) changes to scenic resources would be evident, and would contrast with the characteristic landscape. Long-term, the characteristic landscape would change, such that the scenic quality of restored areas after recovery from restoration would approach the desired landscape. Site-specific design, careful restoration treatment locations and/or avoidance of visually sensitive areas would be required to reduce the potential for creating inconsistencies with the Surprise Field Office Resource Management Plan.

Untreated slash has the largest potential impact on VRM objectives. Treating slash occurring in the foreground of Barrel Springs Road by burning, grinding or chipping would reduce impacts of slash to within acceptable levels for VRM Class II objectives. Excessive stumpage in the foreground of Barrel Springs Road could also result in failure to meet VRM objectives. For instance, a 6" stump viewed at approximately 60 feet subtends an angle approximately the size of

the full moon. Flush-cutting of stumps in the immediate foreground (within 200-feet of the road would help maintain VRM objectives). Additionally, locating slash piles in areas not visible from foreground and middle ground views on Surprise Valley Road and Barrel Spring Roads would maintain VRM objectives.

Strong geometrical patterns resulting in clearing of the juniper canopy in heavily wooded areas could result in failure to meet Class II objectives. Preserving clumps of juniper scattered throughout the treatment area (approximately 5 to 10 trees per acre) and creating openings in stands of trees that are irregular and natural in appearance would mitigate these affects to a less than significant level.

As discussed, potential impacts from temporary roads that could result in failure to meet VRM objectives include visibility of cut and fill slopes and contrasting soils in graded areas. Locating roads along routes that minimize cut and fill slopes, decommissioning temporary roads following treatment and restricting further access, and reseeding temporary roads and staging grounds following decommissioning would reduce impacts and meet VRM objectives.

The long-term productivity (more than 10 years) of scenic resources would not be affected. Potential effects to visual resources resulting from implementation of the Proposed Action are considered Minor. Long-term, the proposed project will improve the ability of project areas to meet Class II objectives, because the landscape will be more able to resist visual impacts from major wildfire.

3.15.6 Cumulative Effects of the Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that continued livestock grazing and range management actions, recreational use, or wild horse range would contribute to cumulative effects related to visual resources. Construction of the Ruby Pipeline Project would have been required to comply with regulatory requirements stipulated by entitlements through local agency and/or State approvals for project construction. Therefore cumulative effects related to visual resources are not anticipated from the previous implementation of this project. Off-highway vehicle use has the potential to result in degraded vegetative community compositions and densities, as well as ground disturbance and erosion.

Implementation of the Proposed Action would likely result in a positive effects relevant to meeting Class II VRMs in the event of wildfire. Removal of juniper in favor of a sage-steppe ecosystem through proposed treatments would reduce overall fuel loading and thus reduce the chances that a large stand-replacing fire will drastically alter the existing visual character of the landscape. The Proposed Action would reduce the need for future prescribed fire and other vegetation treatments within the treatment areas under consideration. Potential cumulative effects to visual resources resulting from implementation of the Proposed Action are considered minor.

3.15.7 Direct and Indirect Effects of No Action Alternative

Continued expansion of juniper habitat under the No Action Alternative has the likelihood of degrading visual quality due to replacement of sage-steppe vegetative communities and creation of a more homogeneous landscape. Additionally, the possibility of catastrophic wildfire would increase, the occurrence of which would significantly alter the visual quality of the Action Area and/or surrounding viewsheds. Changes resulting from a catastrophic wildfire would not be consistent with the Class II objective of retaining the existing landscape character. Potential cumulative effects to visual resources resulting from the No Action are considered moderate.

3.15.8 Cumulative Effects of the No Action Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that continued livestock grazing and range management actions, recreational use, or wild horse range would contribute to cumulative effects related to visual resources. Construction of the Ruby Pipeline Project would be required to comply with regulatory requirements stipulated by entitlements through local agency and/or State approvals for project construction. Therefore cumulative effects related to visual resources are not anticipated through implementation of this project. Off-highway vehicle use has the potential to result in degraded vegetative community compositions and densities, as well as ground disturbance and erosion.

Under the No Action Alternative, it is likely that some level of future management for wildfire would be needed in this area, whether hand, mechanical or prescribed fire. These management actions are more likely to cause visual impacts as stands of juniper continue increasing in density and extent. It is also possible, however, that the increasing density of juniper could help screen future management actions from potentially sensitive viewers by leaving buffers of trees along roadways, thus resulting in lesser impacts in some areas. Part of the natural beauty of the Surprise Valley lays in the sweeping vista views of the surrounding mountains, high desert sage steppe and alkali lakes. As has been mentioned, overall visual quality of a more homogenous juniper-dominated landscape would likely be lower than it is today through increased screening of vista views and a lower diversity of form, line, color and texture. Potential cumulative effects to visual resources resulting from the No Action Alternative are considered moderate.

3.15.9 Mitigation Measures

In the short-term (less than 10 years) changes to scenic resources would be evident, and would contrast with the characteristic landscape. The long-term productivity (more than 10 years) of scenic resources would not be affected. Long-term, the characteristic landscape would change, but the scenic quality of restored areas after recovery from restoration would approach the desired landscape.

The following mitigation measures are identified to reduce potential visual effects related to implementation of the Proposed Action and to ensure Class II VRMs are maintained within the Action Area:

- Dispose of slash through burning, grinding or chipping within foreground views of Surprise Valley and Barrel Springs Road.
- Where slash remains in foreground, locate boles and scatter limbs in areas not highly visible from primary public roads, or screened from roads by existing vegetation (Vaughn Canyon and North Fandango treatment areas.)
- Locate temporary roads along routes that minimize cut and fill slopes.
- Decommission temporary roads following treatment with boulders or other access-restricting methods to prevent public use.
- Reseed areas cleared for temporary roads and staging grounds.
- Flush-cut stumps in immediate foreground adjacent to the road (Barrel Springs Road treatment area).
- Preserve clumps of juniper scattered throughout the treatment area (5 to 10 trees per acre).
- Create openings in stands of trees that are irregular and natural in appearance.

3.16 Water Quality

3.16.1 Affected Environment

There are no impaired waters listed for the Warner Lakes or Surprise Valley watersheds within the Action Area (USFS 2008).

The California portion of the Surprise Field Office is located within the jurisdiction of the Lahontan Regional Water Quality Control Board (RWQCB). Water quality standards and control measures for surface and ground waters of the Lahontan Region are contained in the Water Quality Control Plan for the Lahontan Region (Basin Plan). The Basin Plan designates beneficial uses for waterbodies and establishes water quality objectives, waste discharge prohibitions, and other implementation measures to protect those beneficial uses (RWQCB 2011). Beneficial uses defined for the Surprise Field Office generally include municipal supply, agricultural supply, groundwater recharge, contact and non-contact water recreation, warm and cold spawning and freshwater habitat, and wildlife habitat (BLM 2007).

Water pollution control for lands within Nevada is implemented by the Nevada Revised Statutes and Nevada Administrative Code, under Sections 445A.300 through 445A.730. The Nevada Division of Environmental Protection is responsible for administering these laws and regulations. Protection under these laws and regulations is provided for water quality for public use, wildlife, existing industry, and agriculture, and the beneficial economic development of the State.

It is the responsibility of the BLM as federal land management agencies through implementation of the Clean Water Act (CWA), to protect and restore the quality of public waters under their jurisdiction. Protecting water quality is addressed in several sections of the CWA, including sections 303, 313, and 319. BMPs are used to meet water quality standards (or water quality goals and objectives) under Section 319. To this end, BLM will protect and maintain water quality where standards are met or surpassed, and restore water-quality-limited waterbodies within their jurisdiction to conditions that meet or surpass standards for designated beneficial uses through the development and implementation of a Water Quality Restoration Plan (WQRP) as the primary mechanism to address and restore impaired waters on BLM-administered lands to support State development and implementation of total maximum daily loads (TMDLs) on those lands.

The 1998 federal Clean Water Action Plan requested a collaborative process amongst states and tribes, with assistance from federal agencies and input from stakeholders and the public to develop a Unified Watershed Assessment (UWA).

The Plan defines four categories of watersheds:

- **Category I**
Watersheds that are candidates for increased restoration activities due to impaired water quality or other impaired natural resource goals (emphasis on aquatic systems).
- **Category II**
Watersheds with good water quality that, through regular program activities, can be sustained and improved.

- **Category III**
Watersheds with pristine or sensitive areas on federal, State, or tribal lands that need protection.
- **Category IV**
Watersheds where more information is needed to categorize them.

The NRCS directed an open collaborative process involving federal and State agencies, private landowners and associations, and nonprofit organizations to evaluate and categorize watersheds. In California, NRCS and State Water Resources Control Board staff jointly coordinated with tribes, State and federal agencies, and stakeholders. The California Unified Watershed Assessment ranked the Warner Lakes Watershed as Category II. The Surprise Valley Watershed is ranked as Category I. The proposed North Fandango and Vaughn Canyon treatment areas include wet meadow, and unnamed intermittent/headwater creeks to the Surprise Valley watershed.

The proposed Bidwell Mountain treatment area contains springs that feed unnamed perennial, intermittent and seasonal wetlands, ultimately tributary to the Warner Lakes Watershed. In addition, an unnamed intermittent drainage in the Warner Lakes Watershed traverses the southern end of the proposed Barrel Springs Road treatment area. With the exception of Cowhead Slough (which fails to meet Basin Plan criteria for coldwater and spawning), key streams identified for the Warner Lakes Watershed meet Basin Plan Beneficial Use Needs criteria and BLM standards and criteria for Water Quality (BLM 2007).

3.16.2 Direct and Indirect Effects of Proposed Action

Soil disturbance would potentially be generated through the use of prescribed fire, mechanical, and hand restoration treatments, as well as the construction of temporary access roads and landings. Erosion is the removal of soil particles by wind, water and ice. Sedimentation occurs when soil leaves the site and enters a water body. Potential effects to Water Quality resulting from implementation of the Proposed Action would potentially consist of increased erosion and sedimentation related to exposure of bare soils resulting from prescribed fire, as well as ground disturbing activities associated with mechanical and hand treatments. Prescribed fire would result in the loss of ground cover and subsequent increased erodibility due to temporary loss of ground cover. Mechanical treatments use large machines that would create soil disturbance. Hand treatments would have minimal effects on increasing soil erodibility due to their limited ground disturbance (USFS 2008). Increased soil erosion potential due to ground disturbances from restoration treatments would be short-term because vegetation would cover bare soil quickly after treatment and reduce the potential for further erosion (EOARC 2007).

BMPs have been developed by both BLM for proposed restoration treatments, and BLM and the RWQCB have coordinated an agreement for complying with federal and State Clean Water Acts. The implementation of BMPs by BLM would include monitoring and evaluation to determine the effectiveness of the BMPs.

In addition to implementing BMPs, BLM uses a threshold of concern (TOC) evaluation to determine if the amount and type of activities within a watershed would reach or exceed a predetermined threshold effect level. If proposed restoration treatments are predicted to exceed

the TOC within Action Area watersheds, the activities proposed for those watersheds would have to be modified by changing the type or extent of the activity, to comply with management direction for site-specific restoration projects. The TOCs would limit the amount of restoration treatments within specific watersheds until hydrologic recovery allows additional treatments.

The Proposed Action would involve treatments that would include ground disturbing activities and may result in increased erosion, sedimentation, turbidity, runoff, and soil compaction and increased infiltration in the short-term. However, management measures including BMP implementation and monitoring, as well as post-project stabilization and restoration would ensure that water quality effects are minimized. Proposed treatments would result in long-term benefits to water resources (BLM 2007), potentially resulting in a shift of Class I watersheds to Class II conditions. Therefore potential effects resulting from implementation of the Proposed Action related to water quality are considered negligible.

3.16.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that continued recreational use within the CAA will substantially contribute to cumulative adverse effects related to water quality.

BLM will continue to manage lands used for livestock grazing, wild horse range, and other rangeland management activities to minimize the potential for adverse effects related to soils. Surrounding lands within the CAA may be susceptible to adverse effects related to water quality due to a lack of proper management of soil resources and the resulting erosion and sediment loss. This lack of management on surrounding lands would contribute to cumulative effects within the CAA.

Off-highway vehicle use within the CAA would contribute to adverse cumulative effects related to water quality resulting from erosion and sediment loss.

Construction activities associated with the Ruby Pipeline Project (completed summer 2011) would have been subject to compliance with the National Pollution Discharge Elimination System, and would be required to implement, monitor, and maintain effective Best Management Practices related to erosion and sediment control. It is therefore not anticipated that the Ruby Pipeline Project would contribute to cumulative adverse effects related to water quality.

