

Tuscarora Sagebrush Habitat Restoration Initiative

ENVIRONMENTAL ASSESSMENT



November 2009
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Cover Photo: Guard Corral area, western Elko County (Tom Warren)

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1. INTRODUCTION

The Bureau of Land Management (BLM), Tuscarora Field Office, is proposing to restore a minimum of 10,000 acres of sagebrush habitat north of Battle Mountain, Nevada. The project's integrated approach will include a variety of treatments to restore areas that have endured catastrophic wildfires between 1984 and 2006. Restoration of this area is proposed to improve overall watershed health and habitat to benefit declining sensitive wildlife populations and crucial big game habitat, and to reduce the potential for future catastrophic fires.

1.1 Purpose and Need

In the past 26 years the sagebrush ecosystem within the Tuscarora sage grouse Population Management Unit (PMU) has suffered catastrophic impacts from thirteen large wildland fires, including the 1984 Lander Fire, 1985 Rock Creek and Clementine Fires, 1991 Izzenhood Fire, 1995 Midas Complex Fires, 1996 Antelope Fire, 1999 Clover and Izzenhood Fires, 2001 Hot Lake, Sheep and Buffalo Fires, 2005 Esmeralda Fire and 2006 Sheep Fire (see Figure 1). The loss of hundreds of thousands of acres of sagebrush communities by wildfire has resulted in a decline of sagebrush obligate species such as sage grouse and pygmy rabbit, and crucial habitat for sagebrush associated species such as mule deer and pronghorn antelope. The habitat goal for the Tuscarora Sagebrush Habitat Restoration Initiative (TSHRI) is to restore and maintain ecologically diverse, sustainable, and contiguous sagebrush ecosystems by implementing sound management practices. A combination of mechanical, chemical and livestock grazing management treatments are proposed to improve overall rangeland health and habitat to benefit the above species and reduce the potential risk of future catastrophic large fires caused by the invasion of cheatgrass in burned areas.

A total of eight areas are being proposed for restoration treatments as shown in Figure 2.1

Rock Creek Ranch is an area that burned in the 1985 Rock Creek 2, 2001 Hot Lake and 2006 Sheep Fires. The entirety of the proposed restoration site burned in one or more of these fires but only about 21% (755 acres) of the area was seeded with sagebrush following the 2006 Sheep Fire (Figure 3). Following the 1985 Rock Creek 2 Fire, most of the area was seeded with crested wheatgrass for fire rehabilitation purposes. Following two more wildfires in the area in 2001 and 2006 any sagebrush that had become reestablished was killed by the burns. Only a small portion of the Rock Creek Ranch treatment areas was seeded with Wyoming sagebrush following the 2006 Sheep Fire due to the lack of sagebrush seed available commercially. Monitoring results following the seeding treatment show that sagebrush, where seeded, has become established in the nearly dominate area of crested wheatgrass.

The area is classified by the Nevada Department Wildlife (NDOW) as providing crucial winter range for mule deer, and providing nesting, summer, and winter habitat for sage grouse. The dominance of crested wheatgrass in the area is, and will continue to be, a

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deterrent for sagebrush establishment due to its competitive nature. The purpose of the treatment is to interseed sagebrush into the crested wheatgrass to establish a shrub community that will enhance both the forage and cover for many species of wildlife, particularly mule deer and sage grouse.

Middle Rock Creek is an area that burned in the 2001 Hot Lake Fire and again in the 2006 Sheep Fire. The entirety of the proposed restoration site (4,608 acres) burned in one or both of these fires and about 70% (2,781 acres) was aerially seeded after both fires (Figure 4) with a mix of Wyoming big sagebrush, basin big sagebrush, and western yarrow. Monitoring information showed that seeded sagebrush and yarrow was having good success prior to the 2006 Sheep Fire. Results from monitoring after the 2006 Sheep Fire rehabilitation seeding show that there is very little sagebrush that has successfully established due to the area burning twice in a short time frame.

Historically this area supported several thousand mule deer during the winter and is classified as crucial mule deer winter range by the NDOW. In addition to providing mule deer habitat the area was also important habitat for sage grouse providing nesting, summer, and winter habitat. Currently the area is nearly devoid of sagebrush and must be restored in order to provide the quality of habitat before the fires. Objectives of the treatment is to establish pockets of sagebrush to act as seed sources for the rest of the surrounding areas and to provide cover and forage for all sagebrush obligate species.

Lower Rock Creek is an area where the southern portions burned in the 2001 Sheep Fire, and the northern portions burned in the 2006 Sheep Fire. Approximately 98% (1,463 acres) of the proposed restoration site burned in one or both of these fires and about 28% (417 acres) were aerially seeded (Figures 5 and 6). Seeding success has been limited to forage kochia and the occasional presence of crested wheatgrass.

This area has been classified by NDOW as crucial mule deer winter range, as well as summer and winter range for sage grouse. The Wyoming sagebrush component of the plant community has been completely removed from the ecosystem due to the fires and the presence of cheatgrass. Native grasses are very limited with most of the site occurring on a south aspect, ideal for cheatgrass communities. The objective of the treatment is to establish a perennial grass community that will compete with cheatgrass and reduce the chances of future fires in the area, and to establish a shrub community to restore crucial winter range for mule deer and sage grouse.

Izzenhood Basin is an area that burned in the 1985 Lander Fire and then again in the 1999 Clover Fire. Rehabilitation efforts occurred through the area between 1996 and 1998 and then again following the Clover fire in 1999. Approximately 734 acres (about 38%) of this site was drill seeded and approximately 986 acres (51%) of the site were aerially seeded (Figure 8). NDOW has also completed several thousand acres of seeding treatments on nearby private land to act as a greenstrip and forage source for several thousand wintering mule deer and close to a thousand antelope.

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The purpose of the treatment would be to target areas where past seedings were not successful, and tie in holes between other seedings to provide a continuous greenstrip along the foothills of the mountain that still contain existing intact sagebrush stands that are vital for wintering mule deer and sage grouse. Interseeding of Wyoming sagebrush within the existing seedings will be planted in islands as not to threaten the integrity of the greenstrip, and still provide a source of cover and forage for wintering wildlife.

South Roosters Comb is an area that burned in 1984 Lander Fire. The entirety of the proposed restoration site (1,075 acres) burned and didn't receive any treatment until 1992 (Figure 9). Treatments in 1992 included disk/drill seeding treatment with overseeding of Wyoming sagebrush and forage kochia. Majority of the seeding treatment proved successful with only some areas not establishing. The goal of the South Roosters Comb seeding is to treat the areas of cheatgrass infestation and protect the existing seeding from future wildfires.

The area is heavily used by mule deer and antelope in the winter and has been classified by NDOW as crucial winter range for both. The area is also important to providing sage grouse winter habitat, but the lack of Wyoming sagebrush has deterred most of the birds from currently using the area. The purpose of the treatment is to provide protection of the existing seedings in the area and to attain the establishment of a shrub community to enhance winter habitat for mule deer, antelope, and sage grouse.

Northwest Sheep is an area that burned in the 1984 Izzenhood Fire. Approximately 56% (272 acres) of the proposed restoration site burned in this fire but no treatments were implemented for the site until 2006 (Figure 10). Monitoring results following the disk/drill treatment of 2006 showed some success of crested wheatgrass, four-wing saltbush, forage kochia, and Wyoming sagebrush. However much of the areas still had a cheatgrass component which has left much of the area vulnerable to future wildfires.

NDOW has classified the area as crucial winter range for mule deer and antelope, as well as providing winter and summer habitat for sage grouse. The objective of the treatment is to establish a perennial grass community capable of competing with cheatgrass and to restore a shrub community through the seeding of four-wing saltbush and Wyoming sagebrush to enhance crucial winter range for several species.

Guard Corral is an area that burned in the 1999 Clover Fire. The entirety of both proposed restoration sites burned in this fire, with seeding treatments being conducted in two phases from 2000 to 2001. Much of the area was disk/drill seeded with a combination of non-native grasses and kochia to act as a greenstrip to protect adjacent intact crucial mule deer winter range (Figure 11). However, some areas of the seeding were not successful and have returned to cheatgrass/annual mustard dominated sites. These areas are prone to fueling fires and risking remaining intact sagebrush islands.

NDOW has classified the area as crucial winter range for mule deer and antelope, as well as providing winter habitat for sage grouse. The purpose of the treatment is to enhance the winter range by establishing a shrub community of Wyoming sagebrush and four-

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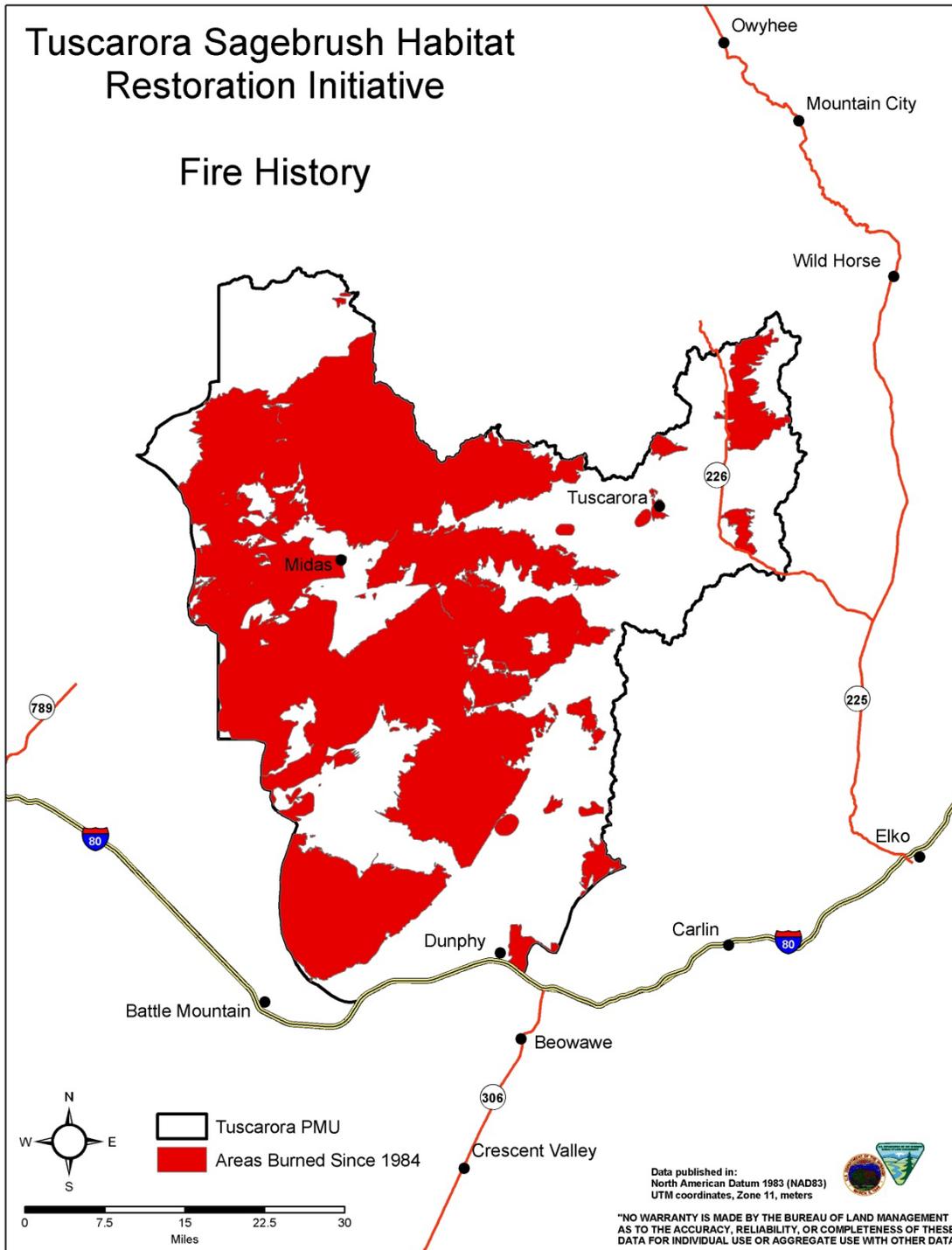
wing saltbush as well as establishing a perennial grass understory that will compete with cheatgrass and reduce the fire cycle in the area.

Owyhee Bluffs is an area that entirely burned in the 1999 Clover Fire. In 2000, post fire rehabilitation efforts included an herbicide treatment for seedbed preparation in the spring followed by a fall drill seeding (Figure 13). Monitoring of the treatment following the seeding showed very little success of the establishment of seeded species.

Historically the vegetation in the area was a matrix of Wyoming big sagebrush with a perennial grass understory that provided wintering habitat for mule deer, antelope, and sage grouse. Currently nearly all of the sagebrush stands have been eliminated and is dominated by cheatgrass, which does not provide sufficient enough habitat to support wildlife in the winter. The proposed treatment area sits at the base of the Snowstorm Mountains which contain high value wildlife habitat for sage grouse, mule deer, and California bighorn sheep. The establishment of perennial grasses and shrubs such as four-wing saltbush will compete with cheatgrass and reduce the chance of future wildfires spreading to intact habitats in the Snowstorm Range.

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Figure 1. Fire History of the Project Area



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1.2 Relationship to Laws, Policies and Land Use Plans

The Federal Land Policy and Management Act of 1976 (FLPMA) requires an action under consideration be in conformance with the applicable BLM land use plan, and be consistent with other federal, state, local and tribal policies to the maximum extent possible.

1.2.1 BLM Land Use Plan Conformance

The proposed action conforms to the 1987 Elko Resource Management Plan (RMP), and the RMP amendment for fire management approved on September 29, 2004. The proposed treatments are consistent with meeting wildlife management objectives from the 1987 plan, including alteration of sagebrush areas through use of herbicides, or mechanical means using procedures specified in the Western State's Sage Grouse Guidelines and current studies and designs to improve wildlife habitat (Record of Decision, page 25), and the decision from the 2004 RMP Fire Management Amendment, to "Conduct fire rehabilitation activities to emulate historic or pre-fire ecosystem structure, functioning, diversity and/or to restore a healthy stable ecosystem (Decision Record, page 20).

1.2.2 Consistency with Other Authorities

The proposed action is consistent with other Federal, state, local and tribal laws, regulations, policies and plans to the maximum extent possible, including the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1700 et seq); the Taylor Grazing Act of 1934 (43 U.S.C. 315 et seq); and the Federal Noxious Weed Act (1974), as amended by Section 15 - Management of Undesirable Plants on Federal Lands. Proposed use of herbicides is consistent with the 2007 Record of Decision for the Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (BLM 2007). Table 1 identifies elements of the human environment that are regulated by a statutory or regulatory authority that would be affected and are analyzed in Chapter 3 of this EA, as well as those that BLM determined would not be affected.