It is anticipated that BLM will continue implementing land management practices in collaboration with surrounding land managers as part of the BLM TOC procedures, and as such would plan treatments and develop BMPs to address the potential for surrounding restoration treatments and other management practices to result in simultaneous effects related to erosion and sedimentation. Short-term increases in erosion and sedimentation would be resolved through BLM monitoring of BMPs. In addition, it is anticipated that increased ground cover will quickly colonize and spread on bare soils following proposed treatments. Implementation of the Proposed Action would result in long-term positive effects on watershed and ecosystem health related to improved hydrologic functions and the restoration of a stable and diverse assemblage of vegetative communities and increased ground cover. These positive effects and increased

positive overall watershed health will benefit surrounding land and natural resources, therefore potential cumulative effects related to water quality resulting from implementation of the Proposed Action are anticipated to be negligible.

3.16.4 Direct, Indirect and Cumulative Effects of No Action Alternative

Under the No Action Alternative, proposed restoration treatments would not be implemented and juniper encroachment would further contribute to an accumulation of fuel loads, increased expanses of bare soil where juniper canopy covers become dense, and a decline in existing sage-steppe vegetative communities. These circumstances would lead to conditions conducive to severe and intense wildfire, resulting in expanses of bare ground and increased erosion and sedimentation. In addition, areas of bare soil under juniper canopies would increasingly expose Action Area soils to natural processes conducive to erosion and sedimentation. It is anticipated that BLM would plan and implement restoration activities following wildfire, and timing of localized weather patterns would play a significant role in the potential for adverse effects to water quality resulting from these wildfires. However, the No Action alternative would facilitate increased risk of wildfire and increased exposure of soils through continuing expansion of juniper canopy densities. These effects, when considered with reasonably foreseeable past, present, and future activities may promote and overall decline within Action Area watersheds and surrounding lands.

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that recreational use within the CAA would substantially contribute to cumulative adverse effects related to water quality.

BLM will continue to manage lands used for livestock grazing, wild horse range, and other rangeland management activities to minimize the potential for adverse effects related to soils. Surrounding lands within the CAA may be susceptible to adverse effects related to Water Quality due to a lack of proper management of soil resources and the subsequent effects of erosion and sediment loss. This lack of management on surrounding lands would contribute to cumulative effects within the CAA.

Off-highway vehicle use within the CAA would contribute to adverse cumulative effects related to water quality through erosion and sediment loss

Construction activities associated with the Ruby Pipeline Project would have been subject to compliance with the National Pollution Discharge Elimination System, and would be required to implement, monitor, and maintain effective Best Management Practices, including post-construction BMP implementation, monitoring and maintenance, related to erosion and sediment control. It is therefore not anticipated that the Ruby Pipeline Project would contribute to cumulative adverse effects related to water quality.

Potential direct, indirect and cumulative effects related to water quality resulting from the No Action alternative are considered moderate.

3.17 Wilderness Characteristics

3.17.1 *Affected Environment*

The Wilderness Act of 1964 defines a wilderness as an area where the earth and its community of life are untrammelled by people and where people are visitors who do not remain. The act further defines a wilderness as:

“An area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed to preserve its natural conditions and that:

- Generally appears to have been affected primarily by the forces of nature with the impact of people substantially unnoticeable;
- Has outstanding opportunities for solitude or a primitive and unconfined type of recreation;
- Has at least 5,000 acres of land or is of sufficient size to make practicable its preservation and use in unimpaired condition; and
- May also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.” (BLM 2007)

Instruction Memorandum IM-2011-154

For project-level decisions in areas where BLM determines that the land appears to have wilderness characteristics that have not both been inventoried and analyzed in a land use planning process, BLM preserves the discretion to protect wilderness characteristics through subsequent land use planning. Where BLM determines that land appears to have wilderness characteristics and the Proposed Action may impair those characteristics, BLM shall conduct an inventory. If the inventory identifies lands with wilderness characteristics, BLM shall consider the potential effects of the Proposed Action on the wilderness characteristics and measures to minimize impacts on those characteristics as documented in the appropriate NEPA analysis. Based on this NEPA analysis, BLM may approve a project that may impair wilderness characteristics if appropriate and consistent with requirements of applicable law and other resource management considerations consistent with this Order or necessary for the exercise of valid existing rights.

IM-2011-154 contains guidelines for consideration of wilderness characteristics in planning and project implementation.

North East Warner Fuels Reduction and Habitat Restoration Action Area

The Vaughn Canyon and North Fandango treatment areas are located in rugged, sparsely wooded, mountainous terrain overlooking the Surprise Valley and Upper Lake. Land forms are generally rugged with moderate to steep slopes, mostly natural with some evidence of human-induced changes, primarily roads and fences.

The Bidwell Mountain treatment area is remote and sparsely vegetated with open sweeping views. Landforms are rugged, jagged high desert steppes with rock formations and dissected

drainages. Vista views predominate to the south and southeast with mountainous peaks to the west.

The Barrel Springs Road treatment area lies in a shallowly sloping drainage. Woody vegetation to the east is moderate and increasingly sparse to the west. Some evidence of past fuels management activity is apparent to the east of this treatment area, primarily boles and branches piled, and left where they were cut. Landforms visible from this treatment area are dominated by low rounded hills with horizontal rock shelves. The primary evidence of human disturbance visible within this site is Barrel Springs Road, which just touches the south end of this treatment area.

Evidence of disturbance throughout the Action Area is low. Past treatments are visible along Barrel Springs Road in the vicinity of the proposed treatment area. Piled boles and branches from harvested trees appear to have been left where they were felled. Evidence of disturbance visible from roadways near the Vaughn Canyon and North Fandango treatment areas is rare.

Public Recreation activities within the Action Area include dispersed primitive camping, hiking, fishing, photography, rock hounding, fossil hunting, mountain biking, horseback riding, and sightseeing. Peak seasons for recreational use include spring, summer, and fall, with the highest number of visitors during Memorial Day weekend, Fourth of July, and opening day of antelope, deer, and upland game hunting seasons. Recreational values offered by the Action Area include quiet solitude, scenery, and the perception of rugged untamed country (BLM 2007).

3.17.2 Direct and Indirect Effects of Proposed Action

The 2009 Documentation of BLM Wilderness Inventory Findings Record prepared for Snuff OR-010-164 and Twelvemile Creek CA-020-1004 determined that the Barrel Springs Road treatment area does not meet the criteria for wilderness characteristics; therefore this treatment area is not further analyzed relevant to wilderness characteristics.

Analysis of Wilderness Characteristics

Criterion 1 — Size

The Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas encompass roadless areas less than 5,000 acres and are located adjacent to BLM Wild Lands. Therefore, these treatment areas meet the Size criterion.

Criterion 2 — Naturalness

The Vaughn Canyon and North Fandango treatment areas are located in rugged, sparsely wooded, mountainous terrain overlooking the Surprise valley and Upper Lake. The Bidwell Mountain treatment area is remote and virtually uninfluenced by human activity. Evidence of disturbance visible from roadways near Vaughn Canyon and North Fandango treatment areas is rare. The Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas therefore meet the Naturalness criterion for LWC.

Criterion 3 — Outstanding Opportunities for Solitude or a Primitive Unconfined Type of Recreation

Solitude

The Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas are remote,

primitive sites located along mountain slopes and plateaus, far removed from the sights, sounds, and influence of human-induced activities. These areas remain remote and uninfluenced by human activity, urban or residential land uses and other land use development activity due to remote geographical location as well as the characteristics of topographic features. Therefore, the Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas meet the Solitude criterion.

Primitive and Unconfined Recreation

The Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas are remote, primitive sites located along mountain slopes and plateaus. These areas possess attributes conducive to dispersed primitive camping, hiking, fishing, photography, rock hounding, fossil hunting, mountain biking, horseback riding, and sightseeing. Both areas represent prime opportunities to experience wild lands, geological features, and ecological habitats uninfluenced by human development, modern land uses, and urbanization. These treatment areas meet the Primitive and Unconfined criterion.

Supplemental Values

The proposed Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas are characterized by diverse ecosystems, vegetation communities and wildlife habitats, topographical landforms, remote geographic location, and favorable climate scattered across an expansive landscape. These values further contribute the wilderness attributes of these areas.

Impact Analysis

Hand treatments would either have no effect or a negligible effect on Action Area characteristics due to the low number of acres that would be treated annually as well as the limited area of effect. Mechanical treatments would generate noise, traffic, and dust. Prescribed fire would result in visual effects, as well as possibly the smell smoke. However, these effects would only temporarily alter Action Area settings, and would be short-term in nature. If treatments occur in areas where undesignated recreation sites occur, such as those associated with deer hunting, additional effects may include temporary loss of use for these types of recreational uses.

Habitat restoration would facilitate re-establishment of stands of grasses, forbs and shrubs in varying seral stages, more typical of the sagebrush steppe ecosystem, and would subsequently support more upland birds and ungulates; providing for enhanced scenic quality, as well as recreational opportunities, including hiking, hunting, photography, and wildlife viewing opportunities. Implementation of the Proposed Action would also decrease fuel loads in the Action Area, ultimately reducing the scale and frequency of wildfires. Fire severity and intensity would also be reduced, decreasing the potential for severe, intense burns to affect Action Area characteristics.

Indirect effects for all alternatives would include changes in views from surrounding viewpoints. Effects to views from viewpoints would be both adverse (short-term) and beneficial (long-term). However, as discussed in detail in **Section 3.15**, with implementation of proposed mitigation measures, effects related to visual resource management would be minor.

Implementation of the Proposed Action would result in short-term effects to Action Area natural resource characteristics, ultimately leading to long-term ecosystem enhancement, promoting

sustainable and viable biological communities as well as continued opportunity for experiencing desirable primitive natural settings. Potential effects related to wilderness characteristics resulting from implementation of the Proposed Action are therefore considered minor.

3.17.3 Cumulative Effects of Proposed Action

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project (completed summer 2011). It is not anticipated that continued livestock grazing, rangeland management actions, wild horse range, or recreational use within the CAA would substantially contribute to cumulative adverse effects related to wilderness characteristics.

Off-highway vehicle use within the CAA would contribute to adverse cumulative effects related to ground disturbance, and noise.

The Ruby Pipeline Project construction activities are short-term, temporary activities and are subject to regulatory compliance through local and/or State entitlements issued for project construction. It is not anticipated that the Ruby Pipeline Project would contribute to cumulative adverse effects related to wilderness characteristics.

Habitat restoration and fuels reduction treatments proposed by BLM within the Action Area, in combination with land uses and management actions proposed on surrounding lands would have the potential to result in modifications to existing natural resources and recreational opportunities provided by these resources. Proposed management actions would affect natural resources within proposed treatment areas during implementation over a short duration and would be temporary by nature; however, as a result of these management actions, primitive recreational opportunities and the visual quality of the region would improve as ecosystems are restored.

The Proposed Action would also facilitate the restoration of fire as a natural ecological process, potentially resulting in the restoration of more diverse vegetative communities within the area and complementing prescribed fire and fuel reduction actions implemented within adjoining forests, refuges, and BLM field offices encompassing a vast area in northeast California and northwest Nevada. While prescribed fire may temporarily adversely affect the visual quality of the landscape, the post-fire landscape would provide opportunities for recreators to view ecological processes as vegetative communities regenerate.

Implementation of the Proposed Action project would result in short-term effects, ultimately leading to long-term benefits. Potential cumulative effects related to wilderness characteristics resulting from implementation of the Proposed Action are considered minor.

3.17.4 Direct and Indirect Effects of No Action Alternative

Under the No Action alternative, juniper canopy cover would continue to increase in density across former sage-steppe ecosystems resulting in increased bare soils, declining soil, moisture and potential colonization of noxious or invasive weeds. Juniper would continue to encroach into adjacent habitats, displacing a diverse assemblage of vegetative species. The direct effects of these changes in habitat would result in a decline in natural resources available to promote viable diverse populations of vegetation, as well as wildlife. These natural resources and

associated ecosystems substantially contribute to wilderness characteristics within the Action Area. Hunting, fishing, sight-seeing, hiking and other primitive recreational opportunities within the Action Area depend on a successful and diverse ecosystem. The decline in vegetative diversity and wildlife populations would lead to a decline in primitive recreational appeal within the Action Area, although the basic physical qualities of solitude and primitive unconfined recreation would remain. Potential effects related to wilderness characteristics resulting from the No Action alternative are therefore considered minor.

3.17.5 Cumulative Effects of No Action Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project. It is not anticipated that continued livestock grazing, rangeland management actions, wild horse range, or recreational use within the CAA would substantially contribute to cumulative adverse effects related to wilderness characteristics.

Off-highway vehicle use within the CAA would contribute to adverse cumulative effects related to ground disturbance, and noise.

The Ruby Pipeline Project construction activities are short-term, temporary activities and are subject to regulatory compliance through local and/or State entitlements issued for project construction. It is not anticipated that the Ruby Pipeline Project would contribute to cumulative adverse effects related to wilderness characteristics.