Table 1.2.2 Review of Statutory Authorities

ELEMENT/RESOURCE	Present?	Affected?	Comment
Air Quality	Yes	No	See Section 3.2.1
Area of Critical Environmental Concern	No	N/A	
Cultural Resources	Yes	No	See Section 3.2.2
Environmental Justice	No	N/A	
Farm Land -Prime/Unique	No	N/A	

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Floodplains	No	N/A	
Human Health & Safety	Yes	No	See Section 3.2.3
Migratory Birds	Yes	No	See Section 3.2.10
Native American Religious Concerns	No	N/A	
Non-Native Invasive and Noxious Species	Yes	Yes	See Section 3.2.4
Threatened/Endangered Species	No	N/A	
Water Resources	Yes	No	See Section 3.2.9
Wastes, Hazardous/Solid	No	N/A	
Wetlands, Riparian Zones	No	N/A	
Wild & Scenic Rivers	No	N/A	
Wilderness	No	N/A	

1.2.3 Guidelines to Manage Sage Grouse Populations and Their Habitat

In addition to the many other management objectives and/or standards that apply to sage grouse and/or sagebrush habitats, both the Wells and Elko RMP require that alterations of sagebrush areas would be in accordance with the 1977 *Western States Sage-Grouse Guidelines*, as amended, and as future studies might dictate. In 2000 the Western Association of Fish and Wildlife Agencies (WAFWA) finalized an update of the 1977 guidelines. The BLM, U.S. Forest Service, and the U.S. Fish and Wildlife Service signed a memorandum of agreement to consider these guidelines in their respective planning efforts, utilizing local expertise and quantitative data. In accordance with the existing Land Use Plans and the 2000 Memorandum of Agreement, the BLM considers the WAFWA guidelines in all sage grouse and/or sagebrush habitat enhancement projects that occur on public lands and/or are federally funded.

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2. ALTERNATIVES

This chapter describes the Proposed Action and No Action alternatives. It also describes alternatives that BLM considered but eliminated from further analysis in this EA.

2.1 Proposed Action

The Tuscarora PMU area is approximately 1,486,441 acres, of which about 858,198 acres are public lands managed by the BLM, and approximately 17,363 of these acres comprise the proposed project area for the Tuscarora PMU Sagebrush Habitat Restoration Initiative (TSHRI). This project would be funded in part by the American Recovery and Reinvestment Act, for administration by the BLM in partnership with the Nevada Department of Wildlife and the Nevada Muleys wildlife conservation organization. The proposed action is to apply vegetation treatments to areas identified as being in poor condition with respect to sagebrush habitat quality. Treatment techniques (herbicide; drag, drill, broadcast, aerial, hand, and harrow seeding; hand planting of seedlings; disking; mowing; fencing) would be used individually or collectively to achieve desired status for sagebrush habitat.

Treatment locations and acreage to be treated and monitored within any one year would be dependent on availability of funding, ability of livestock operators to successfully manage livestock to accomplish treatment objectives, and receptivity of sites to proposed treatment actions (e.g. growth cycle for herbicide application, etc.). As shown in Figures (2-13) and summarized in Table 2.1, eight sites would be treated with a combination of techniques.

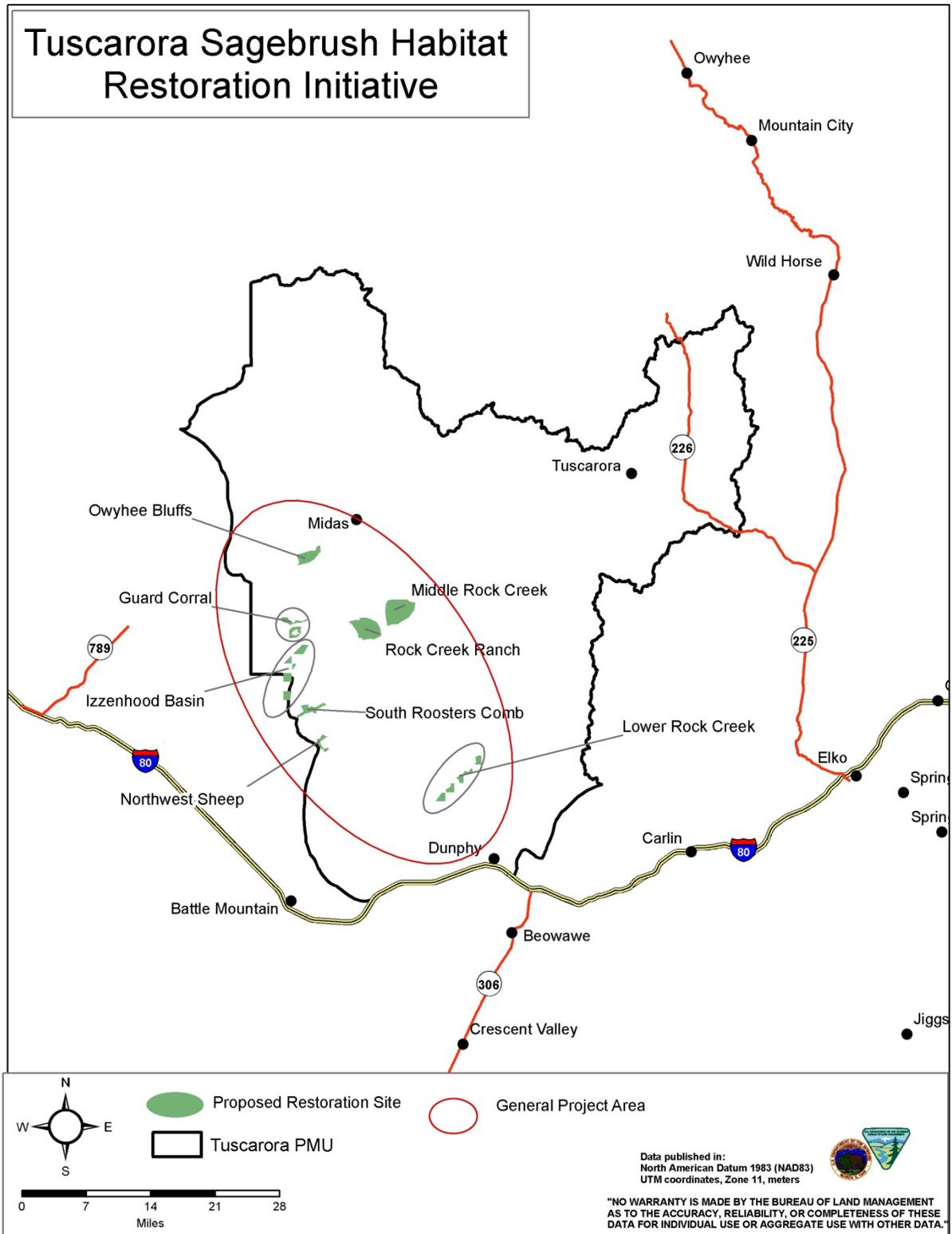
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Table 2.1: Proposed Restoration Sites and Treatments

Proposed Restoration Area	Total Project Area	Approximate Acreage							Hand Plant Seedlings	Fencing (miles)
		Harrow	Disk	Drill Seed	Broadcast Seed	Mowing	Herbicide Application (Selective)	Herbicide Application (Total)		
Owyhee Bluffs	1,718	978	0	744	978	0	744	978	0	4
Guard Corral	2,158	1,576	0	1,220	938	680	1,518	638	0	2
Middle Rock Creek	4,608	0	0	4,608	0	0	4,608	0	yes	0
Rock Creek Ranch	3,607	3,607	0	0	3,607	85	0	0	0	0
Izzenhood Basin	1,920	0	0	1,920	0	0	0	1,920	0	0
South Roosters Comb	1,075	300	0	1,075	300	0	1,075	0	0	0
Northwest Sheep	490	200	0	490	200	0	490	0	0	0
Lower Rock Creek	1,787	1,113	387	387	1,113	0	0	1,500	0	5
Totals	17,363	7,774	387	10,444	7,136	765	8,435	5,036	<i>1 project area</i>	11

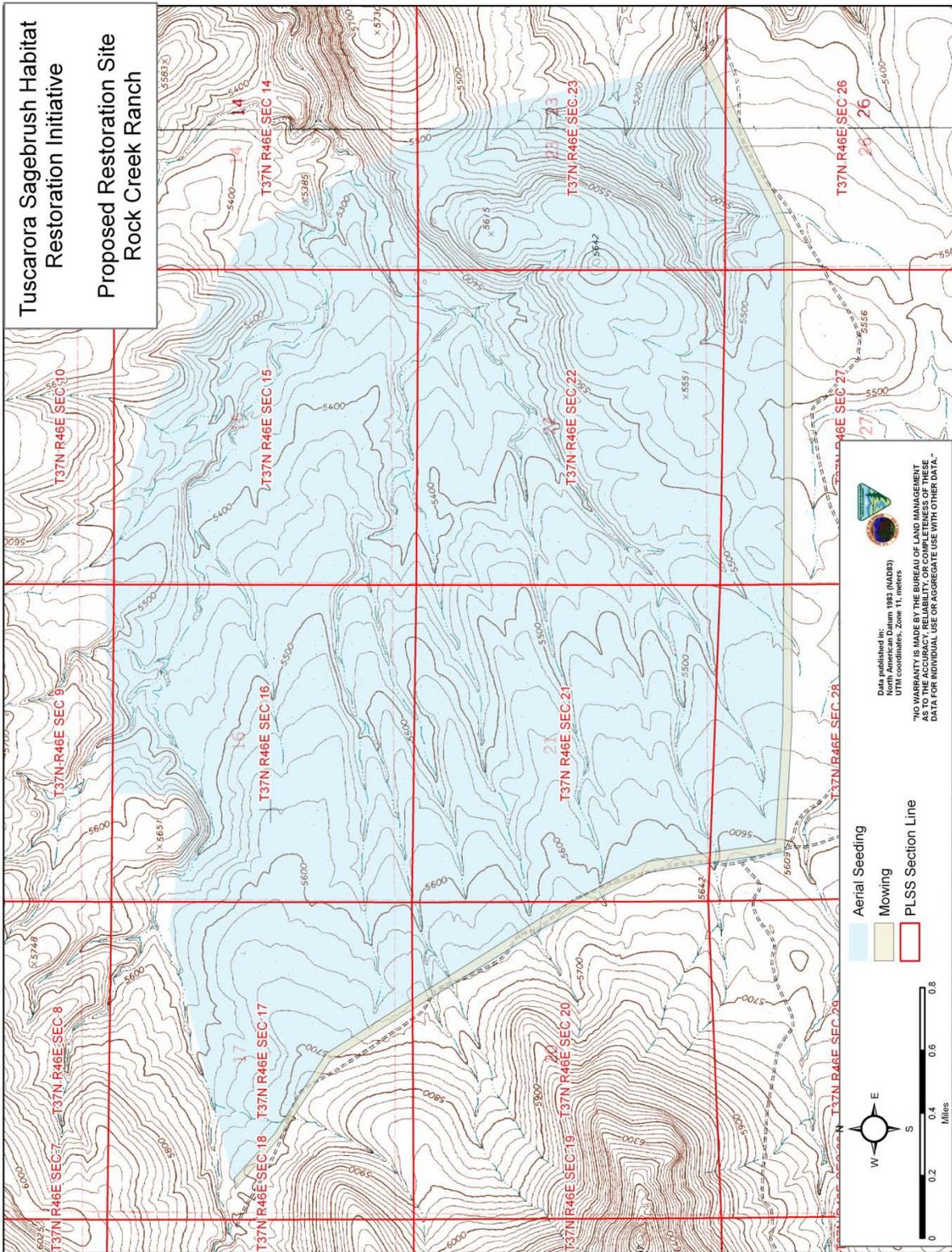
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Figure 2. Overview of Proposed Restoration Sites



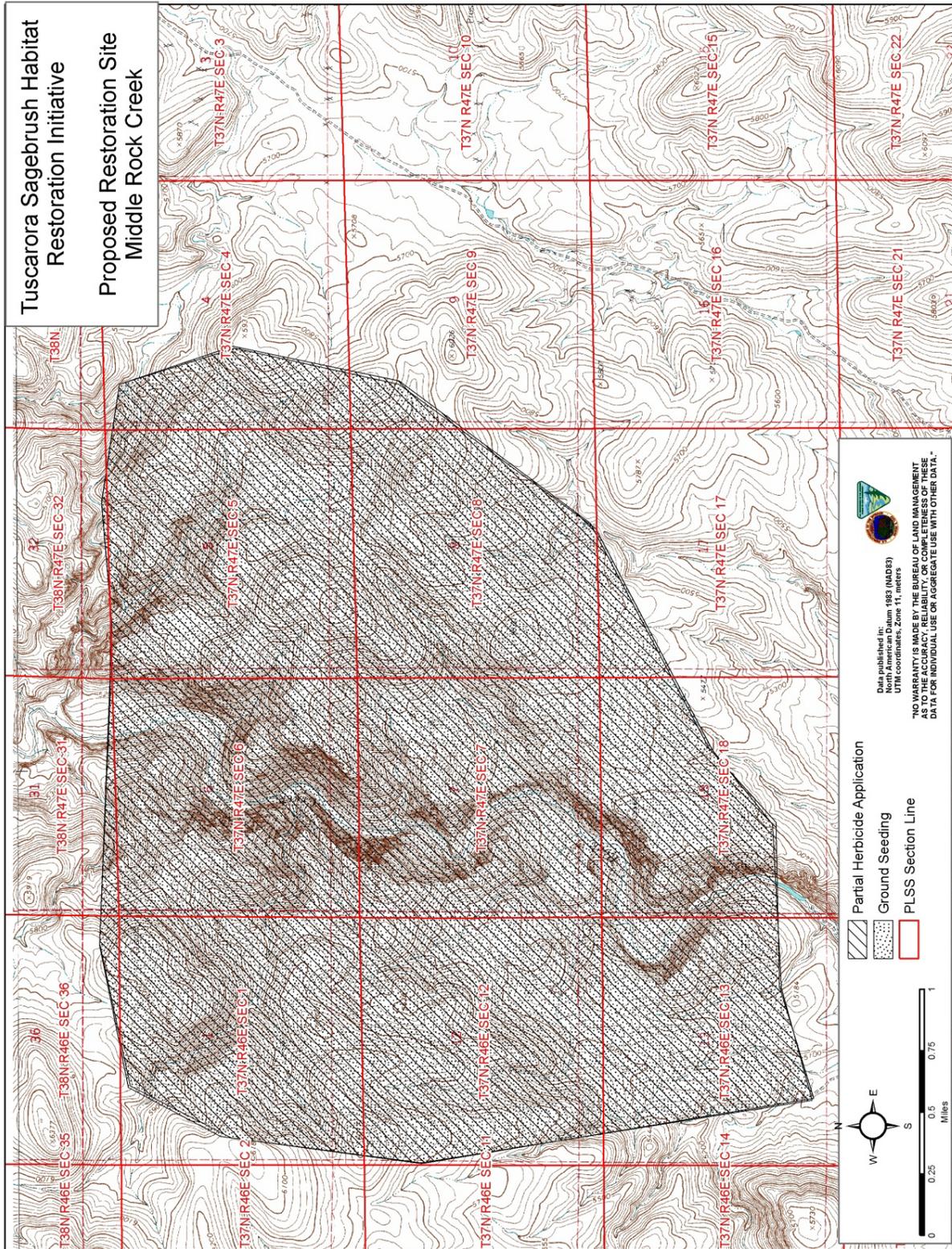
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Figure 3. Rock Creek Ranch Proposed Restoration Site