Under the No Action alternative, juniper canopy cover would continue to increase in density across former sage-steppe ecosystems resulting in increased bare soils, declining soil, moisture and potential colonization of noxious or invasive weeds. Juniper would continue to encroach into adjacent habitats, displacing a diverse assemblage of vegetative species. Lands within the Action Area would harbor increased juniper densities and facilitate juniper encroachment on surrounding lands within the CAA, potentially resulting in the perpetuation of an assortment of undesirable ecological characteristics, as well as wildfire potential. Although these effects may result in cumulative adverse effects to other resource issue areas, wilderness characteristics would be modified, but retained. Potential cumulative effects related to Wilderness Characteristics resulting from the No Action alternative are considered minor.

3.17.6 Mitigation Measures

As applicable and appropriate, mitigation measures have been identified relevant to individual resource issue areas throughout this EA, reducing the level of effect resulting from implementation of the Proposed Action. No mitigation specific to wilderness characteristics is proposed.

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3.18 Wildlife; Migratory Birds; Special-Status Species (Federally-Listed, Proposed or Candidate Threatened and Endangered Species); State Protected Species; BLM Sensitive Species

3.18.1 Affected Environment

The Action Area is inhabited by a variety of terrestrial and aquatic species including BLM sensitive species and several important game species. The following sections describe habitats and wildlife species present within the Action Area. Vegetative communities are discussed in greater detail in **Section 3.14**.

Primary Habitats

Major habitat types are largely synonymous with the vegetation communities described in **Section 3.14** and include: big sagebrush, low sagebrush, juniper woodland, timber, antelope bitterbrush, and wet meadows, with important habitat inclusions including curleaf mountain mahogany, intermittent and ephemeral drainages, and riverine seasonal wetlands. Plant composition of habitat types and inclusions are described in detail in **Section 3.14**. The Action Area encompasses 1,613 acres in northeastern California and western Nevada dominated by big sagebrush and low sagebrush habitats. Terrestrial habitat types and acreages within the Action Area are summarized by treatment area in **Table 3.18-1**.

Table 3.18-1 — Terrestrial Habitat Types by Treatment Area

Treatment Area	Major Habitat Types (acres)				Inclusions ⁶ (acres)		
	Big Sagebrush ⁷	Low Sagebrush	Antelope Bitterbrush	Timber	Curleaf Mountain Mahogany	Mixed Juniper Riparian Woodland	Aspen
Vaughn Canyon	126.60	160.93 ⁸	-	-	-	-	0.98
North Fandango	436.82	-	124.77	14.07	-	2.35 (14.05 Riparian)	6.05
Bidwell Mountain	121.86	62.85	-	-	8.30	-	-
Barrel Springs Road	73.99 ⁹	457.28	-	-	-	-	-

⁶ Aquatic, wetland, and open water community acreages are not included in this table, as a formal delineation of waters of the United States was not conducted for this project. The larger areas of potential waters of the United States are included on **Figure 3.14-1 through Figure 3.14-4**.

⁷ Juniper woodland is a large component of this habitat type to greater or lesser degrees depending on the treatment area. The aerial photographs in **Figure 3.14-1 through Figure 3.14-4** clearly show the encroachment of juniper woodland in the big sagebrush habitats. **Figure 3.14-1 through Figure 3.14-4** also show habitat subcategories (e.g. mountain big sagebrush), and those are all grouped in this table.

⁸ This habitat type in this treatment area (160.93 acres) is actually a hybrid, and is mapped as a combination of low sagebrush and bitterbrush (**Figure 3.14-1**).

⁹ 71.59 acres of this habitat type are actually a combination of low sagebrush and Wyoming big sagebrush in this treatment area (**Figure 3.14-4**).

Big Sagebrush

Big sagebrush vegetation includes mountain, Wyoming, and basin sagebrush associations. Other shrub species identified within this vegetative community include: bitterbrush, rabbitbrush, and curleaf mountain mahogany. Herbaceous species include: Idaho fescue, bluebunch wheatgrass, penstemons, balsamroots, and lupines also occur.

Common wildlife species that likely utilize big sagebrush habitat within the Action Area for foraging, dispersal, migration and nesting are mammals such as pronghorn antelope (*Antilocapra americana*), Ord's kangaroo rat (*Dipodomys ordii*), Great Basin pocket mouse (*Perognathus parvus*), and sagebrush vole (*Lemmyscus curtatus*). Other common avian, reptile, and amphibian species include sagebrush lizard (*Sceloporus graciosus*), Great Basin spadefoot toad (*Spea intermontana*), sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza belli*), chukar (*Alectoris chukar*), and gray flycatcher (*Empidonax wrightii*).

Wildlife species observed within big sagebrush communities during fall 2010 and summer 2011 field surveys include gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), mountain cottontail (*Sylvilagus nuttallii*), turkey vulture, western kingbird and western meadowlark (*Sturnella neglecta*).

Big sagebrush (including all associations) occurs interspersed on approximately 43 acres of the North Fandango treatment area; mountain sagebrush occurs on a majority of the 394 acres of the North Fandango treatment area (**Figure 3.14-2**). Mountain big sagebrush occurs on 127 acres of the Vaughn Canyon treatment area (**Figure 3.14-1**), and 122 acres of the Bidwell Mountain treatment area (**Figure 3.14-3**). A combination of big sagebrush associations occurs on 72 acres of the Barrel Springs Road treatment area (**Figure 3.14-4**). Habitat type inclusions within sagebrush vegetation zones include seasonally and perennially wet meadows, intermittent and ephemeral drainages, curleaf mountain mahogany, aspen, and juniper woodland (**Table 3.18-1**).

Low Sagebrush

Low sagebrush vegetation includes early, Lahontan, and black sagebrush associations. In general, low sagebrush occurs on open, rocky soils and supports a wider diversity of native herbaceous species. Species such as bitterroot, phacelias, phlox, wild onions (*Allium* spp.) and locoweeds thrive in these open low sagebrush habitats.

Low sagebrush stands tend to lose their snow cover earlier than surrounding habitats, and consequently provide important sources of new green foliage for pronghorn and mule deer. Low sagebrush is more nutritious and palatable than big sagebrush, and pronghorn and sage-grouse prefer this sagebrush for winter forage and often wait to migrate until heavy snows force them to move on to the less palatable big sagebrush plants. Low sagebrush is also important to pronghorn because they rely on their eyesight and speed to avoid predation and this habitat provides optimal line of sight and the ability to run at high speeds, while still providing enough cover for young animals. Large raptors often hunt in this habitat because it affords an optimal view of prey and few, if any obstructions to low flight.

Low sagebrush (including all associations) occurs within approximately 63 acres of the Bidwell Mountain treatment area and within 233 acres of the Barrel Springs Road treatment area, while a combination of low sagebrush and juniper occurs within 224 acres of the Barrel Springs Road treatment area. A combination of low sagebrush and bitterbrush occurs on the 161 acres of the Vaughn Canyon treatment area, while bitterbrush covers 125 acres of the North Fandango site (**Figure 3.14-1 through Figure 3.14-4**). Habitat inclusions identified within low sagebrush vegetation communities include: bitterbrush, early Lahontan, black sagebrush, and rabbitbrush, as well as intermittent and ephemeral drainages and wet meadows.

Timber

Timber vegetation within the Action Area includes stands of mixed incense cedar white fir, and ponderosa pine, with western juniper trees also occurring in association with these stands. Shrub species such as serviceberry, curleaf mountain mahogany and herbaceous species such as yellow prairie violet, larkspurs, and lupines constitute the typical understory in this habitat type.

Timber provides habitat for a high diversity of wildlife species. The tall trees provide suitable habitat for nesting and roosting raptors, as well as other nesting birds such as mountain chickadee (*Poecile gambeli*) and northern flicker (*Colaptes auratus*), Timber also provides thermal cover for large mammals, and supports a diverse understory and large fallen branches that provide habitat to small mammals.

Timber vegetation (including white fir, ponderosa pine etc) occurs within approximately 28 acres of the North Fandango treatment area (**Figure 3.14-2**). Habitat inclusions within this area of timber habitat include: ephemeral drainages.

Antelope Bitterbrush

Antelope Bitterbrush vegetation communities generally occur in complex association with big and low sagebrush communities. They are tolerant of a wide variety of soil textures, though they generally occur on deeper soils or soils with higher water holding capacities that are neither saline nor alkaline. Antelope bitterbrush is adapted to a wide variety of communities, including some with very short natural fire return rates. However, bitterbrush is killed by hot fires, particularly on more marginal sites. Antelope bitterbrush response to fire varies widely based on soil type, soil moisture, plant moisture, fire temperature, plant growth form, and time of year. As a member of the rose family, bitterbrush communities tolerate, and may actually require a level of disturbance (manipulation, such as browsing and trampling, fire, etc.) to be maintained. In the absence of disturbance, bitterbrush may become decadent and non-reproductive. Antelope bitterbrush leaves and stems are palatable to a wide variety of species, including most large ungulates. Seedlings and young plants are particularly palatable to livestock, deer, and antelope, and they are particularly vulnerable to over utilization. Flowers and seeds are produced on the previous year's stem growth. Antelope bitterbrush reproduction is highly dependant on wildlife populations. Seeds are vulnerable to insect damage and are consumed by many species of birds and rodents.

Bitterbrush habitat is present as an inclusion within the Vaughn Canyon treatment area (**Figure 3.14-1**). While scattered bitterbrush shrubs were observed within the big sagebrush habitats, this is the only area specifically designated as this habitat type within all four treatment areas.

Aspen

Aspen is adapted to a much broader range of environments than most plants found associated with it and is one of the few plants able to grow in all mountain vegetational zones, from subalpine tundra to the basal plains (Daubenmire 1943). Aspen reproduces vigorously through root suckers following fire. Grazing has contributed to the variability of aspen forests: the lush undergrowth of aspen forests is considered excellent summer range. More than a century of grazing (frequently intense in the late 1800s and early 1900s) has left its mark in both pronounced and ill-defined alterations in species composition and production (Mueggler 1988). In the Action Area, aspen is considered a sparse but valuable forage plant for livestock, and aspen stands provide shade and resting cover for livestock.

Small isolated aspen communities were observed during summer surveys within the Vaughn Canyon and North Fandango treatment areas (**Figure 3.14-1 and Figure 3.14-2**). Both snow pocket - induced and riparian aspen groves were observed within these treatment areas during field surveys. Consequently, they can be seen as inclusions within the timber and mountain big sagebrush communities. Although aspen habitat is not present in the Bidwell Mountain treatment area, large groves of mature riparian aspen occur just off the site, downstream.

Curleaf Mountain Mahogany

Most mahogany stands are small and limited in distribution. In the Action Area, mahogany grows in combination with big sagebrush, and with a mixture of big and low sagebrush. Curleaf mountain mahogany grows on rocky ridges and steep slopes with thin soil. This species can form nearly closed single dominant species communities or be a secondary component in other tree-dominated communities (Sawyer and Keeler-Wolf 1995). Curleaf mountain mahogany is intolerant of fire. Because the species' seeds have low establishment success in the shallow, rocky soils in which the plant grows, plant reproduction rates are slow. Rabbits, rodents, and mule deer feed on mahogany seedlings further reducing reproductive success. Mahogany is a valuable, though sparse and difficult to access, fuel wood and private harvesting of dead mahogany is currently allowed, although there is little demand. Mahogany is also a sparse, but valuable forage plant for livestock and wildlife, and mahogany stands provide shade and resting cover for livestock and wildlife.

Curleaf mountain mahogany communities occur as inclusions in the big sagebrush community on the Bidwell Mountain treatment area (**Figure 3.14-3**). Occurrences within the other treatment areas were not as extensive and monotypic.

Juniper Woodland

Juniper woodland habitats generally form transitional habitats with habitats at lower or higher elevations, such as with sagebrush scrub dominated by basin sagebrush, which is at lower elevations, or Jeffery pine, which is present at higher elevations. Juniper trees are relatively slow growing and can live up to 1,000 years. Juniper berries are a food source to numerous wildlife species, including over 15 species of birds in the winter, and juniper foliage provides forage for several species of mammals. Dense stands of juniper woodland generally are associated with grassy understory whereas open stands of juniper woodland usually have a shrub understory.

The juniper woodland habitat in the areas Action Area provides food, water, protection, nesting habitat and thermal cover, as well as migration and dispersal corridors for a number of wildlife

species. Wildlife species found in this community during the field survey include mountain bluebird (*Sialia currucoides*), black-billed magpie, common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*) and western kingbird (*Tyrannus verticalis*). Mule deer (*Odocoileus hemionus*) tracks and scat were also observed in this community. Other species that likely utilize juniper woodland areas for foraging, dispersal, migration and nesting include: coyote (*Canis latrans*), kangaroo rat (*Dipodomys* sp.), black-tailed jackrabbit (*Lepus californicus*), mountain lion (*Puma concolor*), and common nighthawk (*Chordeiles minor*).

Juniper woodland can be found as inclusions within the big sagebrush habitats of the Barrel Springs Road and North Fandango treatment areas (**Figure 3.14-4 and Figure 3.14-2**).