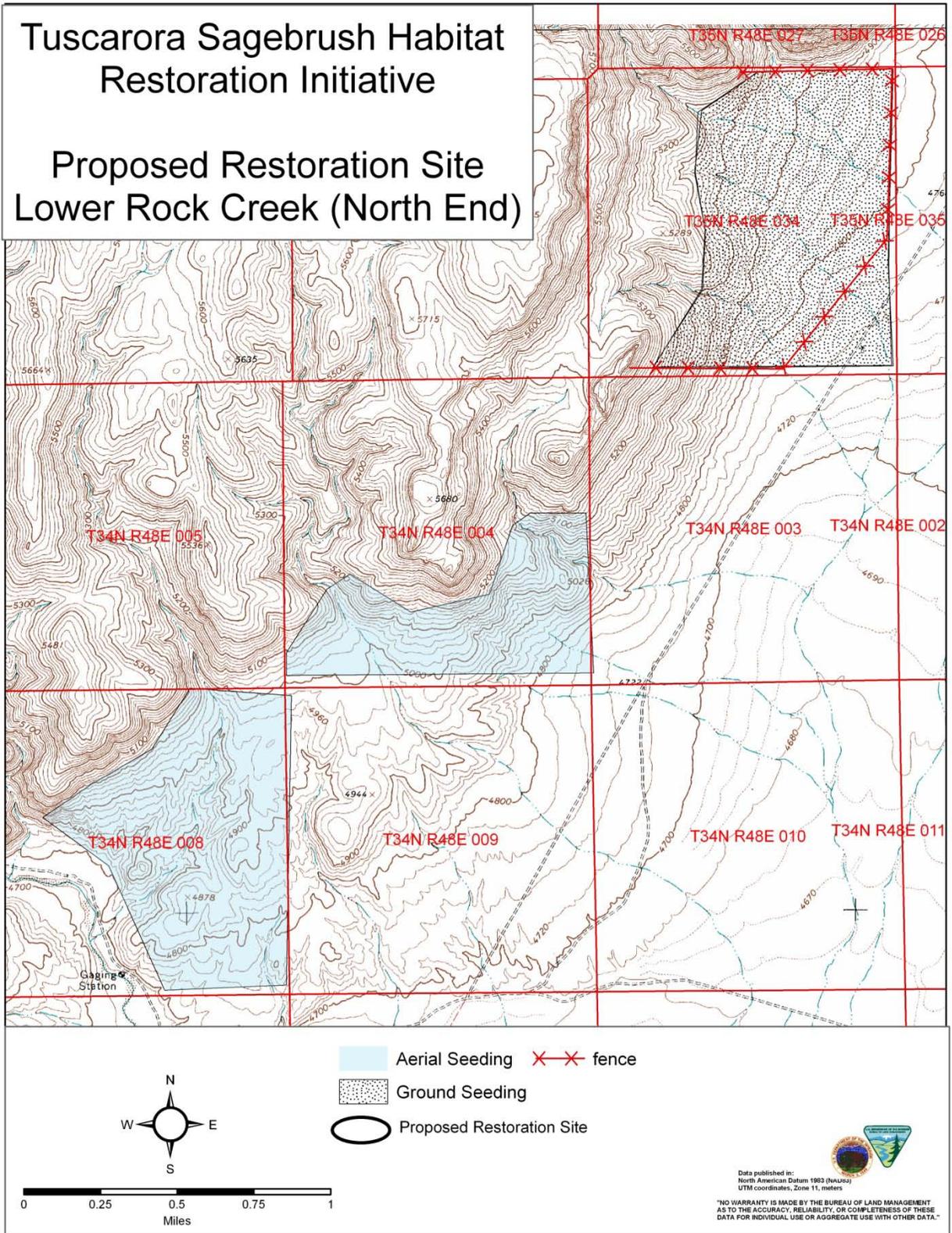
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Figure 4. Middle Rock Creek Proposed Restoration Sites



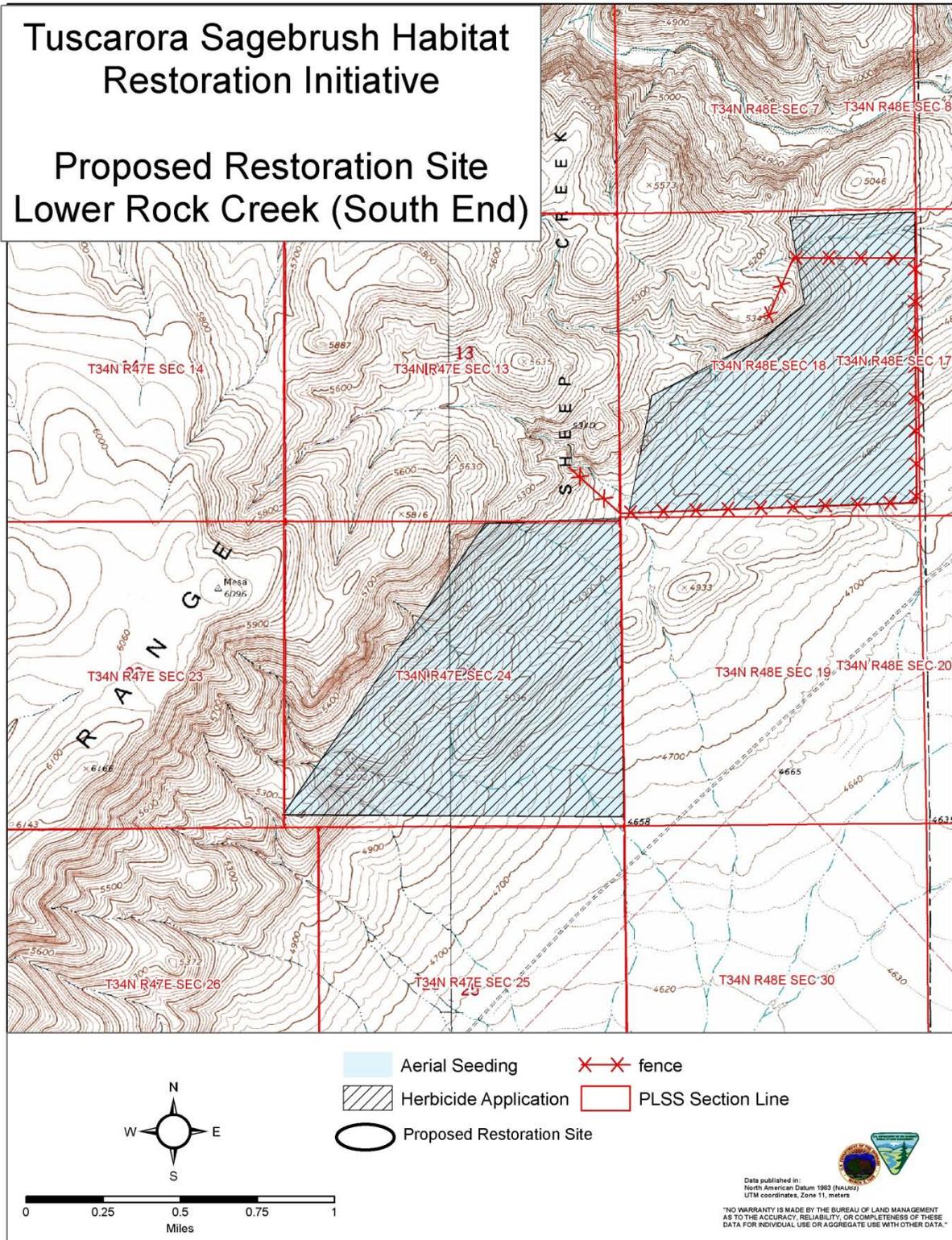
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Figure 5. Lower Rock Creek Proposed Restoration Site (North End)



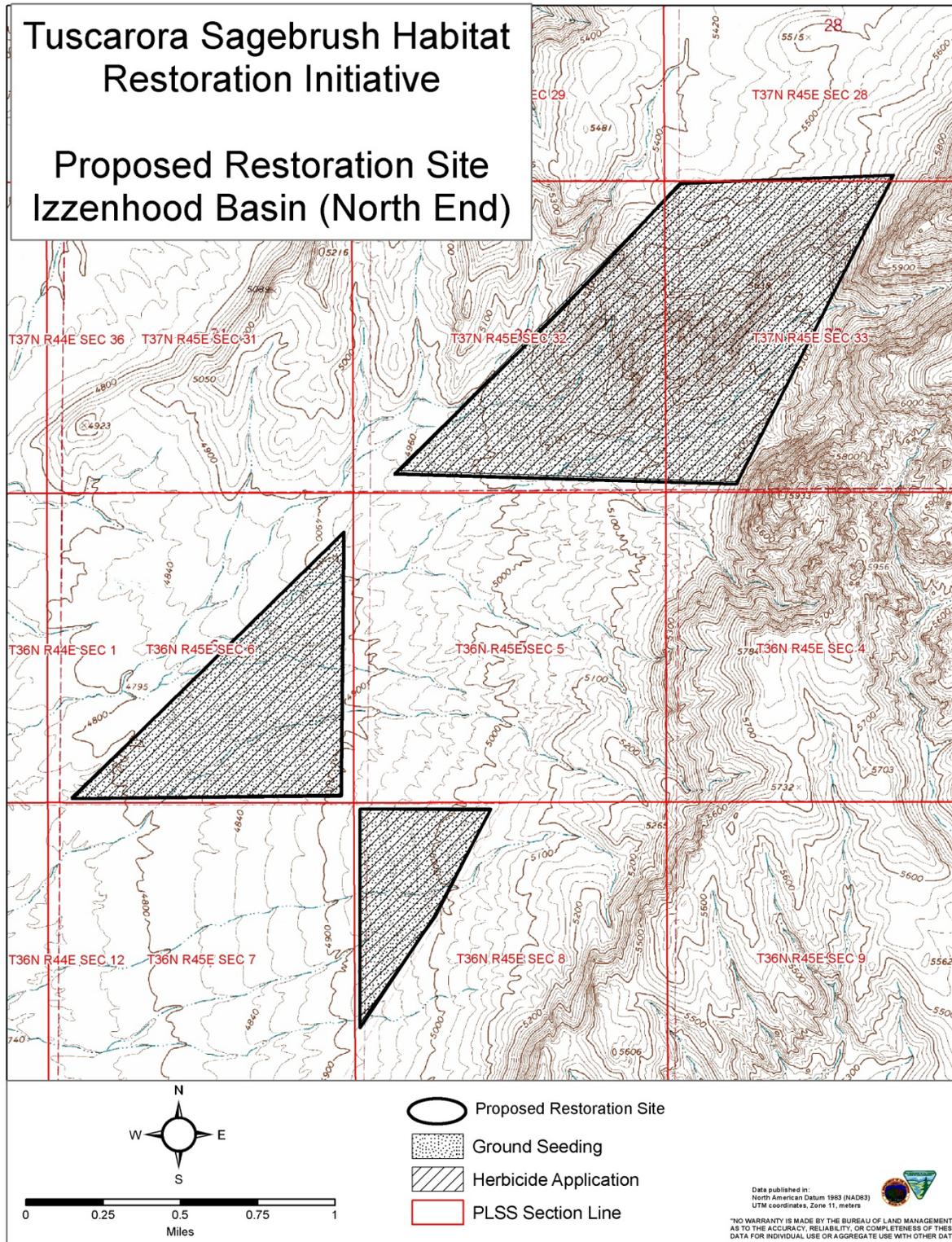
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Figure 6. Lower Rock Creek Proposed Restoration Site (South End)



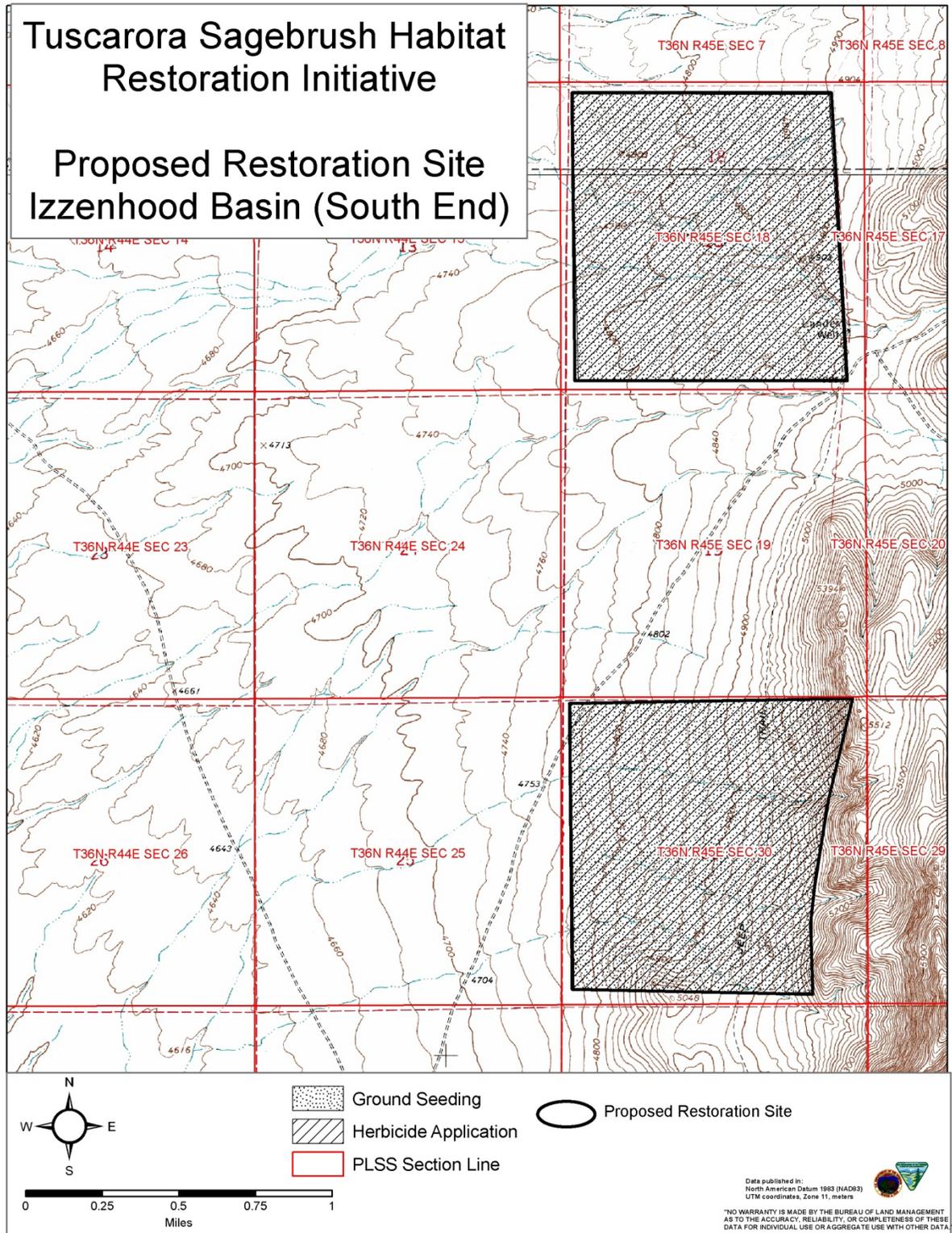
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Figure 7. Izzenhood Basin Proposed Restoration Site (North End)



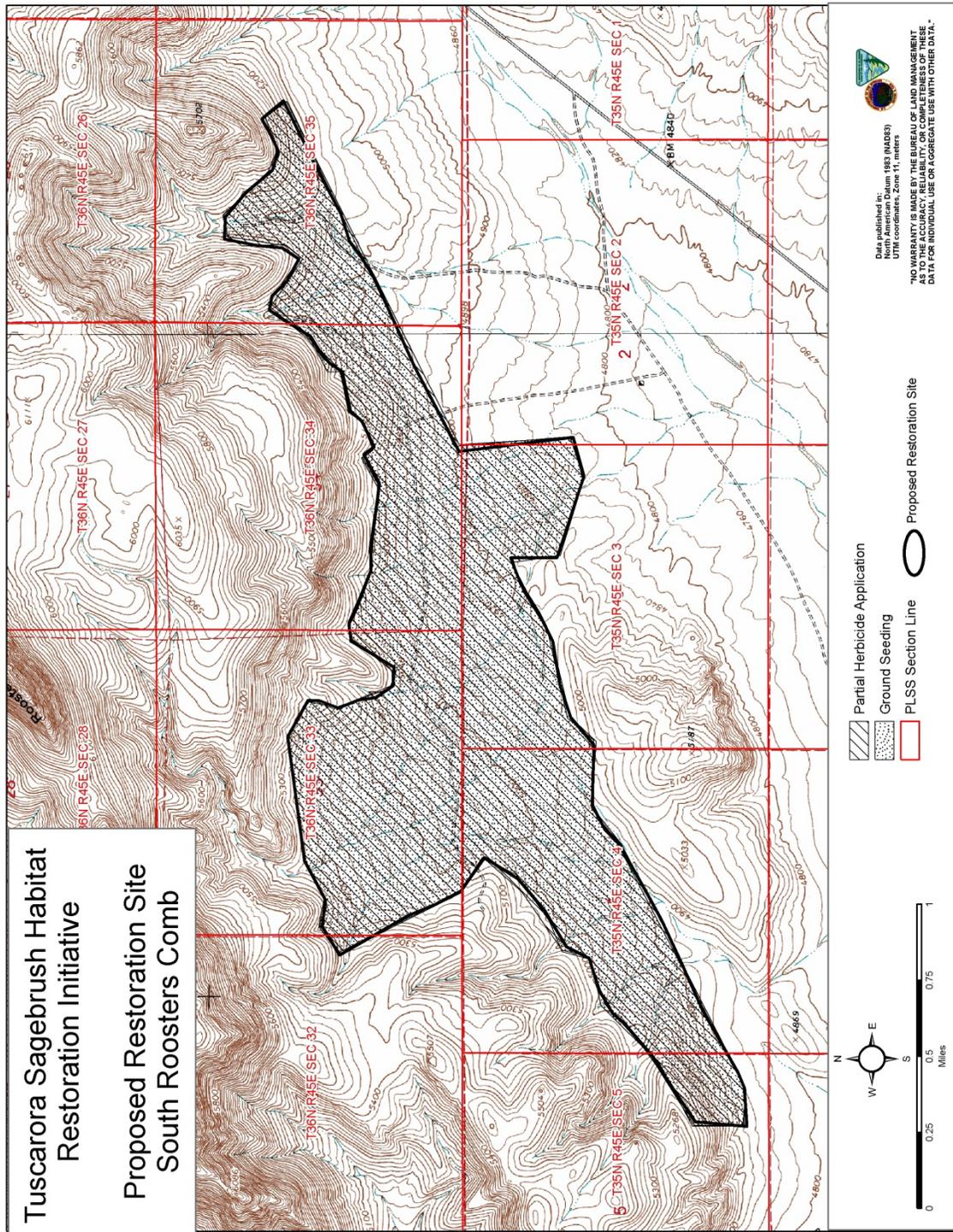
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Figure 8. Izzenhood Basin Proposed Restoration Site (South End)



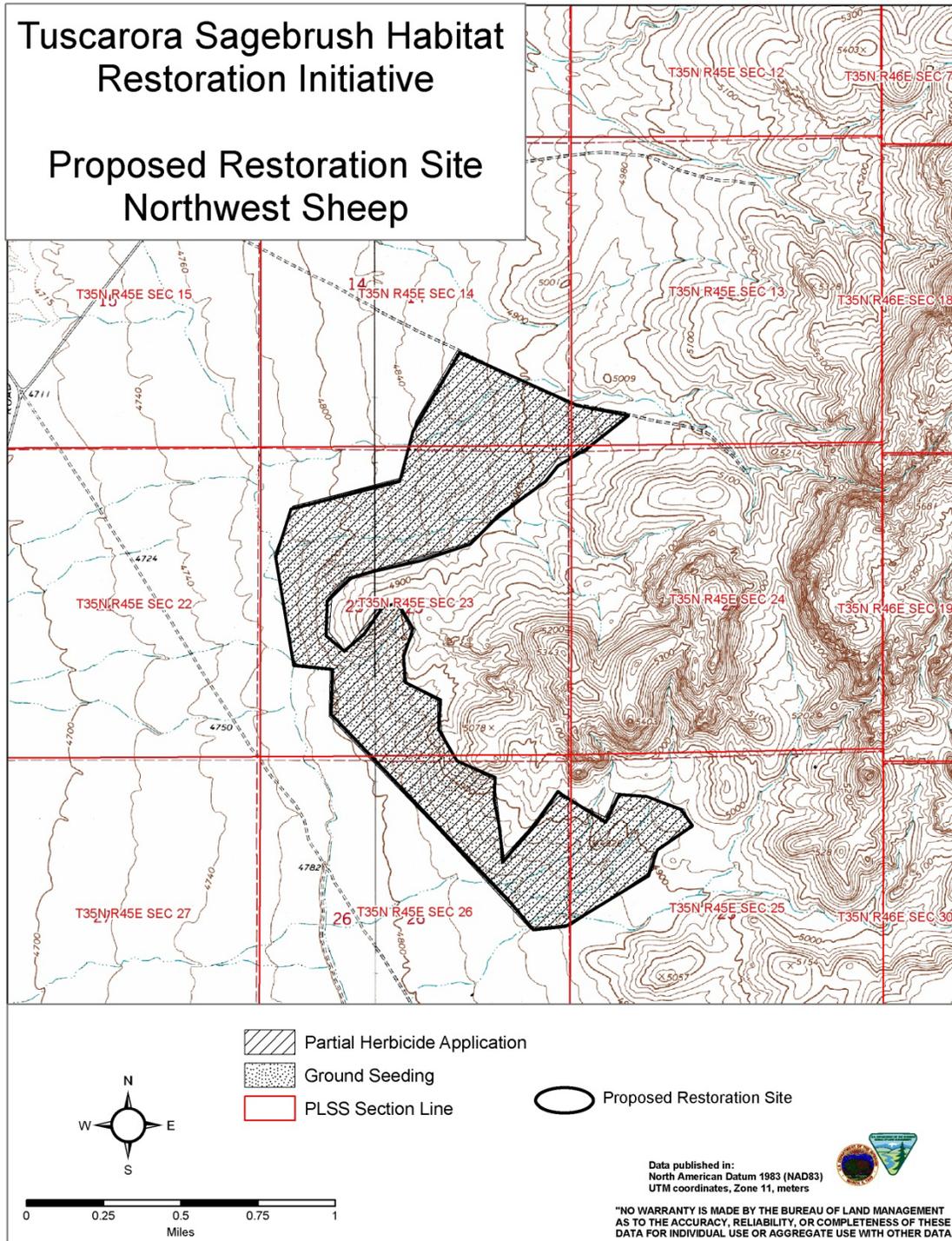
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Figure 9. South Roosters Comb Proposed Restoration Site



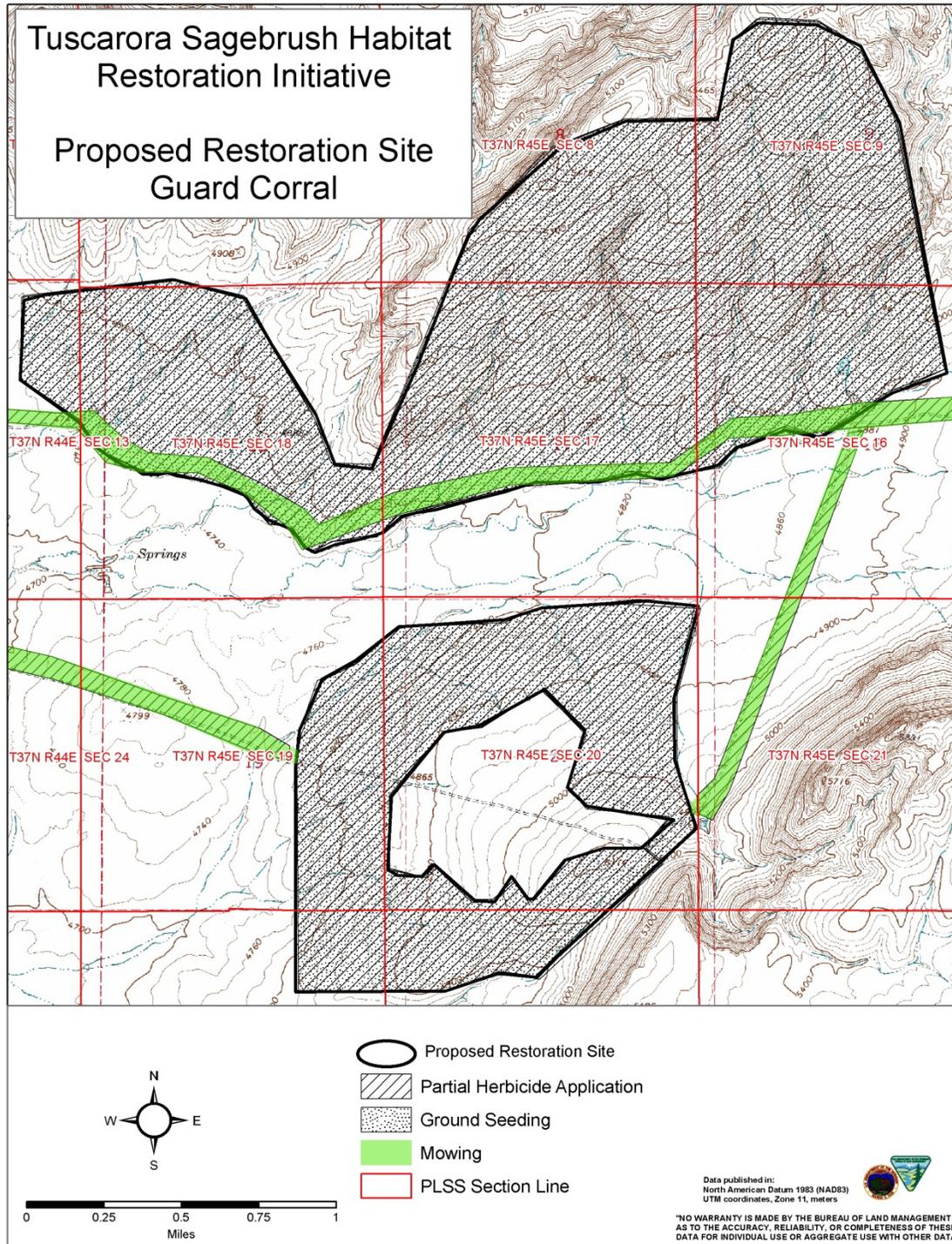
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Figure 10. Northwest Sheep Proposed Restoration Site



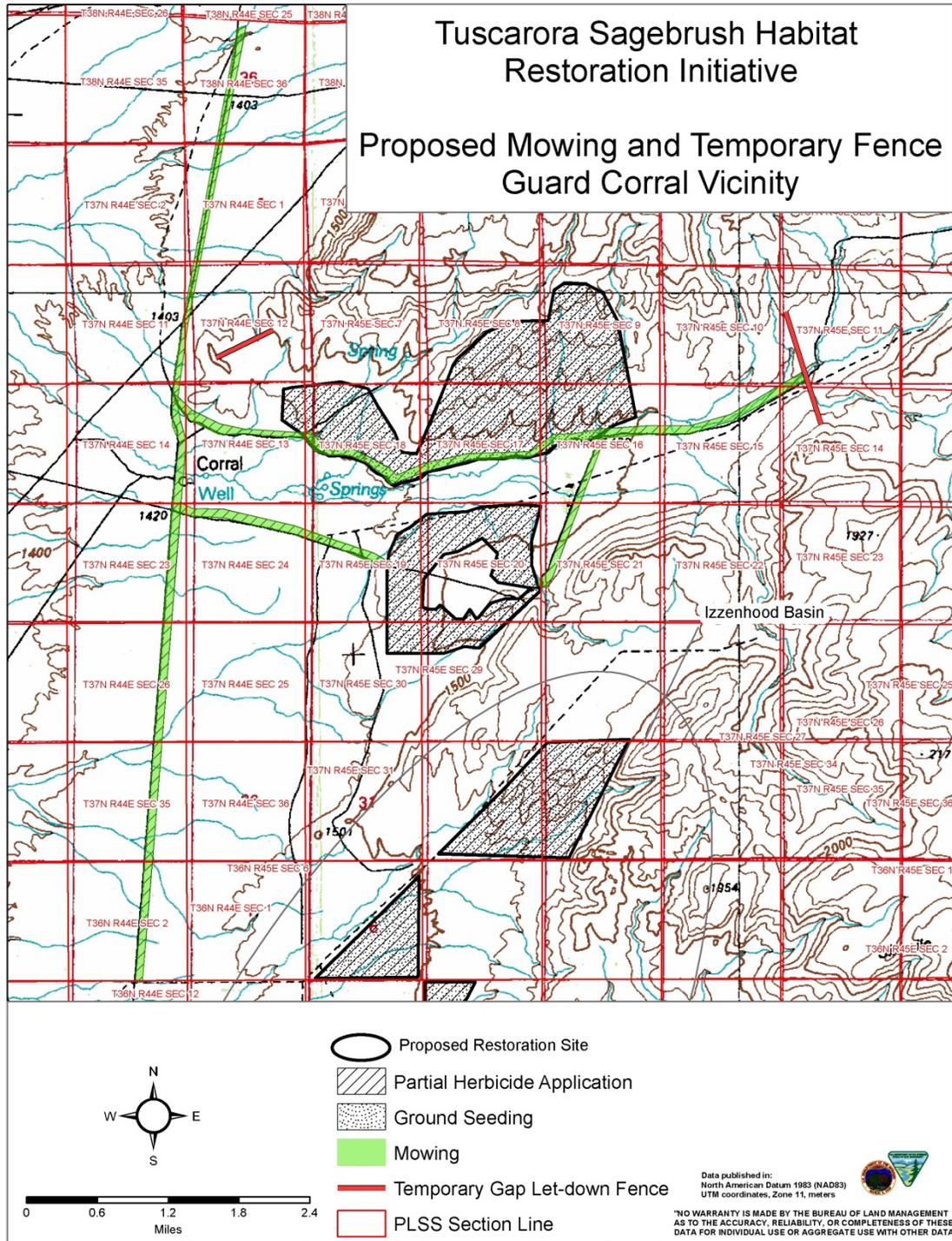
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Figure 11. Guard Corral Proposed Restoration Site