Aquatic Habitats

As shown on **Figure 3.14-1 through Figure 3.14-4**, aquatic habitats within the Action Area are limited to ephemeral and intermittent drainages, and riverine seasonal wetlands.

Ephemeral Drainage

Ephemeral drainages within the Action Area are characterized as seasonal waterways that become inundated after the onset of rain or snowmelt, which is followed by a dry period. Therefore, these areas typically do not support riparian vegetation and the banks of the drainage are typically composed of herbaceous grasses. The banks of the drainages onsite are vegetated according to the surrounding habitat, juniper woodland or big sagebrush, as they do not flow for a sufficient duration to support a riparian fringe and the associated characteristic hydrophytic vegetation. Ephemeral drainages provide important sources of water and food, as well as shelter and migration corridors to a variety of wildlife species including aquatic insects, resident amphibians and reptiles, and resident and migratory birds and mammals.

Intermittent Drainage

Intermittent drainages are those drainages with discernible channels, which show evidence of annual deposition or scour, but do not convey flows year round. Sources of hydrology include both surface runoff and groundwater discharges. Within intermittent drainages, topographic depressions within the channel may influence vegetation patterns. Often intermittent drainages are lightly vegetated due to seasonal high volume/high velocity flows resulting from precipitation events and the resulting scour of the channel, bed and bank. Intermittent drainages observed within the Barrel Springs Road and Vaughn Canyon treatment areas (**Figure 3.14-4 and Figure 3.14-1**) are bordered by a narrow strip of hydrophytic vegetation and occasional aspen habitat that provide important functions for bank stability and wildlife ecotones for nearly all wildlife species present within these treatment areas. The Bidwell Mountain drainages (**Figure 3.14-3**), which are fed by springs and the resulting wet meadows upstream, also support a hydrophytic vegetation community fringe gradually transitioning to the surrounding upland habitat community (i.e. big sagebrush, low sagebrush, etc.).

Riverine Seasonal Wetland

Riverine seasonal wetlands are characterized by the seasonal flow of water induced by the onset of the rainy season and are typically vegetated with hydrophytic species. These features can be supported by ground water and surface water sources and therefore are typically more expansive

than other seasonal wetlands, often flowing linearly across the landscape.

The Bidwell Mountain treatment area includes a riverine seasonal wetland feature that flows linearly from north to south from wet meadow habitat through to the low sagebrush habitat (**Figure 3.14-3**).

Wet Meadow

Wet meadows can be found at all elevations and generally occur as ecotones between fresh emergent wetlands and perennial grasslands or mesic meadow types. Wet meadows occur in depressional sites with heavy-textured soils and/or shallow bedrock which hold water at the surface for most of the growing season. Water in wet meadows comes primarily from upstream sources and leaves via downstream runoff. The plant species composition can vary greatly and there is no general plant community for this habitat. Wet meadows usually have a single plant layer, although they sometimes have shrubs or trees along the edge of the meadow. Common wildlife species found in this habitat include mule deer, Rocky Mountain elk, gopher snake (*Pituophis catenifer*), raptors (foraging), and small mammals when the meadows are dry.

Wet meadows occur within the Vaughn Canyon, North Fandango, and Bidwell Mountain treatment areas (**Figure 3.14-1**, **Figure 3.14-2**, and **Figure 3.14-3**). The wet meadows observed within the Bidwell Mountain treatment area are fed by springs in relatively level slopes. The wet meadows within the steeper, more mountainous Vaughn Canyon treatment area occur in areas where creeks and intermittent drainages transition from steep terrain to more level terrain that allows the water to spread out over a wider area.

Special-Status Species

Special-status species are plant and animal species that have been afforded special recognition by federal, State or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Species
- Species listed or proposed for listing under FESA;
- Species protected under other regulations (e.g. Migratory Bird Treaty Act);
- BLM Sensitive Species; and/or
- Species listed as species of concern by USFWS.

Special-status species considered for this analysis are based on queries of the California Natural Diversity Database (CNDDDB) for the areas within a five-mile radius of the site; the USFWS Listed, Proposed and Candidate Species that May Occur in Modoc County, California list; and BLM Surprise Valley Field office literature review, as well as BLM staff interviews.

The common name and scientific name for each species, regulatory status, habitat descriptions, species identification period and potential for occurrence on the site are presented in **Table 3.18-2**. The following set of criteria is used to determine each species' potential for occurrence on the site:

- **Present:** Species is known to occur on the site, based on known records, and/or was observed onsite during the field survey(s).
- **High:** Species is known to occur on or near the site (based on known records within a five-mile radius of the site, and/or based on professional expertise specific to the site or species) and there is suitable habitat onsite.
- **Low:** Species is known to occur in the vicinity of the site, and there is marginal habitat onsite.-**OR**-Species is not known to occur in the vicinity of the site, however there is suitable habitat onsite.
- **No:** Species is not known to occur on or in the vicinity of the site and there is no suitable habitat for the species onsite.-**OR**-Species was surveyed for during the appropriate season with negative results.

Table 3.18-2 — Listed and Special-Status Wildlife Species Potentially Occurring in the Project Areas or in the Vicinity

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Wildlife				
Amphibians/Reptiles				
Northern sagebrush lizard <i>Sceloporus graciosus graciosus</i>	--;--;--; -- BLM sensitive	Sagebrush dominated habitat, open forests of juniper, ponderosa pine and lodgepole pine. Common to most terrestrial habitat in the Great Basin region.	Year-round; little to no date available for the SVFO area.	Present; This species was observed during field surveys. It is present in all four treatment areas.
Fish				
Warner sucker <i>Catostomus warnerensis</i>	FT;--;--;--	Found only in streams and lakes that feed or are located in the Warner Valley, Oregon. Generally occurs in slow moving water in pools greater than 4.5 feet deep, with abundant vegetation along its banks, submersed and floating vegetation, undercut banks, root wads or boulders, and large beds of aquatic macrophytes.	Year-round	Low; Optimal habitat does not occur in the treatment areas onsite, as it is a headwater tributary to optimal habitat downstream. However, the Bidwell Mountain and Barrel Springs Road treatment areas drain to the Warner Valley, which is critical habitat for this species. Therefore, there is potential habitat onsite, and the species has low potential to occur. Also, water quality of this headwater stream is important for the survival of the species in the known critical habitat downstream within the watershed.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Birds				
Bald eagle <i>Haliaeetus leucocephalus</i>	FD;CE;--;-- (nesting & wintering) BLM sensitive	Nesting restricted to the mountainous habitats near permanent water sources. Winters throughout most of CA at lakes, reservoirs, river systems and coastal wetlands.	Year-round; Wintering: September - January Nesting: February - July	Low ; Suitable nesting habitat onsite, but no large permanent fresh water sources that support a productive fishery for forage nearby.
Bank swallow <i>Riparia riparia</i>	FSC;CT;--;-- (nesting) BLM sensitive	Nests within riparian areas with vertical cliffs, sides of man-made excavations near rivers and riverbanks with fine or sandy soils, up to 7,000 feet above MSL. Also nests in areas void of vegetation.	Spring and summer migration; Nesting: early May - July	None ; No eroded bank habitat with burrows were found in the treatment areas.
Ferruginous hawk <i>Buteo regalis</i>	FSC;CSC;--;-- (wintering) BLM sensitive	Occurs in open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys and fringes of pinyon-juniper habitats.	Wintering: September - January	Low ; not known from the treatment areas..
Golden eagle <i>Aquila chrysaetos</i>	FSC;CSC;--;-- (nesting and wintering) BLM sensitive	Occurs throughout CA in mountainous areas, rolling foothills, sage-juniper flats and desert. Requires open terrain for hunting. Nests in large trees and on cliffs in open areas.	Year-round; Wintering: September - January Nesting: late January - August	High ; wintering. High ; nesting.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Greater sage-grouse <i>Centrocercus urophasianus</i>	--;CSC;--;-- (nesting and leks) BLM sensitive	Occurs in sagebrush scrub and perennial grasslands or wet meadows. Requires open stands of sagebrush for leks and nesting. Found in northeastern CA.	Year-round; Lekking: mid-February - April Nesting: May - August	Low ; although habitat exists on all four treatment areas, no evidence of lekking in the treatment areas.
Greater sandhill crane <i>Grus canadensis tabida</i>	FSC;CT;--;-- (nesting and wintering) BLM sensitive	Nests in wet meadows interspersed with emergent marsh habitat. Winters in agricultural croplands and irrigated pastures.	Wintering: September - January Nesting: April - late August	Low ; nesting and wintering. Habitat does exist on the valley floor and in wetter areas. Marginal habitat on Bidwell Mountain treatment area. A pair flew over the survey crew at the North Fandango treatment area, but was apparently headed to the larger wetlands complexes to the east in the Surprise Valley.
Northern goshawk <i>Accipiter gentilis</i>	FSC;CSC;--;-- (nesting) BLM sensitive	Generally occurs in conifer habitats at middle to high elevations. Also found in deciduous habitats. Nests near water in dense stands of trees.	Nesting: April - August	High ; suitable habitat exists on the North Fandango treatment area in the timber and the higher elevations of the Vaughn Canyon treatment area in the ponderosa pines in mountain big sagebrush.
Juniper titmouse <i>Baeolophus ridgwayi</i>	--;--;--;-- BLM sensitive	Occurs in low to mid-elevation habitats, closely tied to warm, dry juniper or pinyon-juniper woodland habitats, and occasionally riparian areas.	Year-round; Nesting: March - July	High ; there is plentiful suitable nesting habitat for this species on all four treatment areas.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Swainson's hawk <i>Buteo swainsoni</i>	FSC;CT;--;-- (nesting) BLM sensitive	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat (agricultural fields, grasslands, etc.).	Nesting: early March - early September	Low ; prefers agricultural areas adjacent to large trees for nesting.
Western burrowing owl <i>Athene cunicularia hypugaea</i>	FSC;CSC;--;-- (burrow sites) BLM sensitive	Nests in burrows in the ground, often in abandoned ground squirrel or badger burrows within open grassland habitats. Also known to use culverts where nest sites are unavailable.	Year-round; Burrow Sites: Occupied year-round	Low ; rodent burrows were observed in the sage steppe habitat, but no owls found.
Willow flycatcher <i>Empidonax traillii</i>	FSC;CE;--;-- (nesting)	Nests in shrubby montane riparian vegetation associated with willows (<i>Salix</i> spp.), with saturated soil conditions or near a water source at 2,000 to 8,000 feet above MSL.	Nesting: May - September	Low ; Suitable dense expansive riparian vegetation does not exist on any of the treatment areas. Marginal habitat does occur on the Bidwell Mountain treatment area, but most likely does not cover enough area to attract this species.
Other raptors (Hawks, Owls and Vultures)	MBTA and §3503.5 Department of Fish and Game Code	Nests in a variety of communities including cismontane woodland, mixed coniferous forest, chaparral, montane meadow, riparian and urban communities.	Nesting: February - September (Most nesting raptors are found in large trees but some nest on the ground.)	Present ; Red-tailed hawk and turkey vulture were observed during field surveys.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Mammals				
Long-eared myotis bat <i>Myotis evotis</i>	FSC;--;--; BLM sensitive	Found throughout CA, most common in coniferous forests. Roosts in buildings, snags, caves, rock crevices, hollow trees and under tree bark and bridges.	Year-round; nocturnal	High.
Long-legged myotis bat <i>Myotis volans</i>	FSC;--;--; BLM sensitive	Occurs in woodland and forest communities above approximately 4,000 feet above MSL. Roosts in rock crevices, buildings, snags, mines, caves and under tree bark.	Year-round; nocturnal	High.
Pallid bat <i>Antrozous pallidus</i>	FSC;CSC;--; -- BLM sensitive	Generally occurs in open habitats with rock structures, caves, mines or trees for roosting. Most common in xeric ecosystems.	Year-round; nocturnal	High.
Pygmy rabbit <i>Brachylagus idahoensis</i>	--;CSC;--;-- BLM sensitive	Occurs in sagebrush, pinyon-juniper and bitterbrush habitats in Modoc, Lassen and Mono counties in CA.	Year-round; crepuscular	Low; habitat conditions are not optimal for this species.
Spotted bat <i>Euderma maculatum</i>	--;CSC;--;-- BLM sensitive	Resides primarily in forests and shrub habitats near a water source with moth populations. Generally rock faced cliffs with occasional reports of building and cave inhabitation.	Year-round; crepuscular	Low; Considered <u>very rare</u> in California, but habitat does exist in the treatment areas. Its rarity in California alone makes its potential for occurrence low.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	FSC;CSC;--; -- BLM sensitive	Generally resides in mesic habitats with rock formations, mines, caves, tunnels or buildings for roosting. Found throughout CA except for alpine and subalpine habitats.	Year-round; nocturnal	Low; not expected from the area.
Western small-footed myotis bat <i>Myotis ciliolabrum</i>	FSC;--;--; -- BLM sensitive	Occurs in a wide variety of habitats; primarily in relatively arid wooded and brushy uplands near water. Also roosts in caves, buildings, mines and crevices.	Year-round; nocturnal	High.
Yuma myotis bat <i>Myotis yumanensis</i>	FSC;--;--; -- BLM sensitive	Resides in open forest and woodland habitats with sources of water over which to feed. Roosts in buildings, mines, caves and crevices.	Year-round; nocturnal	High.
Federally-Listed Species: FE = federal endangered FT = federal threatened FSC = federal species of concern FC = candidate PT = proposed threatened FPD = proposed for delisting FD = delisted		California State Listed Species: CE = California state endangered CT = California state threatened CR = California state rare CSC = California Species of Special Concern	CNPS* List Categories: 1A = plants presumed extinct in California 1B = plants rare, threatened, or endangered in California and elsewhere 2 = plants rare, threatened, or endangered in California, but common elsewhere 3 = plants about which we need more information 4 = plants of limited distribution Other Special-Status Listing: SLC = species of local or regional concern or conservation significance	
Source: Foothill Associates				

Preliminary surveys were conducted for each treatment area during fall 2010. Field surveys were conducted on all treatment areas in summer 2011 to observe habitat conditions/availability and to evaluate the potential presence of sensitive and non-sensitive species within the Action

Area. The results of field surveys and office analysis relevant to the habitat conditions within the Action Area are detailed below.