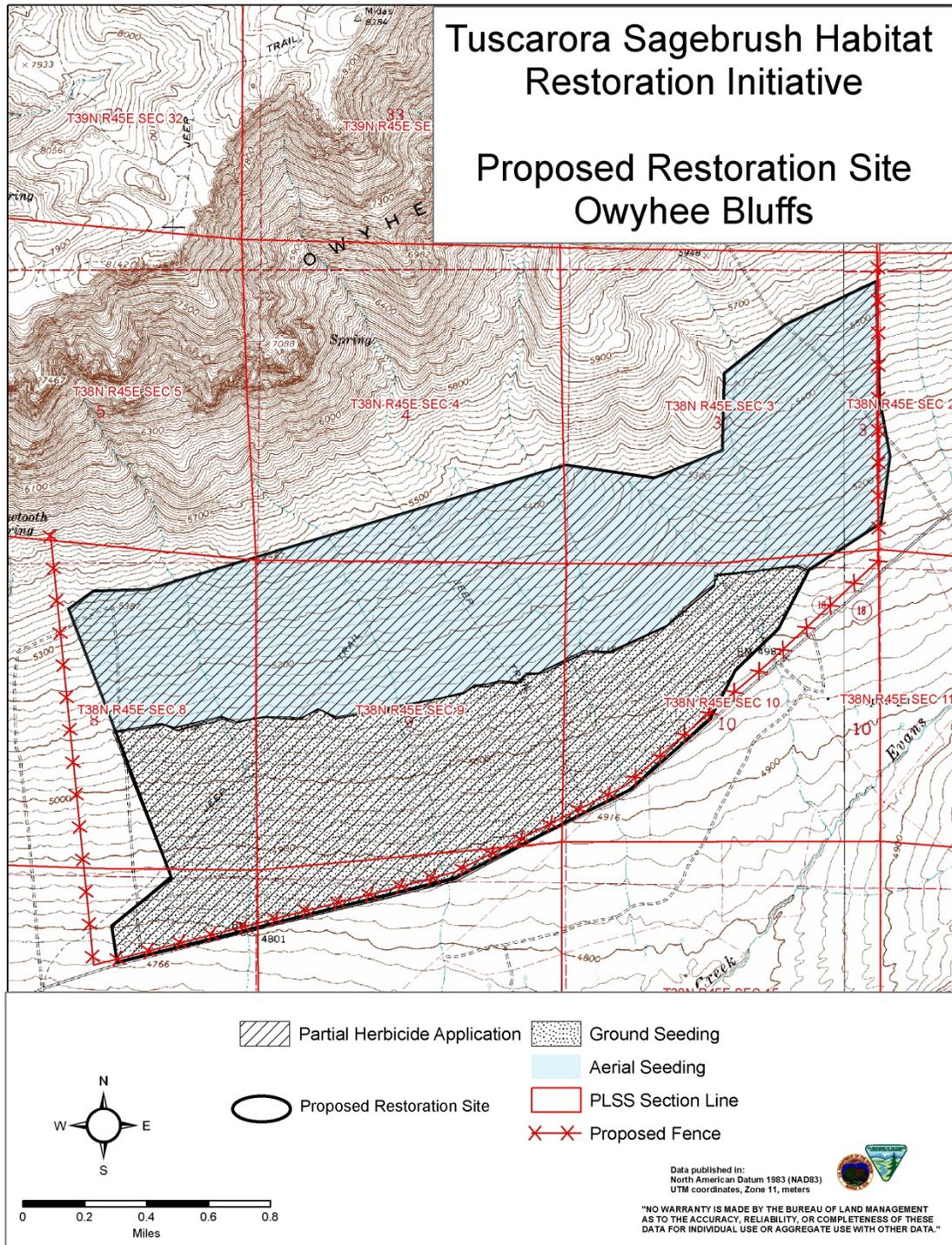
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Figure 12. Proposed Mowing in Vicinity of Guard Corral Restoration Site



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Figure 13. Owyhee Bluffs Proposed Restoration Site



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Treatment sites are proposed based on interdisciplinary review, considering the following four criteria:

- Is the proposal consistent with the goal of restoring sagebrush habitat?
- Does the proposal stand a reasonable chance of success?
- Would adverse effects to endangered, threatened or proposed species or critical habitat be avoided?
- Would treatment have a positive impact to resource values?

2.1.1 Seeding Treatments

Treatment Types

A variety of seeding methods may be used for proposed projects. Depending on the terrain, soil type, soil moisture, and seed species one or more of the following seeding methods may be used.

- **Broadcast and Drag** - broadcast application of seed (aerially or by truck or all-terrain vehicle (ATV) mounted applicators) followed by dragging a heavy chain across the seeded area to enhance ground-to-seed contact. Ground-to-seed contact can be a critical factor in successful seeding.
- **Drill** - application of seed by rangeland or Truax seed drills pulled behind a tractor, truck, or similarly capable vehicle. Seed drills operate on the principle of inserting (or “drilling”) the seed into the soil thereby ensuring proper seeding depth.
- **Broadcast/Aerial** - application of seed by distributing the seed through the air and the seed falling at random within the application area.
- **Harrow** - application of seed by broadcast method followed by enhancement of ground-to-seed contact by pulling a series of spikes (usually attached in rows to a metal frame) along the ground to pulverize and smooth the soil.
- **Disking** - preparation of the seed bed by “plowing” using large metal disks that slice through and turn over an approximate four to six-inch surface layer of turf and/or hardened soil.
- **Hand** - application by scattering seed by hand using either no tools or hand-held broadcast spreaders

Seed Mixes

Seed mixes would consist of a combination of native and non-native species. Species selection would be based on site potential and objectives. As shown in Table 3, seed mixes for ground seeding operations will include one or more of the following species:

Table 2.1.1 Proposed Seed Mixes for Ground Seeding

Species	Variety
Sandberg’s Bluegrass (<i>Poa secunda</i> J. Presl)	Mountain Home
Russian Wildrye (<i>Psathrostachys juncea</i> [Fisch.] Nevski)	Bozoisky
Siberian Wheatgrass (<i>Agropyron fragile</i> ssp. <i>Sibericum</i> [Willd.] Melderis)	Vavilov

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Crested Wheatgrass (<i>Agropyron cristatum</i> [L.] Gaertn.)	Nordan
Fourwing Saltbush (<i>Atriplex canescens</i> [Pursh] Nutt.)	Smoke Creek
Spiny Hopsage (<i>Grayia spinosa</i> [Pursh.] Guldenstaedt.)	N/A
Winterfat (<i>Krasheninnikovia lanata</i> [Moq.] D.Dietr)	N/A
Big Squirreltail (<i>Elymus multisetus</i> [J.G. Smith] Burt-Davey)	Sand Hollow
Indian Ricegrass (<i>Oryzopsis hymenoides</i> [Roemer & J.A. Schultes] Ricker ex Piper)	Rimrock
Sainfoin (<i>Onobrychis viciaefolia</i> Scop.)	Eski

Proposed Seed Mixes for Aerial Seeding.

Species	Variety
Wyoming Big Sagebrush (<i>Artemisia tridentate</i> ssp. <i>wyomingensis</i>)	N/A
Basin Big Sagebrush (<i>Artemisia tridentata</i> ssp. <i>tridentate</i>)	N/A
Western Yarrow (<i>Achillea millifolium</i> var. <i>occidentalis</i> DC)	N/A
Forage Kochia (<i>Kochia prostrate</i> [L.] Schrad.)	Immigrant

Hand Planting of Seedlings

Some smaller parcels within the proposed treatment areas may be selected for sagebrush, and in the higher elevations bitterbrush seedling plantings. The seedlings would be seeded by hand in the early spring while soil moisture is adequate to allow for seedling establishment.

2.1.2 Mechanical Treatment

To provide for an adequate seedbed mechanical treatments will be applied that include disking (plowing), harrowing and in some cases mowing of existing grasses.

2.1.3 Livestock Grazing and Protective Fencing

- 1. Rest from Livestock Grazing** - Livestock grazing would be removed from the seeded areas in order to allow the seeded vegetation to successfully establish. The closure would occur through a minimum of two growing seasons or until establishment objectives are met, in order to provide an adequate amount of time to allow the seeded vegetation to establish. Separate decisions would be issued in order to close the treatment areas to livestock grazing. The treated area would be reopened to livestock grazing once the establishment objectives in the Closure Decision(s) have been met.

- 2. Approximately 11 miles of temporary protective fencing will be constructed to exclude livestock from project area(s).** Such fencing would be constructed according to BLM guidelines for wildlife concerns (e.g. smooth wire on bottom, wire spacing, etc.).

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2.1.4 Herbicide Treatment

A combination of Imazapic and Glyphosate herbicide treatments would be used to suppress non-native annuals and crested wheatgrass in order to introduce shrubs, forbs and grasses into the treatment areas. .

Imazapic & Imazapic + Glyphosate Treatment

Imazapic (trade names include but are not limited to) Panoramic 2SL, Plateau, and Imazapic E 2 SL) and Imazapic + Glyphosate (trade names include Journey) are proposed for the treatment of cheatgrass (*Bromus tectorum*). Both chemical types would be incorporated into a tank mix of water, surfactants, crop oils or other adjuvants and applied at a rate in accordance with the label, State law, and BLM's Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments with Herbicides (USDI 2007a).

Imazapic kills plants by inhibiting the production of branched chain amino acids, which are necessary for protein synthesis and cell growth. The Imazapic will be used as pre-emergent and so will be applied to the project area(s) in late winter or early spring.

Glyphosate inhibits an enzyme involved in the synthesis of the amino acids tyrosine, tryptophan and phenylalanine. It is absorbed through foliage and translocated to growing points. Because of this mode of action, it is only effective on actively growing plants; it is not effective as a pre-emergence herbicide. However, when combined with a pre-emergent such as Imazapic it can be an effective tool against plants such as cheatgrass that may have multiple growth cycles within a single season.

Glyphosate Treatment

Glyphosate, sold under a wide variety of trade names, is proposed for the treatment of crested wheatgrass (*Agropyron cristatum*) on a site-specific basis. This would allow for "treatment plots" consisting of seeded shrubs such as four-wing saltbush or big sagebrush and, primarily, native perennial grasses and forbs within established crested wheatgrass stands. Glyphosate would help to reduce competition from crested wheatgrass. The glyphosate would be incorporated into a tank mix of water, surfactants, crop oils or other adjuvants and applied at a rate in accordance with the label, State law, and BLM's Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments with Herbicides (USDI 2007a).

As discussed above, Glyphosate inhibits an enzyme involved in the synthesis of the amino acids tyrosine, tryptophan and phenylalanine. It is absorbed through foliage and translocated to growing points. Because of this mode of action, it is only effective on actively growing plants; it is not effective as a pre-emergence herbicide.

2.1.5 Standard Operating Procedures

1. Each proposed project would be designed to resolve resource conflicts with regard to achieving the sagebrush habitat restoration goal, and incorporate

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- protection and mitigation measures to ensure type and level of impact is consistent with existing NEPA analysis, including:
- a) This EA
 - b) 1987 Draft Elko Resource Area Management Plan EIS
 - c) 2003 Elko/Wells Resource Management Plans Proposed Fire Management Amendment EA (BLM, March 2003).
 - d) The 2007 *Final Vegetation Treatments Using Herbicide on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS)* (USDI BLM 2007).
 - e) Other specific activity plan and associated NEPA analysis that would apply to the proposed treatment site such as that associated with an Emergency Stabilization and Rehabilitation plan.
2. Each proposed project would be evaluated with regard to potential for impacts to a current list of special status species, and consistency with current Bureau policy for special status species. Where a federally listed or proposed species may be affected, Section 7 or 10 Endangered Species Act compliance would be completed as appropriate and the results incorporated into treatment design.
 3. The appropriate level of cultural resources inventory would be determined by the procedures described in the “Protocol Agreement between the Bureau of Land Management, Nevada and the Nevada State Historic Preservation Office for Implementing the National Historic Preservation Act” (October 2006) or successor documents. Cultural resources inventory for proposed projects falling within the area of the Owyhee Desert Predictive Model will be handled in accordance with established protocols (Jensen 2009). Protective measures would be incorporated into the project design as appropriate to ensure compliance with the National Historic Preservation Act.
 4. All herbicide treatments would be applied as per the chemical label, State law, and BLM’s Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments with Herbicides (USDI BLM 2007a).
 5. Project maintenance, including retreatment, would be completed as needed.
 6. BLM standard operating procedures (SOP) for seed procurement will be followed including sampling and testing the seed lots for noxious weeds and refusal of all seed lots with noxious weeds.

2.1.6 Environmental Design and Resource Protection

Each treatment would include a number of features to ensure negative impacts are minimized to the extent possible and ensure the treatments are consistent with the SOP’s listed above. These are specific protective measures that would be identified for each treatment during the final design process. Due to the large scope of this EA in terms of geographic area, variety of soil types, variety of vegetative communities, number of special status species, number of types of treatments considered, variety of types and densities of cultural resources present, mixed land ownership pattern, high diversity of wildlife and variety of resource issues, it is impractical to produce a comprehensive list of every measure that might be incorporated into any given treatment. The following is a partial list of design features to be incorporated into proposed projects:

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1. **Desirable Plant Buffers:** No herbicide application within 100 meters of areas containing significant stands of desirable shrubs as determined by the Wildlife Biologist or review team or other important wildlife habitat susceptible to the herbicide to be used on the treatment. Each treatment would be designed to limit impacts to important wildlife habitat inclusions to ensure impacts do not approach the local population level.
2. **Raptor Nest Buffers:** No liquid herbicide application or disking operations within an approximate 200 meter distance of active raptor nest sites. No herbicide application within 100 meters of any stick nest if the substrate species is susceptible to the herbicide to be used in that treatment. Note: The highest likelihood for protection would be for burrowing owls, a burrow-nesting raptor. Larger buffers would be considered depending on factors such as location of any active nests to distances from the edge of untreated areas. Otherwise, treated acreage could be expanded away from buffer areas on the same general treatment area to adjust for acreage.
3. **Water Buffers:** All range improvement water sources, troughs, and/or dirt tanks in the vicinity of the treatment area would be buffered a minimum of 100 meters to ensure exclusion from chemical treatment. All springs, creeks, rivers, and riparian areas will be buffered as per the chemical label, State law, and BLM's Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments with Herbicides (USDI 2007a).
4. **Wind Restrictions:** In order to avoid chemical "drift" during application of liquid herbicide spray, application would not occur when wind speed exceeds seven (7) miles per hour or wind velocities are inconsistent.
5. **Noxious Weed Prevention:** All terrestrial equipment (e.g. vehicles, hand tools, tractors, etc.) to be used in treatments would be cleaned before being brought to the project site, to avoid transferring noxious weed seeds.
6. **Treatment Shape:** Treatments would be designed to minimize impacts to visual resources by avoiding straight or block shapes.
7. **Cultural Resources:** All historic properties (i.e. archaeological sites listed or eligible for inclusion on the National Register of Historic Places) will be avoided during project implementation. Avoidance buffers of at least 30 meters will be observed during project implementation.
8. **Fencing:** Protective fences would be constructed to BLM wildlife friendly specifications for a three wire fence which include the following: Three wire, smooth bottom wire, wire spacing of 18"-10"-12" from the bottom up. All protective fences will be temporary and would be removed once the project area is re-opened to livestock grazing. In addition approximately 2 miles of temporary let-down fence is being proposed on the Guard Corral portion of the project to facilitate mule deer and pronghorn movement in the winter months.
9. **Drill Seeding:** Drill seeding operations would be completed following the contour of the land as much as possible to reduce potential water erosion. Intact stands of sagebrush and native perennial vegetation would not be disturbed.

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2.1.7 Monitoring

BLM Project Inspectors will be present during all implementation actions to ensure compliance with all state and federal regulations, environmental design and resource protection. Cultural resources that are marked for avoidance during project implementation will be re-visited to ensure these resources were protected and to remove avoidance flagging.

2.2 No Action

Under the No Action alternative no vegetation treatments or protective fencing would take place. Selection of the No Action Alternative would result in the continued decline of sagebrush habitat, which in turn may result in catastrophic population loss amongst sagebrush dependent species (e.g. mule deer, sage grouse, pygmy rabbits) and sagebrush associated species (e.g. pronghorn antelope). The continued degradation of sagebrush habitat within the TSHRI area may also result in the accelerated encroachment of non-desirable plant species such as cheatgrass. Overall, species composition, fire potential, and erosion rates would likely progress into an increasingly undesirable state.

2.3 Alternatives Eliminated from Further Analysis

2.3.1 Transfer cattle from proposed project area(s) to “solid cheatgrass areas”

The transfer of cattle from the proposed project area to areas of solid cheatgrass will not meet the habitat goal of the TSHRI to restore and maintain ecologically diverse, sustainable, and contiguous sagebrush ecosystems. The BLM has determined that the proposed project areas have crossed a vegetative threshold that will require a variety of treatments as outlined in the proposed action. Furthermore, the BLM is required to authorize only those actions that conform to the RMP as approved in the Elko Record of Decision (ROD). The Elko RMP establishes, among other things, that the Squaw Valley, Twenty-five, and Little Humboldt Allotments are to provide for livestock grazing use, and that livestock grazing use is to be managed so that resource management objectives will be achieved. It is the intent of the proposed action to restore degraded rangelands to meet allotment specific objectives for livestock management along with meeting standards for rangeland health and provide good habitat conditions for wildlife and other species of special concern. The 1987 Elko RMP and Rangeland Program Summary (RPS) established objectives for livestock grazing and provides for the establishment of a rangeland monitoring program to determine if management objectives are being met and to adjust grazing management systems and livestock numbers as required. Shifting livestock grazing to “areas of solid cheatgrass” is an action not in conformance with the RMP and RPS and is outside the scope of analysis. Therefore, shifting livestock grazing to “solid cheatgrass” areas in the proposed project area is eliminated from further consideration and not carried forward for detailed analysis in this EA.

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2.3.2 Permanent grazing closure of large portions of proposed project area(s), including and not including horse removal

There are no Herd Management Areas (HMA's) within the proposed project area. The transfer of cattle from the proposed project area to areas of solid cheatgrass will not meet the habitat goal of the TSHRI to restore and maintain ecologically diverse, sustainable, and contiguous sagebrush ecosystems. Furthermore, the BLM has determined that the proposed project areas have crossed a vegetative threshold that will required a variety of treatments as outlined in the proposed action. The BLM is required to authorize only those actions that conform to the RMP as approved in the Elko Record of Decision (ROD). The Elko RMP establishes, among other things, that the Squaw Valley, Twenty-five, and Little Humboldt Allotments are to provide for livestock grazing use, and that livestock grazing use is to be managed so that resource management objectives will be achieved. It is the intent of the proposed action to restore degraded rangelands to meet allotment specific objectives for livestock management along with meeting standards for rangeland health and provide good habitat conditions for wildlife and other species of special concern. The 1987 Elko RMP and Rangeland Program Summary (RPS) established objectives for livestock grazing and provides for the establishment of a rangeland monitoring program to determine if management objectives are being met and to adjust grazing management systems and livestock numbers as required. Elimination of livestock grazing is an action not in conformance with the RMP and RPS and is outside the scope of analysis. Therefore, elimination of livestock grazing from the proposed project area is eliminated from further consideration and not carried forward for detailed analysis in this EA.

3. AFFECTED ENVIRONMENT/EFFECTS OF ALTERNATIVES

This chapter characterizes the resources and uses that have the potential to be affected by the proposed action, followed by a comparative analysis of the direct, indirect and cumulative impacts of the alternatives. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.

3.1 Scope of Analysis

Setting

The proposed TSHRI would occur within the Tuscarora PMU which totals approximately 1,486,441 acres, of which about 858,198 acres are public lands (Figure 8). The proposed action encompasses approximately 17,363 acres. Livestock grazing is the dominant use of the area, and public recreational use is dispersed, primarily during hunting season for big game (e.g., mule deer and antelope). The area also encompasses the Carlin Trend that is mined for gold. Within the PMU area, 786,545 acres (or about 53%) has burned since 1985. The area provides habitat for sensitive sagebrush obligate species, including sage grouse and pygmy rabbit.

3.1.1 Potentially Affected Resources and Uses

Issues analyzed for direct, indirect and cumulative impacts are summarized below.

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Table 3.1.1: Issues Analyzed

Section #	ELEMENT/RESOURCE/USE
3.2.1	Air Quality
3.2.2	Cultural Resources
3.2.3	Health and Safety
3.2.4	Invasive, Non-native Species
3.2.5	Livestock Grazing
3.2.6	Soils
3.2.7	Vegetation
3.2.8	Visual Resources
3.2.9	Water Resources
3.2.10	Wildlife/Migratory Birds
3.2.11	Wildlife Special Status Species

3.1.2 Related Past, Present and Reasonably Foreseeable Actions

As defined by NEPA regulations, “**Cumulative impacts** result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” (40 CFR 1508.7)

Past and Present Actions

Dispersed recreation, mineral exploration, fire suppression and rehabilitation efforts, and livestock grazing are considered past and present actions within the proposed project area(s).

Reasonably Foreseeable Future Actions

The Ruby Pipeline, fire suppression activities, fire rehabilitation activities, continued mining exploration and expansion, grazing/grazing permit renewals, the Carlin Trend Mule Deer Working Group project are all reasonably foreseeable future actions. Each of these actions are briefly described below:

Ruby Pipeline

The Ruby Pipeline is a 42 inch diameter natural gas pipeline that starts in Wyoming and ends in Oregon. The Issuance of Notice of Availability of the final EIS is slated for January 8, 2010 and the 90-day Federal Authorization Decision Deadline is slated for April 8, 2010.

Fire Suppression

The proposed project area has been subject to numerous fires in the past and will almost certainly be subject to fires in the future. Fire suppression activities may include (but are not limited to) construction of fire breaks (using hand tools or heavy machinery), the use of fire retardant (typically applied aerially), cross-country travel (by heavy machinery, trucks, ATV, etc.), and/or “back burning” (strategic burning of an area to control the extent and/or intensity of the fire).

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Fire Rehabilitation

Because fire and fire suppression is a reasonably foreseeable future action within the project area, fire rehabilitation projects are also a reasonably foreseeable future action. Rehabilitation actions typically include, but are not limited to, the following: drill seeding and re-contouring fire breaks created with heavy equipment; seeding (aerial and ground) burned areas using rangeland drills, broadcast; preparing the seedbed using disking, herbicides, mowing; enhancing seed-to-ground contact using harrows, drag chains; controlling/preventing the spread of noxious weeds with herbicide application, and/or the installation of temporary protective fences around burned and/or seeded areas.

Mining Exploration and Expansion

The proposed project area is located within the Carlin Trend, a very active and productive region for gold mining. Several large deposits of gold are actively being mined in this region (e.g. Hollister, Rossi) and additional mineral exploration is an ongoing activity throughout the region. Gold mines may be open pit or subterranean and may involve (but are not limited to) the following: the removal of vast quantities of earth, the construction of access roads, the construction of ancillary facilities, heap leach pads, waste rock dumps, changes in local water tables, and/or increased vehicular traffic.

Grazing/grazing permit renewals

All Bureau of Land Management grazing allotments are periodically evaluated to assess range-land health and evaluate the trend in rangeland condition and the influence grazing management has on the multiple rangeland resources associated with these allotments. The Squaw Valley permit is currently undergoing this process. In addition to analyzing condition and trend of various rangeland attributes, grazing management is assessed to determine whether or not it's achieving the Standards for Rangeland Health (Standards) and conforming to the Guidelines for Livestock Grazing Management (Guidelines) mandated in the 1996 Revised Grazing Regulations.

Area 6 Mule Deer Working Group - Habitat Management Plan

This management plan, currently in draft form, makes suggestions for how proposed undertakings (e.g. mining) can be designed to reduce impacts to mule deer migration corridors and also actions that can be taken to enhance habitat near mining activities. The intent of the plan is to serve as guidance for future proposals located within Area 6 Mule Deer herd area. Suggestions contained in this plan include the establishment of fire breaks, seeding of fire resistant vegetation, modification of grazing regimes, mowing, disking, and herbicide application.

3.1.3 Geographic Scope

The geographic extent of resources and uses cumulatively affected by the proposed action varies by the type of resource and impact, as noted below.

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Table 3.1.3 – Cumulative Effects Study Areas

Section #	ELEMENT/RESOURCE/USE	Study Area Name	Acres
3.2.1	Air Quality	Intersecting Airsheds	4,822,270
3.2.2	Cultural Resources	Tuscarora PMU	1,486,441
3.2.3	Health and Safety	Tuscarora PMU	1,486,441
3.2.4	Invasive, Non-native Species	Tuscarora PMU	1,486,441
3.2.5	Livestock Grazing	Affected Allotments	880,710
3.2.6	Soils	Tuscarora PMU	1,486,441
3.2.7	Vegetation	Tuscarora PMU	1,486,441
3.2.8	Visual Resources	Tuscarora PMU	1,486,441
3.2.9	Water Resources	Tuscarora PMU	1,486,441
3.2.10	Wildlife/Migratory Birds	Tuscarora PMU	1,486,441
3.2.11	Wildlife Special Status Species	Tuscarora PMU	1,486,441

3.2 Effects of the Alternatives

The degree to which resources/uses may be directly, indirectly and cumulatively affected by the proposed activities are discussed in the following subsections. Each subsection includes discussion of the:

- 1) Affected Environment (current condition and geographic extent) of the resource or use
- 2) Effects (direct and indirect) of each alternative

3.2.1 Air Quality

Affected Environment

The project area is located in an unclassified air basin. Air quality is generally good and thus considered to be in attainment of National Ambient Air Quality Standards. There are localized occurrences of fugitive dust by high winds, vehicular traffic, construction, electrical power generation, and mining but these activities have not resulted in violation of air quality standards for any criteria pollutants. The nearest classified area is the Class I Jarbidge Wilderness Area.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

Direct Effects

Proposed ground disturbing activities would have some direct impact on air quality as soil materials blow and increase suspended particulate matter. These impacts would be more severe if treatments occurred on dry soils during windy conditions. Proposed ground disturbing activities which may result in these impacts include: Harrowing, Disking, Drill Seeding, Broadcast seeding (drag) Mowing, and Fencing. Additional direct impacts would occur as a result of vehicle use associated with all proposed activities. Vehicle use would result in some blowing of soils along with emission of vehicle

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exhaust. Adherence to terms and conditions of the State of Nevada Surface Area Disturbance permit would decrease impacts of these actions.

Application of pesticides could impact air quality in the short term, but impacts would be marginalized through proper adherence to the pesticide label. Project stipulations require that herbicide would not be applied during windy conditions. Adherence to this requirement along with all applicable label indications would minimize direct impacts to air quality.

Indirect Effects

Proposed ground disturbing activities may have some short and long term indirect impacts to air quality. Short term impacts would occur as soil is disturbed and becomes more susceptible to blowing and increasing suspended particulate matter. Proposed ground disturbing activities which may result in these impacts include: Harrowing, Disking, Drill Seeding, Broadcast seeding (drag) Mowing, and Fencing. In the long term these treatments would be expected to decrease the likelihood of soil blowing and improve overall air quality.

No Action

Direct Effects

The proposed treatments would not occur and there would be no impacts to air quality.

Indirect Effects

No action could result in an increased likelihood of impacts to air quality from blowing soil and wildfire smoke. Proposed treatments could improve soil aggregate stability which would reduce suspended particulate matter from blowing soil. Continued degradation of the sagebrush community could lead to an increase in the occurrence of catastrophic fire which impact air quality through emission of particulate matter.

Cumulative Impacts

Implementation of the proposed action along with all existing land uses in the airsheds intersected by the proposed action would not likely lead to any violation of air quality standards.

Air quality monitoring in nearby airsheds has not indicated that there are any current issues and proposed activities are not expected to impact air quality to the extent that standards would not be met.

It is not known to what extent reasonably foreseeable future activities in the project area will impact air quality, but it is unlikely that the proposed action would result in standards not being met. The State of Nevada's regulation of activities which impact air quality would serve to decrease the likelihood of standard exceedence. In addition, the relatively small scale and short duration of proposed activities which impact air quality would likely not be sufficient to affect air quality enough to exceed standards.

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3.2.2 Cultural Resources

Affected Environment

Cultural resource inventories may be performed at one of two levels: Class II inventories are examinations of the Area of Potential Effect (APE) using intuition and/or sampling design, Class III inventories are examinations of the APE by systematically walking over the project area using transect spacing of no more than 30 meters. Except in special circumstances (e.g. demonstrated low site density, demonstrated predictability of site location, etc.), the Nevada State Historic Preservation Office generally considers Class III inventory the minimum effort required to find historic properties within a given APE, as required by Section 106 of the National Historic Preservation Act. The Nevada BLM considers archaeological sites to be more than one artifact in a 30 meter area; single artifacts are considered isolated cultural resources. Whether an archaeological site is considered eligible to the National Register of Historic Places (NRHP, aka, historic property) depends on the research questions developed for the project area, but generally hinges on whether an important event occurred at the location and/or whether more data can be collected from the site with further research. The cultural resource inventory history, and estimated historic property density for each proposed restoration site are shown in Table 6.

Table 3.2.2. Summary of Previous Cultural Resource Inventories in Project Area

Project Area	Inventory Type	Inventoried Acres	Number of Sites in Project Area	Number of Historic Properties in Project Area	Projected Number of Historic Properties in Project Area
Owyhee Bluffs	Class II	1,650	0	0	0
	Class III	26			
Guard Corral	Class II	106	3	0	0
	Class III	408			
Izzenhood Basin	Class III	1,298	0	0	0
Rock Creek Ranch	Class II	89	5	1	Inadequate data for projection
South Roosters Comb	Class II	379	2	1	2-3
	Class III				
Northwest Sheep	Class II	204	0	0	0

Direct and Indirect Effects of Alternatives

Proposed Action

Direct Effects

The proposed undertaking has a design feature which dictates the avoidance of all historic properties within the area of potential effect, therefore there would be no direct effects of the proposed action or the alternative (no action).