Federally-Listed Threatened and Endangered Species

There are no known federally-listed species present in the treatment areas.

Warner Sucker

The Barrel Springs Road treatment area and the Bidwell Mountain treatment area are both located within the Warner Lakes Watershed and both treatment areas drain to a downstream, offsite area that includes habitat for the federally threatened Warner sucker (*Catostomus warnerensis*).

Bald Eagle

Potential habitat is present for the FESA de-listed¹⁰ bald eagle (*Haliaeetus leucocephalus*) on the Bidwell Mountain, North Fandango and Vaughn Canyon treatment area. Suitable foraging habitat is present in the region, but not within the direct vicinity of the Action Area. Large ponderosa pines and white fir trees of suitable size and structure for nesting exist on the North Fandango and Vaughn Canyon treatment areas within areas of timber habitat.

Sage Steppe Obligate Species

Sage steppe obligate species depend on sagebrush vegetation as a major component of their natural life history requirements. Potential habitat is present for eight vertebrate sage steppe obligate species within the Action Area. The potential for these species to be present within proposed treatment areas is further discussed in the following subsections.

Pronghorn Antelope

Pronghorn antelope habitat is present on the portions of the Barrel Springs Road and Bidwell Mountain treatment areas that have the most open habitat, and along the lower slopes of the North Fandango and Vaughn Canyon treatment areas in the low sagebrush and more open areas (i.e. less juniper encroachment) of mountain big sagebrush and bitterbrush.

Pygmy Rabbit

Pygmy rabbit (*Brachylagus idahoensis*) are not expected to occur within the Action Area. The closest active or inactive pygmy rabbit burrow is documented to occur almost 15 miles away from the Action Area.

Sagebrush Vole

Sagebrush vole is also likely to occur in the big sagebrush communities, as burrows beneath sagebrush shrubs were observed during field surveys.

Greater Sage-Grouse

Greater sage-grouse (*Centrocercus urophasianus*), which potentially uses portions of the Action

¹⁰ Although this species has been de-listed, it is still protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Protection Act.

Area all year long, has a higher likelihood to be present in the Barrel Springs Road and Bidwell Mountain treatment areas as a result of the presence of suitable habitats onsite (low sagebrush and big sagebrush habitats with water). The Barrel Springs Road and Bidwell Mountain treatment areas are located within the Vya Population Management Unit for sage-grouse. It is estimated that the majority of the Bidwell Mountain treatment area is potentially suitable habitat for sage-grouse, and this treatment area is designated as “R0” - Key Sage-Grouse Habitat in the Vya PMU habitat value assessment. The Barrel Springs Road treatment area is primarily designated as “R3,” - Areas with potential to produce sagebrush plant communities, that have not crossed the juniper woodland threshold, but are in various stages of becoming encroached upon by juniper. Although there are no documented leks within these two treatment areas, leks are documented in the vicinity and suitable low sagebrush habitat is present, especially within the Bidwell Mountain treatment area.

Greater sage-grouse is also identified as a BLM sensitive species.

Birds

Other sage steppe obligate species which likely occur based on suitable habitat within the Action Area include brewer’s sparrow (*Spizella breweri*), sage sparrow, and sage thrasher.

Northern Sagebrush Lizard

Suitable habitat for the northern sagebrush lizard (*Sceloporus graciosus graciosus*) is present within all four treatment areas. Lizards that resembled this species (no species were collected, but they were identified in the field from a short distance) were observed by Foothill Associates’ biologists during summer field surveys. Therefore, the species is considered to be present in the project area, but no specific data is available.

Northern sagebrush lizard is also identified as a BLM sensitive species.

Big Game Species and Ungulates

Important game species known to occur within all four treatment areas include mule deer and pronghorn antelope.

Mule Deer

Mule deer are anticipated to be present in all four treatment areas from spring to fall.

Rocky Mountain Elk

Rocky Mountain Elk (*Cervus elaphus nelsoni*) are known to occur on the North Fandango and Vaughn Canyon treatment areas in the higher elevations and utilize the grassy meadows for important foraging habitat.

California Bighorn Sheep

California bighorn sheep (*Ovis Canadensis californiana*) are not thought to consistently make their way onto the eastern facing slopes of the Warner Mountains within the Action Area due to problems with water availability and contact with domestic sheep herds; this species is not managed within the project area (BLM 2007).

BLM Sensitive Species

Several BLM sensitive species have the potential to occur within the project boundaries, in addition to those described in the previous subsections. The potential presence of these species within proposed treatment areas is further discussed in the following subsections.

Golden Eagle

Golden eagles (*Aquila chrysaetos*) forage throughout the project area, and for which suitable habitat is present in the North Fandango and the Vaughn Canyon treatment areas.

Western Burrowing Owl

There is a low potential for burrowing owls (*Athene cunicularia hypugaea*), as ground squirrel burrows were observed, but not in large numbers, and no owls were observed during field surveys.

Juniper Titmouse

While probably rare (Cicero 1996 and 2000) juniper titmouse (*Baeolophus ridgwayi*) have been found within the Surprise Valley Field Office boundaries. Juniper titmouse use large, mature juniper for nesting, and such habitat exists in all four treatment areas.

Bank Swallow, Willow Flycatcher and Greater Sandhill Crane

Suitable nesting habitats for bank swallow, willow flycatcher, and greater sandhill crane is not present within the Action Area. Suitable habitat is present within the region, however, and a pair of greater sandhill cranes was observed flying over the North Fandango treatment area from west to east during field surveys in June 2011 but did not stop near the treatment area.

Bats

Five species of BLM sensitive bat species are known to exist in the Action Area include: the long-eared myotis (*Myotis evotis*), western small-footed myotis (*Myotis ciliolabrum*) long-legged myotis (*Myotis volans*), Yuma myotis (*Myotis yumanensis*), and pallid bat (*Antrozous pallidus*). Based on an evaluation of suitable habitat needs, several of these species may inhabit portions of the Action Area, especially for foraging in the wetter areas and roosting in the larger trees in the foothills of the Warner Mountains. Rock outcrops and some cliff habitats are present near the Barrel Springs Road treatment area, and within both the North Fandango and Vaughn Canyon treatment areas. Marginal bat habitat is also present in the crevices of the rock outcrops in the Bidwell Mountain treatment area.

Nesting Raptors

Nesting, roosting and foraging habitat for raptors was identified in all four treatment areas. While the sensitive raptor species are discussed above, all raptor species' nesting habitats are protected by the Migratory Bird Treaty Act and thus are considered for this analysis. Suitable foraging habitat for raptors is present within all proposed treatment areas in areas of open grassland, low sagebrush, and big sagebrush habitat that is not overly dense with juniper and other trees (i.e. ponderosa pine). While limited nesting habitat is available on the Barrel Springs Road treatment area, the cliffs to the east provide nesting habitat and a red tailed hawk was observed flying over that area. The Bidwell Mountain treatment area has suitable foraging habitat for raptors and limited nesting habitat in the few scattered ponderosa pines on the site, but

no nests were observed during general wildlife surveys. The Vaughn Canyon treatment area also has some areas of suitable raptor nesting habitat at the higher elevations where large ponderosa pines and occasional white fir offer suitable nesting and roosting sites. However, no active nests were observed in the Vaughn Canyon treatment area. The North Fandango treatment area has the best raptor nesting habitat of the four treatment areas. The timber habitat at the highest elevations includes large ponderosa pine and white fir suitable for nesting raptors, including but not limited to Northern Goshawk (*Accipiter gentilis*), golden eagle, red tailed hawk, and other raptor species. The rocky cliffs on the northern portion of the treatment area also offer suitable nesting and roosting habitat. No active nests were observed during general wildlife habitat surveys in late June 2011.

Aquatic and Wetland Wildlife Resources

Aquatic and wetland resources are important inclusions within all habitat types within the Action Area and are considered potential habitat for sensitive and common wildlife species when within or adjacent to their known habitats and/or migration routes. Perennial and seasonal wet meadows, perennial and intermittent creeks, and seasonally flowing ephemeral drainages and washes provide important hydrating and foraging habitat for most wildlife species. Springs that feed perennial, intermittent and seasonal wetland habitat were observed at the Bidwell Mountain treatment area. An intermittent drainage in the Warner Lakes Watershed (habitat for the federally threatened Warner sucker is downstream) traverses the relatively xeric Barrel Springs Road treatment area on its southern end. Both the North Fandango and Vaughn Canyon treatment areas include wet meadow, intermittent/headwater creeks, and small patches of quaking aspen habitat.

3.18.2 Direct and Indirect Effects of Proposed Action

Implementation of the proposed action would facilitate improved sage steppe habitat, while resulting in a decline in juniper woodland habitats. Project activities associated with the Proposed Action would result in both temporary and long-term effects to wildlife habitat and individuals, and would include both beneficial (habitat changes) and adverse (primarily related to disturbance) effects.

Prescribed burning of approximately 889 acres would result in the loss of sage-grouse nesting habitat for at least several decades depending on the severity of burning and amount and species of sagebrush in each project unit to be burned. Most potential adverse effects to sage-grouse would occur within the Bidwell Mountain treatment area, which is rated as key sage-grouse habitat in the Vya PMU habitat assessment, however the implementation of proposed treatments are not expected in the areas of optimal habitat, as these areas of sagebrush habitat do not support juniper woodland.

Long-term effects related to prescribed burning are expected to be positive. Positive restoration effects resulting in the initial restoration of diverse assemblages of forbs and grasses would likely result from proposed prescribed burning, although species composition and trends would likely change as the ecosystem transitions to later seral stages. These shifts in seral stages and vegetative community composition are anticipated to result in overall increased habitat quality. Long-term adverse effects would also occur to small mammals from increased risk of predation. Short-term effects may include a reduction in fall forage opportunities, as well as direct deaths of individuals. A reduction in fall forage bitterbrush stands may result in adverse effects to mule

deer within proposed treatment areas. Prescribed burning would also cause some direct deaths to smaller animals unable to move sufficient distances away from burn areas. Golden eagles and other raptors would benefit from short-term positive effects through increasing foraging opportunities.

Effects to pronghorn would likely be minimal, as open bitterbrush and sagebrush is the preferred habitat for this species and treatment will primarily occur in areas of dense juniper. Prescribed burning would increase local foraging opportunities for this species and reductions in juniper would promote preferred habitat conditions.

Both hand treatment and mechanical treatments would cause some short-term disturbances to wildlife but would have less long-term negative effects to small mammals by retaining understory vegetation. Long-term negative effects would be minimal to local tree nesting/roosting species which rely partially on juniper. Mechanical treatment is expected to have reduced direct effects due to its speed of operation compared to hand treatments. Like fire, long-term beneficial effects are expected to understory plant species however understory changes would be more gradual with this treatment.

While mechanical operations would disturb wildlife over about 140 acres of the Vaughn Canyon treatment area, handcutting operations would affect a much smaller area concentrated no more than a few hundred feet (direct and noise) from travel routes. Short-term disturbance would probably last no more than three years after which all wood is removed from a site. Mechanical operations would take place over a much shorter period of time and would kill some additional small animals in the vicinity of these operations. Both proposed mechanical and hand treatments would remove habitat for tree nesting species and reduce thermal cover for larger animals, although these effects are not anticipated to result in widespread or major adverse effects, as these resource are not lacking within the Action Area. An undetermined amount of shrubs would likely be crushed or removed during mechanical operations however shrubs, including valuable forage species such as bitterbrush, may respond positively to proposed treatments, resulting in increased foraging opportunities, as well as cover for smaller animals.