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Indirect Effects

Indirect effects of the proposed action include protecting the archaeological resources in the area from the damaging effects of wildfire. Indirect effects of the alternative (no action) would include a continued degradation of the sagebrush community and therefore a higher probability of increased catastrophic fire damage to cultural resources.

No Action

Direct Effects

Under the no action alternative there would be no direct effects to cultural resources because no treatments would be implemented.

Indirect Effects

Indirect effects of the no action alternative would include a continued degradation of the sagebrush community and therefore a higher probability of increased catastrophic fire damage to cultural resources.

Cumulative Impacts

No measurable cumulative impacts are expected by avoidance of all historic and prehistoric properties.

3.2.3 Health and Safety

Affected Environment

Human health and safety was evaluated in the 2007 Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (BLM 2007). The EIS identified two possible receptors to exposure to herbicides: occupational receptors, and public receptors. Occupational receptors would be limited to those who workers who mix, load, and apply herbicides. Public receptors would be limited to members of the public most likely to come in contact with the herbicides, i.e. ranchers, hunters, etc.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

Direct Impacts

Direct impacts may include rashes and/or chemical burns. The chance of exposure would be minimized by workers wearing proper personal protective equipment (PPE). Material Data Safety Sheets (MSDS) would be kept at the job site, and any spills would be cleaned up appropriately

Indirect Impacts

There are always some human health risks when using herbicides. Risks range from disease, injury, and cancer. Chance of exposure will be limited to the personnel applying the herbicides with some small chance of exposure to the general public. The chance of

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exposure would be minimized by workers wearing proper PPE, establishing appropriate buffer zones, posting treated areas with signs in common public access areas, and notifying the public of the potential exposure.

No Action

With the No Action Alternative there would be no risk or exposure of herbicides to workers or the general public.

Cumulative Impacts

The BLM is likely to continue to spray herbicides on noxious weeds throughout the Tuscarora PMU, however herbicides would be applied using the same precautions as this project, therefore no measurable cumulative impacts are expected.

3.2.4 Invasive, Non-native Species

Affected Environment

Cheatgrass is found heavily infesting the proposed Tuscarora PMU Project area. Hoary cress, Russian Knapweed, Scotch thistle and black henbane infestations have not been documented on the proposed project areas but they have been documented in the Izzenhood, Rock Creek Ranch Site, and Midas areas.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

Direct Effects

The direct effects of the proposed action on invasive species would be the short term reduction of cheatgrass through chemical and mechanical control. Any noxious weed detected within the treatment window would also be treated. This would provide a fine fuel break which would help slow down the spread of a wildfire in the project areas.

Indirect Effects

The indirect effects of the proposed restoration treatments would result in a reduction of cheatgrass and annual forbs with the long term establishment of seeded shrubs perennial grasses and forbs. The establishment of perennial grasses, shrubs, and forbs would benefit the understory, out-compete non-native annuals and create a more fire adapted ecosystem that is resilient to disturbance and thereby improve the Fire Regime Condition Class.

No Action

Direct Effects

The majority of the area has been degraded into a cheatgrass monotype with the exception of the area Rock Creek Ranch project area. These areas would remain degraded annual grass and forb areas. These degraded sites could become invested with noxious weeds over time. In addition, the remaining stands of desert shrub and big sagebrush within the burn area, and adjoining the burn area would be more likely affected

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by future fires. The area proposed for shrub establishment in the crested wheatgrass seeding area west of Rock Creek Ranch would experience a slow natural reestablishment of sagebrush after experiencing three wildfires since 1985 but would remain static.

Indirect Effects

There would be the potential for higher cheatgrass densities and thatch cover that would allow for the potential for future large scale block burns. The degraded sites have a higher potential of noxious weed establishment over time. The potential for noxious weed establishment is most evident in areas where there are cheatgrass die offs and large amounts of bare ground.

Cumulative Impacts

The cumulative impacts of the proposed treatment areas would be a net gain in sagebrush habitat with a productive understory of perennial grasses and forbs. The proposed restoration effort would augment the thousands of acres of Emergency Stabilization and Rehabilitation seedings in the Tuscarora PMU and help limit the spread of invasive species. The increased efforts in restoring the eight areas identified would help stop the spread of cheatgrass and noxious weeds. Increased emphasis will need to be placed on early detection and treatment of noxious weeds in the treatment areas and the reasonably foreseeable actions such as Ruby Pipeline mineral exploration and fire suppression/rehab. The proposed restoration treatments would help break the fire cycle which would allow for long term establishment of shrubs and perennial grasses which would help limit the chances for noxious weed and invasive species establishment and dominance.

3.2.5 Livestock Grazing

Affected Environment

The TSHRI projects are located within the Boulder Field, Gray's Garden, East & West Rooster Comb, Elevenmile, North 11-Mile, West 11-Mile, Izzenhood, Sheep Creek and Four Corners pastures of the Twenty-five Allotment, Horseshoe and Rock Creek Riparian pastures of the Squaw Valley Allotment and the Owyhee Bluffs pasture of the Little Humboldt Allotment. These allotments are located within the northwest portion of the Elko District.

The 25 Ranch LLC is permitted to graze within the Twenty-five Allotment. Cattle are permitted with a season of use from March 1 to February 28. The Squaw Valley Allotment has two permittees, Barrick Gold Corporation who has a cattle permit and Ellison Ranching Company who has a sheep permit. The permitted season of use for Barrick Gold Corporation is March 16 to November 30, and April 8 to July 15 and September 21 to November 20 for Ellison Ranching Company. Cal Worthington Trust is the livestock permittee on the Little Humboldt Allotment with a permitted season of use from April 4 to January 31 for cattle.

These allotments have suffered major impacts to the livestock grazing operations within the past fifteen years due to large wildfires and the loss of perennial forage due to the increase of cheatgrass and other non-native annual weeds. Large portions of each

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allotment have been closed temporarily to livestock grazing while recovery and rehabilitation efforts have been implemented following wildfires.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

Direct Effects

The impacts to livestock grazing would occur both in the short and long term due to the proposed action. Short term impacts would come in the form of a temporary closure of the treated areas to livestock grazing. The closure may result in the temporary suspension of some Animal Unit Months (AUMs). Additionally, some areas will be fenced to keep livestock from using the area until after the treatment has had an opportunity to establish or to use other portions of the pasture not treated through the proposed action. These closures would be in effect for a minimum of two years to provide adequate time for establishment of the seeded vegetation. The use of a rider by the permittees may need to be increased in areas where temporary fencing is not placed around treatment areas so that livestock stay out of the treatment areas. In the areas where temporary fencing is not used it is anticipated that the natural terrain features and the species planted will deter livestock.

Additional rest may be required to meet desired establishment objectives and will be monitored annually. Once the treated area meets the desired monitoring criteria the area will be reopened to livestock grazing. In the event that the proposed treatment does not establish to the desired objectives after two years, the treatment will be evaluated to determine if additional rest from livestock grazing will aid in allowing the objectives to be met. In the long-term establishment of perennial grasses will also provide for improved forage quality to grazing animals.

There are no anticipated impacts to livestock grazing from the application of herbicides as there are no requirements to keep livestock off of sprayed areas according to pesticide labels that contain glyphosate and imazapic.

Indirect Effects

The temporary closure of the treatment areas may result in other portions of the allotments to be used at the same time of year for consecutive years while the closure is in place. The treatments may limit the amount of rotation or deferment that can be accomplished during the temporary closure; however, this is anticipated to be a minimal effect. The proposed treatments would reduce the potential for increased fire cycles which could result in a widespread fire closures to livestock closures throughout the allotments.

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No Action

Direct Effects

Under the no action alternative livestock grazing would continue under current management and permitted use. Livestock would continue to depend on unreliable cheatgrass production and limited perennial forage.

Indirect Effects

Fire return intervals would remain frequent increasing the chance that large scale wildfires could burn into intact perennial grass/sagebrush communities, which could lead to more livestock grazing closures and suspension of AUM's. Due to the limited productivity and reduced palatability associated with non native annuals as well as the potential of conversion of desirable perennials the no action alternative could result in reduced livestock carrying capacity and seasons of use in the future.

Cumulative Impacts

Cumulative impacts to livestock are expected to be minimal when addressing the reasonably foreseeable actions as described in Section 3.1.2 of this document. The continued loss of perennial forage due to disturbances caused by mining and wildfires, could lead to the loss of available forage for grazing livestock, however this would be offset by the proposed action increasing the amount of forage available to grazing livestock. Through future permit renewals for grazing, adjustments to the season of use, number of animals allowed, and utilization restrictions could be implemented to offset any continued loss of perennial forage caused by any impacts from reasonably foreseeable actions.

3.4.6 Soils

Affected Environment

Soils in the project area are Aridisols that vary in depth, texture, erosion potential, erosion factor T, and other characteristics based upon several soil forming factors. These soils typically have a mesic or frigid temperature regime and aridic soil moisture regime. Isolated patches of hydric soils may be present near water resources. It is not known where and to what extent biological soil crusts exist within the project area. Detailed information for these soils can be found in applicable USDA soil survey publications.

A specific analysis of soil quality for this project has not been completed, but due to the large area it can be assumed that a wide variety of soil quality conditions exist. These soils are impacted by a variety of natural and anthropogenic influences. Events which affect soil condition in the project area include but are not limited to: dispersed recreation, mineral exploration/mining, wildfire, wildfire suppression, flooding, weed infestation, grazing, and hoof action.

Vegetation treatments would likely take place on soils within the project area that have already been heavily impacted by fire and weed infestation. Erosion by wind and water has likely occurred at these sites and may have exceeded the erosion factor T which is an

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estimate of the maximum annual rate of soil erosion which can occur without affecting crop productivity. This is manifested in part by the observed increase in invasive plants and lack of native vegetative cover due to fire. Anecdotal data indicate that these conditions occur in many locations throughout the project area.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

Direct Effects

Impacts to soils would occur during the short term as a result of mechanical disturbance of the soil surface. Harrowing, disking, drill seeding and dragging are treatments that would disturb the soil surface and have direct impacts to soil quality. These activities would disturb soils anywhere from one to six inches in depth depending on the method used and existing soil conditions. Severity of impacts would depend on soil properties such as hazard of erosion by wind and water, T-Value, presence/absence of biological soil crusts, as well as antecedent conditions such as existing soil quality and moisture.

Proposed disking would result in impacts to soils up to six inches in depth and would have positive and possibly some negative impacts to soil quality. This treatment would result in addition of important organic nutrients to the root zone and facilitate vegetation establishment, but may possibly increase runoff and erosion (Blackburn, 1983).

Mechanical treatments would impact soil organic matter, infiltration rates, and aggregate stability in ways that may result in net positive or negative soil quality depending on post-treatment weather and seeding success. Treatments such as disking and drill seeding would add important organic nutrients to the root zone but may increase susceptibility to erosion by wind and water. This deep disturbance can improve soil porosity and aerate the root zone but may result in lower permeability resulting in less soil water availability and increased runoff and erosion. Decreased aggregate stability caused by this disturbance would exacerbate problems with erosion. Similar impacts would occur with proposed harrowing and dragging but would be less severe because disturbance would only occur up to one inch deep.

Ground disturbing treatments that would occur on soils with biological soil crusts would likely result in destruction of the soil crust impacting infiltration, erosion, and biological properties. Depending on soil characteristics, biological soil crusts may increase or reduce the rate of water infiltration. A reduction in infiltration would decrease plant water availability and increase surface runoff and erosion. Organisms in biological soil crusts can provide nutrients for plant growth (USDA, 2001). The influence of biological soil crusts in areas proposed for treatment is not likely to be high since these soils are already heavily impacted by fire and weed infestation.

Treatments which remove vegetative cover would have both positive and negative impacts to soil quality. Proposed treatments which remove cover include mowing, disking, herbicide treatments and to a lesser degree, harrowing and drill seeding. The vegetation removal caused by these treatments can add a protective mulch layer to protect

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soil but can also reduce overall protection from rainfall impact and decrease soil stability if vegetation does not successfully re-establish (Blackburn 1983).

Impacts to soils would occur as a result of compression caused by vehicles driving over un-disturbed soils. This would occur directly as a result of Harrowing, drill seeding dragging, mowing and any incidental vehicle use outside of established routes. Soil compaction may also be created from construction and maintenance of proposed fences. Soil compaction results in decreased porosity and conductivity of water and air affecting soil productivity and soil quality characteristics.

Proposed temporary grazing closure following treatment would positively impact soil quality. Absence of hoof action and grazing pressure would allow soils to re-develop physical crusts and vegetative cover. This would improve soil water infiltration, and stability.

Soils impacted by mechanical disturbance and compression would eventually recover and regain their original productivity as long as the erosion factor T is not met as a result of treatment. Reestablishment of soil cohesion and aggregate stability would occur following disturbance; however, this cohesion may take many years to reach its full potential where biological soil crusts are present.

Indirect Effects

Treatments would indirectly improve soil quality in the long term by establishing more extensive vegetative cover. Vigorous vegetative canopies and root systems would provide numerous benefits for soil quality by improving aggregate stability, compaction, infiltration, organic matter, soil biota and reducing erosion by wind and water.

No Action

Direct Effects

Under the no action alternative direct disturbance to soil as a result of mechanical treatments would not occur. Grazing would resume following wildfire and/or treatment resulting in continued impacts to affected areas.

Indirect Effects

Under the no action alternative soil conditions may improve, degrade or remain the same depending upon the level of impacts caused by recent wildfire and weed infestation. Soils that have retained some of their natural properties following these impacts may recover if vegetation re-establishes naturally. These same soils may degrade further if vegetation does not re-establish or climatic factors inhibit recovery. Soils that have retained few of their natural properties following fire and weed infestation would likely not improve and may degrade further. No action may also result in continuing impacts to soils from future wildfires as a result of continued domination of vegetation that is susceptible to frequent burning.

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Absence of grazing closure would inhibit recovery of soils with the potential to return to pre-fire and weed infestation conditions. Continuation of grazing in these areas could accelerate degradation and/or reduce chances of soils improving.

Cumulative Impacts

Implementation of the proposed action along with all existing land uses in the project area would not likely lead to any soil condition which would lead to further degradation or which would not improve naturally. Cumulative impacts would occur to soils where there are multiple land uses affecting the same location as proposed treatments. Past and present land uses which intersect proposed and potential treatment areas include dispersed recreation, fire suppression and rehabilitation efforts, and livestock grazing. These uses along with wildfire and other natural events have resulted in soil conditions that are already not likely to return to natural conditions without anthropogenic influences. While there are some negative impacts associated with treatment, they would not likely lead to further soil degradation especially when compared to current departure from natural conditions. In addition, these impacts are outweighed by the potential of treatments to provide vegetative establishment which could improve soil quality in the long term.

Reasonably foreseeable future activities in the project area are similar in character to existing land uses. These actions would likely have some cumulative impact to soil resources, but would not result in any soil condition which would lead to further degradation or which would not improve naturally. It should be noted that cumulative impacts to soils would not typically occur outside the project area for these reasonably foreseeable actions. As a result, any impacts from reasonably foreseeable actions would be fully analyzed in their respective NEPA processes.