Numerous springs that feed intermittent and ephemeral drainages are present within all four treatment areas. Mechanical operations implemented within the vicinity of these areas would have the potential to result in erosion and sediment loss into the adjacent or connected aquatic habitats. Erosion and sediment loss are of increased concern within the Bidwell Mountain and North Barrel Springs treatment areas, which drain to the Warner Lakes Watershed, which is designated critical habitat for the threatened Warner sucker. Implementation of Standard Operating Procedures detailed in **Appendix C** is anticipated to reduce the potential for erosion and sediment loss in areas adjacent to aquatic features and riparian areas.

Juniper titmouse and bats, which prefer larger trees for roosting, are not expected to be affected by any treatment method mainly due to the fact that large mature trees are not targeted for removal and older juniper are generally not killed by burning. If larger mature trees are targeted or prescribed fire affects larger timber unexpectedly, direct impacts to juniper titmouse and bats may occur.

Implementation of the Proposed Action would result in short-term effects to habitat for some

sage steppe obligate species. However, long-term habitat productivity for sage steppe obligate species would improve following restoration. Juniper-dependent species would experience short-term and long-term effects resulting from proposed treatments and resultant restoration activities. It is anticipated that implementation of the Standard Operating Procedures identified in **Appendix C**, in combination with proposed mitigation measure relevant to wildlife would minimize potential adverse effects. Effects associated with implementation of the Proposed Action are therefore considered minor.

3.18.3 Cumulative Effects of Proposed Action

The use of temporary roads could result in increased future use by hunters, fire wood collectors and to some degree campers. Some amount of future permanent use could be expected which would directly negatively affect wildlife within the Action Area. If temporary roads are decommissioned, additional potential effects would be greatly reduced.

An unknown amount of juniper reduction has occurred on private lands within the project area and would continue to occur in the foreseeable future, resulting in continued positive effects on sage steppe obligate species as well as potential negative effects on juniper woodland species.

Livestock grazing by cattle would continue throughout the planning area and would cause direct (competition for food and water, potential for increased erosion and sediment along drainages, etc) and indirect (loss of cover) effects to wildlife. Similarly, continued use by wild horse herds will provide additional competition for food and water and loss of cover for wildlife species.

Continued practices of fencing riparian, and wetland sites would most likely have positive effects on the habitat and the wildlife in the area. These practices would also decrease the potential for erosion and sediment input into aquatic habitats.

Continuing Integrated Weed Management will result in additional native habitat and thus improved wildlife habitat conditions. Wildlife in the treatment areas would benefit from these practices and few adverse effects would occur as a result.

Continued recreation in the form of hunting, camping, and hiking, and to a lesser extent wildlife observation, nature study and archaeological sightseeing would result in potential impacts to wildlife populations, as human presence is usually a nuisance to wildlife, especially during the breeding/rearing seasons. The project is not expected to result in increased recreation over the long-term. Unauthorized off-highway vehicle use may increase due to more open habitat conditions, but restricting all vehicles to designated trails would reduce long-term cumulative effects from these activities negligible.

Continued juniper woodland thinning and removal would result in impacts similar to those outlined in the direct and indirect effects section above. Short-term impacts to wildlife would transition to long-term benefits for most sensitive and non-sensitive species that inhabit the treatment areas. Continued treatment would result in long-term cumulative benefits resulting from increased acreage of productive ecosystems characterized by diverse vegetative communities optimizing habitat values for wildlife within the Action Area. Cumulative effects resulting from implementation of the Proposed Action are considered minor.

3.18.4 Direct and Indirect Effects of No Action Alternative

Under the No Action alternative, distribution, viability, and diversity of wildlife species and wildlife habitats would reflect increased juniper densities. Overall range health and ecological potential in the area would continue to decline, and native sage steppe vegetation would continue to be reduced in extent, as well as vigor. Juniper encroachment would continue to negatively affect suitable habitat for sagebrush obligate species. Woodland and/or juniper-associated species would likely experience benefits from the increased number of trees available for shelter and cover. However, according to USFS (2008), “The more tree dominated piñon and juniper woodlands become, the less likely they are to burn under moderate conditions, resulting in infrequent high intensity fires.” Over time more extreme fire behavior could result from the No Action Alternative, resulting in potentially widespread and unpredictable modifications to habitats within the Action Area. Potential effects are considered moderate.

3.18.5 Cumulative Effects of No Active Alternative

Past, present and future foreseeable effects include hand and mechanical vegetative treatments, prescribed fire, continued livestock grazing, wild horse range, recreational use, off-highway vehicle use, range management throughout the CAA, as well as construction of the Ruby Pipeline Project (completed summer 2011). As described in detail above, these activities may have the potential to result in adverse effects to wildlife.

The distribution, viability, and diversity of wildlife species and wildlife habitats within the Action Area would reflect increased juniper densities. Overall range health and ecological potential in the Action Area would continue to decline, and native sage steppe vegetation would continue to be reduced in extent, as well as vigor. Juniper encroachment would continue to negatively affect suitable habitat for sagebrush obligate species. Woodland and/or juniper-associated species would likely experience benefits from the increased number of trees available for shelter and cover. However, according to USFS (2008), “The more tree dominated piñon and juniper woodlands become, the less likely they are to burn under moderate conditions, resulting in infrequent high intensity fires.” Over time more extreme fire behavior could result from the No Action Alternative, resulting in potentially widespread and unpredictable modifications to habitats throughout the CAA. Cumulative effects under the No Action Alternative are considered moderate.

3.18.6 Mitigation Measures

The following mitigation measures are proposed to reduce potential effects to wildlife:

- Pretreat fuels around bitterbrush and mountain mahogany to prevent loss during prescribed burning. This would prevent large patches of important deer fall forages from being burned.
- In order to maintain bird habitat, prescribed burn areas shall be minimized to 123 acres.
- Leave all snags greater than 25 cm (10 inches) standing and create additional snags. This recommendation/mitigation would benefit many species including bats such as long-eared myotis.
- Any active raptor nest found should be reported to the wildlife biologist and project activities ceased in the area (generally ¼ mile buffer) until surveys indicate that project activities would not disturb breeding activities.

4.0 MITIGATION MEASURES

4.1 Visual Resource Management

The following mitigation measures are identified to reduce potential visual effects related to implementation of the Proposed Action and to ensure Class II VRMs are maintained within the Action Area:

- Where slash occurs in the foreground of Barrel Springs Road, dispose of slash through burning, grinding or chipping.
- Locate slash in areas not visible from foreground and middle ground views along Surprise Valley and Barrel Springs Roads.
- Locate temporary roads along routes that minimize cut and fill slopes.
- Decommission temporary roads following treatment with boulders or other access-restricting methods to prevent public use.
- Reseed areas cleared for temporary roads and staging grounds.
- Flush-cut stumps in immediate foreground (within 200 feet) adjacent to the road (Barrel Springs Road treatment area).
- Preserve clumps of juniper scattered throughout the treatment area (5 to 10 trees per acre).
- Create openings in stands of trees that are irregular and natural in appearance.

4.2 Vegetation, Including Threatened and Endangered Plant Species

The mitigation measures presented in **Section 3.18.6** for wildlife are proposed to also reduce potential effects to vegetation.

4.3 Wildlife; Migratory Birds; Special-Status Species (Federally-Listed, Proposed or Candidate Threatened and Endangered Species); State Protected Species; BLM Sensitive Species

The following mitigation measures are proposed to reduce potential effects to wildlife:

- Pretreat fuels around bitterbrush and mountain mahogany to prevent loss during prescribed burning. This would prevent large patches of important deer fall forages from being burned.
- In order to maintain bird habitat, prescribed burn areas shall be minimized to 123 acres.
- Leave all snags greater than 25 cm (10 inches) standing and create additional snags. This recommendation/mitigation would benefit many species including bats such as long-eared myotis.
- Any active raptor nest found should be reported to the wildlife biologist and project activities ceased in the area (generally ¼ mile buffer) until surveys indicate that project activities would not disturb breeding activities.

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5.0 AGENCIES, TRIBES, ORGANIZATIONS, AND INDIVIDUALS CONSULTED

5.1 History of the Planning and Scoping Process

- April 2008 Sage Steppe Ecosystem Restoration Strategy Final Environmental Impact Statement. Programmatic analysis of fuel reduction and habitat restoration activities proposed by USFS and BLM on public lands within Modoc County.
- February 11, 2009 Public scoping of the Proposed Action via mailings to interested members of the public (**Appendix A**). A complete list of agencies, tribes, organizations and individuals is attached as **Appendix B**.
- November 10–12, 2010 Interdisciplinary/consultant team field tour and preliminary assessment.

5.2 External Scoping Results

- January 14, 2009 Comment letter from Douglas Cushman, P.E., California Regional Water Quality Control Board, Lahontan Region.
- January 14, 2009 Comment letter from Cedarville Rancheria.
- February 3, 2009 Comment letter from Erin Ziegler, California Wilderness Coalition.

5.3 Tribal Consultation

- June 18, 2011 Julie Rodman, Archaeologist, Bureau of Land Management, met with the Summit Lake Paiute Tribe. The Summit Lake Paiute Tribe does not object to the Proposed Action and has not expressed any Native American Religious concerns.
- The Fort Bidwell tribe declined to participate in tribal consultation according to the June 20, 2011 email from Julie Rodman.

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6.0 DOCUMENT PREPARATION

6.1 List of Preparers

Table 6.1-1 — List of Preparers

Name	Resource/Activities	Project Role
Brian Mayerle	Principal Biologist/Botanist Foothill Associates	Principal/Consulting Lead Biologist
Kyrsten Shields	Environmental Planner/Regulatory Specialist, Foothill Associates	Consulting NEPA Project Manager/EA Preparer
Kevin Derby	Ecologist/Regulatory Specialist Foothill Associates	Wildlife Habitat Assessment
Ed Armstrong	Visual Resource Assessment Specialist, Foothill Associates	Visual Resource Assessment
Eric Ingbar	Gnomon, Inc.	Consulting Principal/Director of Research
Michael Drews	Gnomon, Inc.	Consulting Cultural Resource Project Manager
Jeremy Hall	Gnomon, Inc.	Consulting Archaeologist
Casey Boespflug	Fuel/Fire Specialist	BLM Project Lead / EA Preparer / Interdisciplinary Team
Elias Flores	Wildlife Biologist Riparian/Wetlands	EA Input / Interdisciplinary Team
Scott Soletti	Wildlife Biologist Riparian/Wetlands	EA Input / Interdisciplinary Team
Steve Surian	Supervisory Range Specialist	EA Input / Interdisciplinary Team
Ricky Knox	Range Specialist	EA Input / Interdisciplinary Team
Julie Rodman	Archeologist	EA Input / Interdisciplinary Team
Roger Farschon	Ecologist	EA Input / Interdisciplinary Team
Lynette Sullivan	Weeds	EA Input / Interdisciplinary Team

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Appendix A — List of Acronyms

AB	Assembly Bill
ACEC	Areas of Critical Environmental Concern
AML	Appropriate Management Level
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practices
CAA	Cumulative Assessment Area
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CFR	Code of Federal Regulations
CH ₄	methane
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO ₂	carbon dioxide
COTR	Contracting Officer's Technical Representative
CWA	Clean Water Act
CWMA	Cooperative Weed Management Area
DOI	Department of the Interior
EA	Environmental Assessment
EFH	Essential Fish Habitat
e.g.	for example (exempli gratia)

EIS	Environmental Impact Statement
E.O.	Executive Order
EOARC	Eastern Oregon Agricultural Research Center
EOU	Exchange of Use
<i>et al.</i>	and others
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FLPMA	Federal Land Policy and Management Act
GHG	Greenhouse Gas
GLO	General Land Office
GWP	global warming potential
HC	Hunting Camp
HFCs	hydrofluorocarbons
HFRA	Healthy Forest Restoration Act
HMA	Horse Management Area
IDT	interdisciplinary team
KOP	Key Observation Points
LCFS	Low Carbon Fuel Standard
LO	Limited Occupation
LOP	Limited Operation Period
LRS	Lithic Reduction Station
LUP	Land Use Plan
LWC	Land with Wilderness Characteristics
MCAPCD	Modoc County Air Pollution Control District

MMTCO ₂ E	million metric tons of CO ₂ equivalent
MSL	mean sea level
N ₂ O	nitrous oxide
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFP	National Fire Plan
NHPA	National Historic Preservation Act
NOR CAL	Northern California
NPAB	Northeast Plateau Air Basin
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
OHV	off-highway vehicle
PFCs	perfluorocarbons
PM ₁₀	Particulate Mater 10 microns or less
PM _{2.5}	Particulate Mater 2.5 microns or less
PMU	Population Management Unit
RF	Rock Feature
RMP	Resource Management Plan
ROD	Record of Decision
ROD/RMP/FEIS	Record of Decision/Resource Management Plan/Final Environmental Impact Statement
RS	Rock Stack
RWQCB	Regional Water Quality Control Board
SF ₆	sulfur hexafluoride
SFO	Surprise Field Office

SFO RMP FEIS	Surprise Field Office Resource Management Plan Final Environmental Impact Statement
SHPO	State Historic Preservation Office
SOP	Standard Operating Procedure
SSER FEIS	Sage Steppe Ecosystem Restoration Strategy Final Environmental Impact Statement
SSURGO	Soil Survey Geographic Database
TCP	Traditional Cultural Property
TGA	Taylor Grazing Act
TMDL	Total Maximum Daily Load
TOC	Threshold of Concern
U.S.	United States
USC	United States Code
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Service
UWA	Unified Watershed Assessment
VRM	Visual Resource Management
WHMA	Wild Horse Management Area
WQRP	Water Quality Restoration Plan
WSA	Wilderness Study Area
WUI	Wildland Urban Interface

Appendix B — Public Scoping Letter



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Surprise Field Office
PO Box 460
Cedarville, CA 96104
www.ca.blm.gov/surprise

In Reply Refer To:
4120, 6700, 9200 (P)
CA370

February 11, 2009

Dear Interested Party,

The BLM Surprise Field Office (SFO) is initiating scoping projects in the north end of the Field Office area for implementation beginning in 2010. Two projects are being scoped at this time the first is a hazardous fuels reduction project that would be implemented in phases over a 10-year period. This project is called the Barrel Springs / North East Warner Project (map enclosed). The second is a pasture division fence called the West Toney Burn Fence. This project is located in the Nevada Coleman Allotment (map enclosed).

Background for Hazardous Fuels Reduction

The hazardous fuels reduction treatments would focus on sagebrush woodland and/or forest plant communities which are decadent or declining in vigor as a result of competition or they would develop fuel breaks to protect priority habitat areas.

Treatment areas would be prioritized to address first, those areas where condition class has not declined to a rating of condition class 3. Condition class 3 is defined by U.S. Forest Service General Technical Report RMRS-GTR-87 (2002) as being lands which have been significantly altered from historical ranges, the risk of losing key ecosystem components from fire is high, fire frequencies have departed from historical frequencies by multiple return intervals resulting in dramatic changes to: the size, frequency, intensity, or severity or landscape patterns of fire AND vegetation attributes have been significantly altered from their historical ranges.

Project purpose and need would be designed to address the following fuels objectives. 1. Reduce the buildup of fuels and/or reduce interspecific competition between key species in key watershed areas. 2. Alter the quantity type or arrangement of fuels in areas of strategic importance for fire suppression activities, such as along roads and adjacent to riparian areas. 3. Reduce the buildup of fuels adjacent to private lands and in the wildland urban interface.

Treatments could be completed using several tools including hand clearing, mechanical thinning and cutting, prescribed burning, or a combination of these treatments. Work would be completed by either Federal or contract personnel. The byproducts of these treatments would be made available for firewood collection or biomass harvest, piled and burned on site or scattered and left to decompose naturally.

Background for West Toney Burn Fence

The West Toney Burn Fence would provide a physical division between two areas with different grazing seasons. The pasture division fence is necessary in order to divide two separate use areas, in order to appropriately manage the grazing allotment.

This use area division fence has become necessary, as the cattle have become accustomed to traveling between and utilizing both use areas. This need has become readily apparent since the 2005 Barrel Fire. This fence will run roughly north-south, separating two use areas in the Nevada Coleman Allotment. These use areas are scheduled for use at different times of year, and by different operators, but without a physical division the cattle utilize both use areas during both scheduled grazing times. This does not allow for rest on either use area, therefore this fence is required in order to correctly implement the allotment management plan.

The West Toney Burn Fence would be constructed in accordance with BLM standard specifications for wildlife. A portion of the fence would be built with the 4 strand design (3 barbed, bottom smooth) specific to BLM standards for antelope. The other section that would receive less cattle pressure is proposed as a 3 strand fence in accordance with standards for internal pasture division fences.

The BLM SFO is currently evaluating site conditions and developing project area and work descriptions. If you would like to be involved in this process or have information you feel would assist with this work, please contact Kathryn Dyer or Leisyka Parrott of my staff before March 1, 2009, at the address above or by phone at (530) 279-6101. If you do not respond to this letter, we will not include you in follow-up correspondence relating to these projects. You will remain on our coordination list for future projects however.

Sincerely,

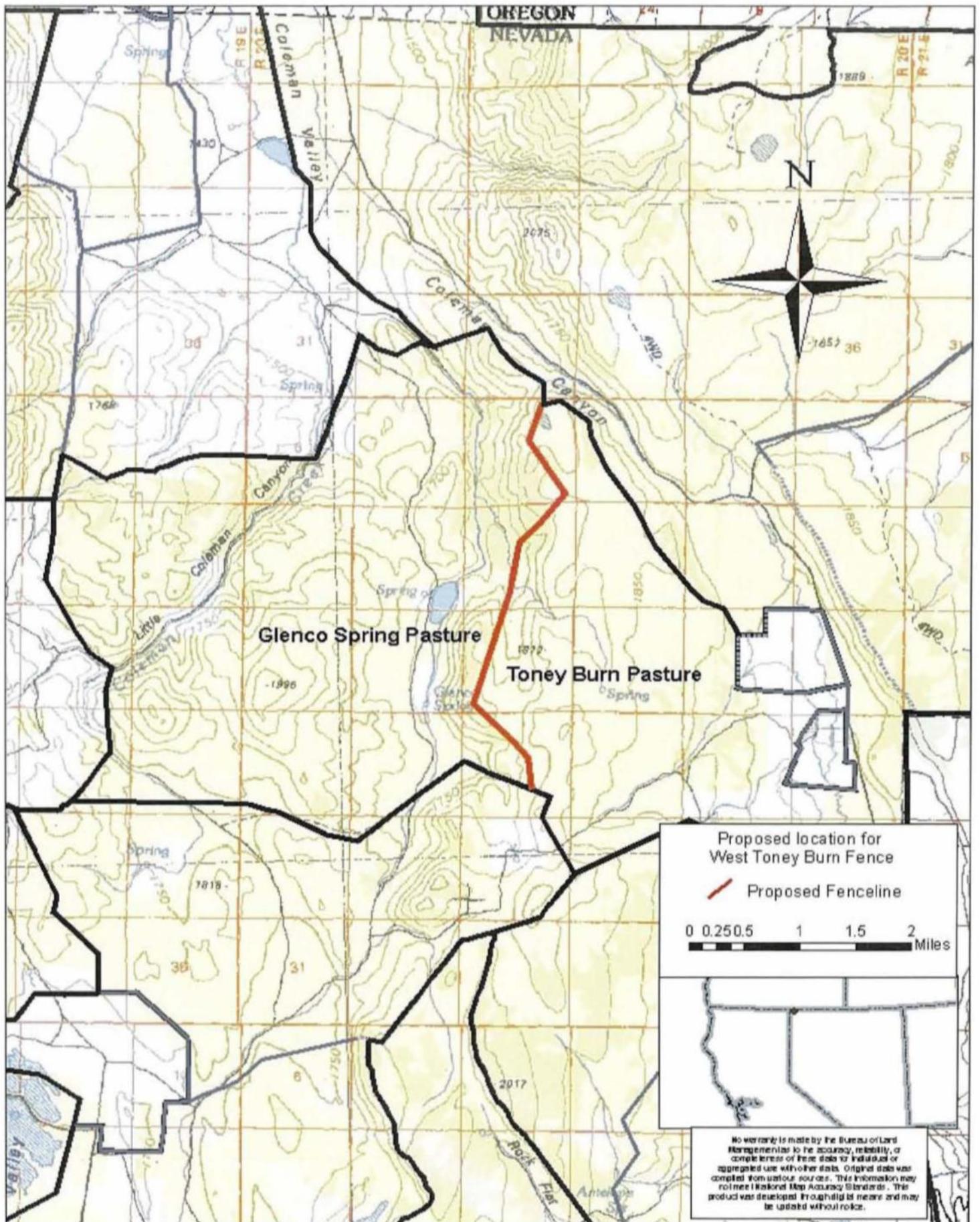


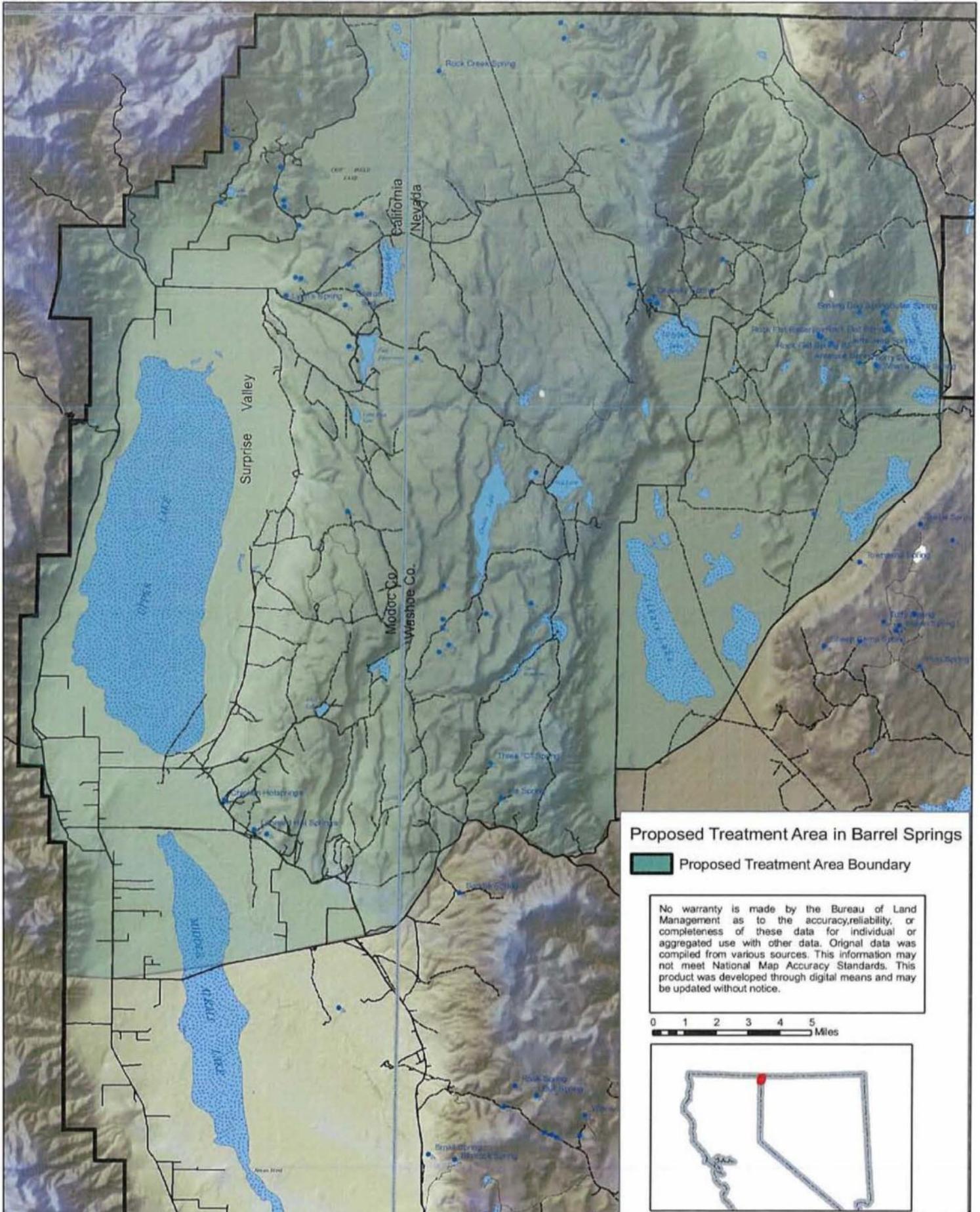
Shane DeForest
Surprise Field Office Manager

Enclosure:

Map Proposed Treatment Area in Barrel Springs
Map of Proposed West Toney Burn Fenceline

West Toney Burn Fence Proposed Location



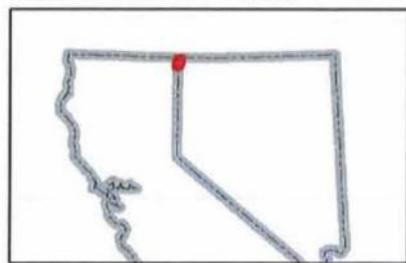


Proposed Treatment Area in Barrel Springs

Proposed Treatment Area Boundary

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregated use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.

0 1 2 3 4 5 Miles



Appendix C — Standard Operating Procedures

Avoidance and Minimization — Standard Operating Procedures

The North East Warner Fuels Reduction and Habitat Restoration project would require certain precautions during project implementation. Defined Standard Operating Procedures (SOP's) would ensure that identified resources within the project boundary would be protected and or preserved. All project activities would be coordinated with the appropriate resource specialist and or the SFO Interdisciplinary Team. Areas identified within the project boundaries as having important cultural, botanical, hydrological, recreation, and wildlife resources that require protection would be excluded from treatment. Historic woodlands within the project areas would be preserved and mature/old growth stands of juniper would be identified and protected.

Where applicable to the Proposed Action, standards for proposed management activities have been identified based on site-specific conditions. In addition, standards specified by the Sage-Steppe Ecosystem Restoration Strategy EIS and the Surprise Field Office Resource Management Plan and EIS have been included as relevant to implementation of the Proposed Action. The following SOPs would be implemented by the Proposed Action to avoid and/or minimize effects to resources within the Action Area.

Standard Operating Procedures

The North East Warner Fuels Reduction and Habitat Restoration project would require certain precautions during project implementation. Defined Standard Operating Procedures (SOP's) would ensure that identified resources within the project boundary would be protected and or preserved. All project activities would be coordinated with the appropriate resource specialist and or the SFO Interdisciplinary Team. Areas identified within the project boundaries as having important cultural, botanical, hydrological, recreation, and wildlife resources that require protection would be excluded from treatment. Historic woodlands within the project areas would be preserved and mature/old growth stands of juniper would be identified and protected.

Where applicable to the Proposed Action, standards for proposed management activities have been identified based on site-specific conditions. In addition, standards specified by the Sage-Steppe Ecosystem Restoration Strategy EIS and the Surprise Field Office Resource Management Plan and EIS have been included as relevant to implementation of the Proposed Action. The following conservation measures are proposed to be implemented by the Proposed Action to avoid and/or minimize effects to resources within the Action Area.

Air Quality

- All prescribed fire projects would be completed pursuant to the standards specified by the Clean Air Act and would comply with all federal, State and local air pollution requirements.
- An approved Prescribed Fire Plan would be in place prior to ignition of any prescribed fire.
- The prescribed fire burn plan would be adhered to throughout the project. Emissions would be managed by timing and atmospheric dispersal.
- Prescribed burning would be concentrated in spring (mid-April through mid-June) and fall (mid-September through mid-November) to avoid coinciding with peak summer levels of air pollutants from other human-caused activities in the area and the winter inversion potential.
- Computer modeling to assess smoke dispersion, and related smoke management techniques would be implemented where practicable.

Fire Management

- The NorCal Fire Management Plan identifies aggressive, full suppression as the strategy for fire suppression in the NE Warner Area under conditions of severe fire intensity, especially within the WUI. However, exceptions may be made where resource objectives could safely be achieved.

- Under conditions of low fire intensity, a less aggressive suppression strategy, such as containment/confinement, would be implemented in previously identified areas likely to benefit from wildland fire use.
- Engines, aircraft, retardant, hand crews, and heavy equipment may be used for initial attack.
- The use of heavy equipment would be avoided in known NRHP-eligible sites, unless approved by the line office.
- Local resources and contractors would be used as much as possible for suppression efforts.

Woodcutting

The areas excluded from woodcutting would be signed to indicate that woodcutting is not allowed. The Surprise Field Office would make maps available to the public indicating areas open and closed to woodcutting within the Action Area.

Hydrology

- Minimize management activities within perennial and intermittent drainages where such activities would compromise normal watershed processes or functions.
- Entry into wet spring areas would be limited to hand treatments with chainsaws and broadcast/pile burning. Any spring fed channel with flowing water or wet areas would have a minimum buffer of 50 feet from the center of the stream channel. During the dry summer months some access to spring areas may be allowed only after on site inspections occur to ensure minimal impacts.
- Crossings over ephemeral stream channels would be identified by the Contracting Officer's Technical Representative (COTR) and be limited to dry, rocky and stable areas. Crossing channels with mechanized equipment would be at locations that are stable and naturally armored with rock. Stream channels would be crossed at right angles and number and width of crossings would be limited to areas that have cobble and naturally occurring rocky areas to protect the channel. A minimal amount of passes over dry stream channels would be allowed and would be monitored by the project COTR.

Soils

- Adverse effects on soil resources would be minimized through management practices and adherence to Standard 1 of the Standards and Guidelines.
- Ensure management activities result in no net loss of soil mass or productivity within the management area.
- Implement vegetation treatments on sites where undesirable invasive species are degrading the soil's ability to maintain proper function.

- Broad-scale vegetation treatment plans will specify appropriate levels of woody residue required for site protection.
- Damage to high shrink-swell soils will be prevented by limiting compacting activities to periods when soils are sufficiently dry to resist damage from the activity.
- BLM will conform to the latest California Department of Transportation (Caltrans) and Uniform Building Code standards, County General Plan seismic safety standards, County grading ordinances, and National Pollution Discharge Elimination System (NPDES) requirements.

In addition, BLM would implement management practices to achieve or maintain significant progress toward achieving the criteria described below to meet Standard 1 of the Rangeland Health Standards and Guidelines for Northeastern California and Northwestern Nevada. The criteria to meet the standard are:

- Groundcover (vegetation, litter, and other types of groundcover such as rock fragments) is sufficient to protect sites from accelerated erosion;
- Evidence of wind and water erosion, such as rills and gullies, pedestaling, scour or sheet erosion, and deposition of dunes, is either absent, or if present, does not exceed what is natural for the site; and
- Vegetation is vigorous, diverse in species composition and age class, and reflects the potential natural vegetation or desired plant community for the site.

Water bars on temporary roads and scattered juniper material would be used to reduce sedimentation during high rainfall and or snow melt. Rehabilitating areas of compacted soil would be accomplished by ripping the soil with mechanized equipment to increase infiltration and reduce runoff, and encourage vegetative growth.

Livestock Grazing

- Grazing use authorized by BLM is subject to all provisions of the grazing regulations (43 CFR Parts 4100) and other applicable law and regulation. Grazing use will be in accordance with the Rangeland Health Standards and Guidelines for Northeast California and Northwestern Nevada Final EIS approved by the Secretary of the Interior on July 13, 2000. Grazing use authorization may be modified in accordance with regulation to attain progress towards achieving rangeland health standards (subpart 4180.1 and 4180.2 Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration).
- Treatment units would be rested from livestock grazing for a minimum of one growing season prior to and two growing seasons following broadcast burns through adjustments in the pasture/use area grazing schedule, and herding.
- BLM would seek all opportunities to minimize the impacts on grazing permittees due to

livestock removal to facilitate rest. These efforts would include but not be limited to:

- design of projects to minimize rest on non-treated acres;
- use of identified turnout areas, modified salting practices and herding to provide growing season rest in broadcast burn sites;

Riparian Areas

Treatments within perennial or intermittent creeks and springs would be limited to hand treatments within the 100 foot buffer zone. Crews would use chainsaws to fall Western juniper trees, which would then be piled for burning at a later date.

Vegetation

- Vegetation manipulation would be prioritized to sagebrush-steppe or east side pine communities with juniper encroachment, and where post treatment shrub and herbaceous communities would allow achievement of resource objectives.
- Vegetation manipulation will seek to restore natural ecosystems, establish wildfire fuel breaks, and increase forage production for livestock and wild horses.
- Mechanical juniper shearing and chipping operations will comply with conservation measures.
- Native juniper woodlands would be maintained within the landscape positions where they historically occurred.

Treatment Monitoring and Adjustment

A monitoring and adjustment approach would be implemented within constraints of rules and regulations, Forest Plan/Resource Management Plan, NEPA and the Sage Steppe Ecosystem Restoration Strategy. The approach would include systematic monitoring of site-specific treatments with assessments of the results being achieved to effectively make real time adjustments and corrections, within the scope of the ongoing project, if appropriate.

The project components that would be monitored would vary depending upon the type of restoration activity and site-specific conditions. The monitored components would be evaluated on a frequency that would allow for adjustments in the implementation of specific restoration activities. The monitoring and adjustment program would be focused on achieving the desired landscape conditions, based on site-specific characteristics for each treatment area.

Old Growth Juniper

Individual old growth trees in restoration areas would be identified using morphological characteristics (Miller *et al.* 2005) to identify those trees that are greater than 130 years old and preserve them for their many social and ecological values. These characteristics would include:

- Rounded or unsymmetrical tops that may be sparse and contain dead limbs.
- Deeply furrowed, fibrous bark on the trunk that is reddish in color.
- Branches near the base of the tree that may be very large and covered with fruticose lichens.
- Limited terminal leader growth on branches in the upper 25 percent of the canopy.

Special-Status Plants

- Manage all special-status species habitats or occurrences (populations) so that BLM actions do not contribute to the need to list these species as federally threatened or endangered.
- Site specific management of all special-status species habitats and occurrences (populations) would be in accordance with conservation plans, recovery plans, habitat management plans, conservation recommendations, and best management practices, as appropriate for the species.
- Allow for no more than 20 percent (by plant species) elimination of occupied habitat and no greater than 20 percent total decrease in any plant species occurrence, except as directed in biological assessments, biological evaluations, habitat management plans, and conservation strategies/species management guides for specific species.
- Reduce or eliminate impacts to special-status species and their habitat when conducting ground disturbing activities.

Special-Status Plant species within the project area would be identified flagged and would not be disturbed with any treatment activities. Buffer zone sizes around sensitive plant sites would be identified at the discretion of the botanist. BLM requirements for special-status plant management are found in BLM Manual Handbook 6840-1, *Special Status Plant Management*, 1996.

Wildlife

- Retain vegetation buffers for wildlife cover at water sources, wetlands, and riparian sites.
- Limited Operation Periods (LOPs) and buffer zones would be implemented as necessary to reduce disturbances to wildlife.
- Close and rehabilitate cherry stem and temporary project roads where feasible to reduce disturbances to wildlife.
- Implement habitat treatments so that they do not conflict with the life history of resident species.

Actions requiring vegetation/habitat disturbance such as construction of temporary roads and

landings, and skidding or other movement of trees and related materials, should be accomplished in a manner resulting in as minimal disturbance as possible.

Ungulates

- Implement seasonal protection measures and buffer zones as appropriate for permitted activities.
- Reduce invasive juniper where it threatens meadow systems and quaking aspen stands.

Sagebrush-Obligate and Associated Species

- Locally developed conservation strategies or plans developed for sage-grouse, pygmy rabbit, burrowing owl and other special-status species would be used to identify high-priority treatment and fire suppression areas.
- Implement juniper reduction to enhance sagebrush ecosystems; focus on providing diverse composition and age classes of shrubs and healthy understory vegetation.
- Restore natural disturbance processes through forest and woodland thinning and prescribed fire burn projects.
- To the extent possible, utilize local native plants and seeds in seeding, restoration and rehabilitation projects, in accordance with BLM California's Native Seed Policy.

Other Native Wildlife Species

- Protect known raptor nesting trees from removal during project activities.
- Manage migratory birds in accordance with the Migratory Bird Treaty Act and Migratory Bird Executive order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*.

Federal State and BLM Listed Terrestrial and Aquatic Species

- Follow management guidelines within applicable biological opinions and conservation strategies.
- Implement seasonal protection measures and buffer zones as appropriate for permitted activities.

Currently there are no known federally threatened or endangered species known within or adjacent to the project area. If, during the implementation of the Proposed Action, threatened, endangered, BLM Sensitive species, or other species of interest are found, then areas of important or necessary habitat in the project area would be identified, flagged and protected from project activities in coordination with the SFO wildlife biologist. Project activities may be subject to seasonal restriction dates and buffer zones to protect specific wildlife species and their habitats. Project activities would be implemented consistent with the local Conservation

Strategy for Sage-Grouse (*Centrocercus urophasianus*) and the Sagebrush Ecosystems within the Vya and Massacre Population Management Units.

Noxious Weed Species

- All vegetation manipulation areas will be managed following treatment to ensure that noxious and invasive weeds do not become established.
- All hay, straw, or mulch used on BLM-administered lands must be certified as free from noxious weed seed.

Activities associated with the Proposed Action that are prone to noxious weeds, such as temporary roads, landings and skid trails would be monitored post treatment for new occurrences for three years. Newly discovered populations of noxious weed species would be mapped and treated using management techniques outlined in SFO Integrated Weed Management EA. To minimize the potential spread of noxious weed species the equipment associated with the Proposed Action would be pressure washed prior to engaging in project activities and before transport to new work areas.

Equipment operators and project inspectors would be provided with a noxious weed identification guide for species that are known to occur in northeast California. If a noxious weed site is discovered, project activities should cease and the Noxious Weed Coordinator notified of the occurrence. Project activities should not resume in the area until treatments and prevention procedures are in place.

Recreation

To the extent possible, roads that provide access to developed recreation sites for safety concerns would be used minimally. If necessary to use them for treatment activities, these roads would be avoided during weekends.

Areas where undeveloped hunting campsites occur would be excluded from mechanized treatment. Buffer zones would be established around these areas to maintain aesthetic values and would be coordinated with SFO recreation manager. Hand treatment in these areas would include use of chainsaws to thin juniper densities and hand pile construction. Slash piles would be burned during winter months.