3.2.7 Vegetation

Affected Environment

Repeated years of wildfire have converted the proposed treatment areas from Wyoming big sagebrush and some salt desert shrub communities to the present vegetation dominated by cheatgrass, tumble mustard and Russian thistle. In many of the treatment areas there has been a die off of the cheatgrass, leaving a dead mat. There are some critical remaining isolated patches of Wyoming big sagebrush, basin big sagebrush, and salt desert shrubs (shadscale-greasewood) within the proposed treatment areas. Additionally, there are some seeded species where previous fuels reduction and fire rehabilitation efforts have been completed. No threatened and endangered or special status plant species exist within the project area.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

Direct Effects

The proposed treatment areas have been converted into cheatgrass, tumble mustard, and Russian thistle dominated communities. The proposed action would eliminate the

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standing cheatgrass vegetation and the underlying thatch as well as suppress or inhibit the growth of cheatgrass by the use of chemicals means. Herbicide treatments will consist of the use of Glyphosate in areas where undesirable non-native annuals are dominant, and Imazapic in areas where some perennial vegetation exists. Imazapic applied at specified label rates will only target annual grasses and forbs, leaving existing perennial vegetation unharmed. The treatment efforts would help to restore many functions for the affected ecological sites. The treatments would further reduce the risk of a permanent conversion to non-desirable species.

Indirect Effects

The proposed treatments would reduce the potential for large wildfires by replacing the non native annual species with perennial species which are more fire resistant.

No Action

Direct Effects

Under the no action alternative the vegetation within the proposed treatment areas would continue to be dominated by non-desirable species including cheatgrass, tumble mustard, and Russian thistle.

Indirect Effects

The dominance of non desirable species would increase the likelihood of the large wildfire continuing in the area. By not treating the area proposed there is an increased potential to convert the entire watershed of the Tuscarora PMU to non desirable non native vegetation community.

Cumulative Impact

Cumulative impacts to vegetation can include changes in vegetation types and communities. Establishment of nonnative invasive plant or noxious weed species or annuals, such as cheatgrass, can change the characteristics of a vegetation type or community by replacing and eliminating native species from the plant community. Changes in vegetation type and plant communities can result in other impacts such as the loss of vegetation for livestock grazing; loss or alteration of habitat, including forage and cover, for wildlife; and the lack of plant diversity and age classification, which may also increase due to wildland fires. The continued loss of perennial vegetation due to disturbances caused by mining and wildfires, could lead to a continued loss of perennial vegetation and an increase in non desirable vegetation including annuals, nonnative invasive plants or noxious weeds; however, this would be offset by the proposed action increasing perennial.

3.2.8 Visual Resources

Affected Environment

The proposed action would not involve any major modification of the existing character of the landscape or create a high level of visual contrast that would dominate the

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landscape or viewer attention. Management objectives for VRM Class II, III, & IV would be met.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

Direct Effects

Visual resources would be affected by the linear features created by disking and the seeding rows; however, these effects would only create weak to moderate contrasts. Drilling the seeding rows along the contour of the land would help to reduce this linear intrusion, but the flatness and openness of the terrain do not provide much contour to follow. Portions of the seeding would attract the attention of the casual observer utilizing roads in the area.

Indirect Effects

Overall, the Proposed Action would enhance the color, form and texture of visual resources in the area. The Proposed Action would help to alleviate contrast by increasing the vegetative diversity of the area through the establishment of a mix of perennial vegetation. This perennial vegetation would change the texture from uniform and fine to more patchy and coarse. Both form and color would be more varied with the different vegetative types. Once perennial vegetation is established, the project area would more closely approximate the color, form and texture of the native vegetation that existed prior to the cheatgrass monoculture. Moderate contrasts would occur with any adjacent cheatgrass areas.

No Action

The No Action alternative would not likely have any effect on Visual Resources.

Cumulative Impacts

Implementation of the alternatives outlined in this document would not likely have any effect on Visual Resources within the cumulative impacts area.

3.2.9 Water Resources

Affected Environment

There are several perennial and intermittent streams within the proposed project areas. These include (North to South): Evans Creek, Upper Rock Creek, and Sheep Creek. Several springs are present in some of the proposed project areas. In the Evans Creek project area there are ten (10) springs including Sawtooth springs. There no springs located within the North and South Sheep Corral project borders, but five (5) springs are found nearby. No springs are found in the Upper and Lower Rock Creek, South Rooster and NW Sheep project areas.

Direct and Indirect Effects of Proposed Action and Alternatives

Proposed Action

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In the aftermath of several catastrophic fires (1985 Rock Creek and Clementine Fires, 1991 Izzenhood Fire, 1995 Midas Complex, 1996 Antelope Fire, 1999 Clover and Izzenhood Fires, 2001 Hot Lake, Sheep and Buffalo Fires, 2005 Esmeralda Fire, and 2006 Sheep Fire), post-fire water quality issues were an immediate concern for sediment movement into local streams and erosion from impacted hill side and slopes. However, ground cover has begun recovery and soil loss particularly from the moderately burned areas is reduced. Emphasis on reseeding is the displacing of post-burned vegetation and reestablishment of sagebrush into burned areas.

Direct Effects

A variety of methods are being proposed for seeding. These include broadcast and drag, drill, broadcast/aerial, harrow, disking, and hand application. Due to varying terrain, soil type, soil moisture, and seed species one or more of these seeding methods may be used. The hydrologic impacts of each seeding techniques is given below. Any disturbance would be temporary and negated by reestablishment of vegetation.

The broadcast and drag method involves the broadcast application of seed by either aerially or by truck or ATV mounted applicators. The broadcast application is followed by dragging a heavy chain across the seeded area to enhance ground-to-seed contact, in which the ground-to-seed contact can be a critical factor in successful seeding. The use of a truck and/or ATV followed by a chain dragged across the ground surface will result in ground surface disturbance. This disturbance breaks up the surface crust and promotes infiltration. In the event of a heavy rainfall, surface erosion could take place. However, vegetation, though altered will remain as surface residue and provide protection against rainfall.

Application of seed by rangeland or Truax seed drills pulled behind a tractor, truck, or similarly capable vehicle can similarly to the broadcast and drag method disturb the ground surface. The drill results in a greater level of soil disturbance, but the impact is shallow. Infiltration would be enhanced. Seed drills operate on the principle of inserting (or “drilling”) the seed into the soil thereby ensuring proper seeding depth. Existing vegetation may be altered but a residue will remain and provide protection in the event of heavy rainfall.

The broadcast by aerial application will distribute the seed by plane through the air and the seed falling at random within the application area. This will have no impact on the existing ground surface.

The application of seed by harrowing involves the broadcast of seed followed by pulling a series of spikes (harrow) to enhance the ground-to-seed contact. The harrow can disturb the surface by by pulverize and smooth the soil surface. Infiltration would be enhanced. However, the potential is present to remove surface residue by the harrow equipment and leaving bare ground thus increasing erosion potential.

The use of disking prepares a seed bed by using large metal disks that plow through and turn over an approximate four to six-inch surface layer of turf and/or hardened soil. This

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is the most aggressive and disruptive of the methods. However, while increasing infiltration, the disk would also destroy any vegetation and residue. Erosion would be reduced with the use of contour plowing (plow perpendicular to hill slope or surface contour).

Indirect Effects

Indirect affects would be mainly to changes in air quality from blowing dust during the mechanical surface disturbance. These methods include the broadcast and drag, drilling, harrowing, and disking. The loosening the soil surface provide opportunity for mobilization of dust by wind. If the wind is strong, the dust mobilization could probably be substantial, but most likely temporary.

Constructing a fence to exclude livestock from the reseed areas in the short term would allow seeded species to establish, providing more vegetative cover and increased infiltration rates.

No Action

The No Action alternative would not affect surface water quality directly. Vegetation has recovered to some degree after previous fires, and sediment movement is restricted due to reestablishment of ground cover. However, the no action alterative will lead to an increase in a chance for large scale block burns, which could have future impacts on water resources.

Cumulative Impacts

Cumulative effects on hydrology after several years of wildfires would have little effect. Erosion would be more likely to occur in barren soil (devoid of vegetation and residue), but the threat of severe erosion is eliminated with the establishment of vegetation. The loss of vegetation may produce a soil surface crust which could reduce infiltration. Each fire may increase the total surface area where infiltration is reduced and restricted.

3.2.10 Wildlife including Migratory Birds

Affected Environment

The proposed action areas are primarily located on wildlife habitat areas that were characterized by the Wyoming big sagebrush vegetation type prior to human-caused disturbances and wildfire on Management Area Six (MA6), Unit 068 as delineated by NDOW. One exception is “pre-disturbance” mottling on the mid to upper elevation areas on the Owyhee Bluffs project where sites were characterized by the mountain big sagebrush vegetation type. Some areas with deep loamy soils could be characterized by the basin big sagebrush vegetation type. Some minor inclusions of the salt desert shrub vegetation type could occur at lower elevations. With the exception of limited intact areas with shrub cover and areas that were “successfully” seeded after wildfire events, the collective project area has been heavily impacted by wildfire and in a degraded state where vegetation is currently dominated by annual grass and weeds. This is more fully described above in this document under 1.1 Purpose and Need section. Annual vegetation does not provide forage and cover diversity for wildlife. Mule deer,

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pronghorn antelope and sage grouse (sage grouse discussed under Special Status Species below) are emphasized as “featured” species in the 1987 BLM – Elko Resource Area’s Resource Management Plan (RMP).

Mule Deer

The collective project area historically provided either crucial deer winter range or intermediate range (fall and spring) for populations within Management Area Six (MA6), Unit 068 as delineated by NDOW. The project area is within winter range that provides winter range for the largest number of mule deer in MA6. This population is currently estimated at 6,000-8,000 deer compared to 35,000-40,000 deer approximately 40 years ago. Intact winter range is a limiting factor for MA 6 deer herds. It is estimated that over 90% of mule deer winter range has been adversely affected by wildfires in the western portion of the Elko District in the last 20-30 years. Post-wildfire rehabilitation seeding efforts since 1991 have helped to rehabilitate winter range; however, degraded winter range is a causal factor in long-term downward trend in MA6 deer numbers.

Pronghorn

The collective project area and surrounding areas primarily provides pronghorn winter range as well as some summer range with an emphasis on importance of the project as pronghorn winter range on MA6, Unit 068. Depending on the severity of winter periods and population levels, several hundred to over a thousand pronghorn could inhabit winter range areas in Unit 068. In its current state, the project area is now primarily used by pronghorn in close proximity to existing unburned big sagebrush sites and areas successfully seeded to provide big game winter range values (forage and cover) after wildfires. Pronghorn antelope have expanded into the project area in recent years with use documented since the early 1990s; historic use has occurred. The availability of winter range that provides perennial vegetation forage and cover diversity is a critical limiting factor for affected pronghorn herds that inhabit relatively large summer range areas on several management units. Forage diversity, which is currently lacking, is needed to maintain viable pronghorn herds on the area.

Migratory Birds

A migratory bird is a bird that has a seasonal and somewhat predictable pattern of movement. Generally this includes all native birds in the U.S, except those non-migratory species such as quail and turkey that are managed by states. Under the provisions of the Migratory Bird Treaty Act, the unauthorized take (death or injury) of migratory birds is a strict liability criminal offense that does not require knowledge or specific intent on the part of the offender. The U.S. Fish and Wildlife Service are responsible for issuing a permit to allow take of a migratory bird.

There are approximately 100 bird species that inhabit sagebrush habitat types on a seasonal or yearlong basis. The collective vegetation types historically provided foraging areas and cover diversity for migratory birds. However, current conditions with large expanses absent of shrub cover and dominated by exotic annual grass and weeds have compromised forage and cover diversity for those species that require shrub cover on a seasonal or yearlong basis.

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Maintaining complete, diverse sagebrush communities is integral to conservation efforts for foraging areas and cover diversity for migratory birds. A list of the migratory birds affected by the President’s executive order is contained in 43 CFR 10.13. References to “species of concern” pertain to those species listed in the periodic report “Migratory Nongame Birds of Management Concern in the United States”, priority migratory bird species as documented by established plans (such as Bird Conservation Regions in the North American Bird Conservation Initiative or Partners in Flight physiographic areas), and those species listed in 50 CFR 17.11. as shown in Table 7, the Nevada Partners in Flight Bird Conservation Plan identifies the bird species for prioritization for management action associated with each of the habitat types described above as follows:

Table 3.2.10. Bird Species Prioritization by Habitat Type

Sagebrush	Salt Desert
<u>Obligates:</u> Sage Grouse	<u>Obligates*:</u> None
<u>Other:</u> Black Rosy Finch Ferruginous Hawk Gray Flycatcher Loggerhead Shrike Vesper Sparrow Prairie Falcon Sage Sparrow Sage Thrasher Swainson’s Hawk Burrowing Owl Calliope Hummingbird	<u>Other**:</u> Loggerhead Shrike Sage Sparrow Sage Thrasher Burrowing Owl
<u>Other associated species:</u> Brewer’s Sparrow Western Meadowlark Black-throated Sparrow Lark Sparrow Green-tailed Towhee Brewer’s Blackbird Horned Lark Lark Sparrow	<u>Other Associated Species:</u> Horned Lark Brewer’s Sparrow Black-throated Sparrow Lark Sparrow

* “Obligates” are species that are found only in the habitat type described in the section. [Habitat needed during life cycle even though a significant portion of their life cycle is supported by other habitat types]

** “Other” is species that can be found in the habitat type described the Nevada Partners in Flight Bird Conservation Plan.

Other Species

Overall, there are approximately 100 bird species, 70 mammal species and several reptile and amphibian species that can be found in sagebrush habitats on intact stands of

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sagebrush on the periphery of the proposed action area. Intact sagebrush areas provide habitat for many of these species. NDOW has provided a collective wildlife species list for a broad area entitled *Wildlife Species List – North-central Nevada – Elko/Humboldt/Lander/Eureka Counties - Units 051, 066, 067, 068* shown in Appendix A. (Note: this a broad species lists as explained at the end of the list)

In the current burned and degraded state, it is likely that only horned larks would utilize the burned area for any prolonged period of time. Raptors and ravens might utilize the burn area for limited foraging efforts. Townsend's ground squirrels and badgers could be found near burn edges. Use by other species would likely only be temporary near the burn edges since perennial vegetation is essentially absent. Wildlife was adversely impacted by the wildfires, primarily through loss of habitat due to removal of vegetation by given wildfires. The proposed treatments include resting the area from livestock grazing and rehabilitating wildlife habitat with emphasis on big game winter range. This would benefit wildlife by helping to restore critical forage and cover.

Direct and Indirect Effects of Alternatives

Proposed Action

Direct Effects

As indicated above under Subsection 2.1.1, there would be a variety treatment types considered to complete seedbed preparation and seeding efforts for the proposed projects. Depending on the terrain, soil type, soil moisture, and seed species one or more of the following seedbed preparation and/or seeding methods may be used on a site-specific basis: Broadcast and Drag, Drill, Broadcast/Aerial, Harrow, Disking, Hand (manual seed application), Mowing and Herbicide. Fencing would be completed, as needed, to protect areas from livestock grazing while seeding areas are being established. These efforts would be considered on a site-specific basis on the proposed project areas including Owyhee Bluffs, Guard Corral, Middle Rock Creek, Rock Creek Ranch, Izzenhood Basin, South Roosters Comb, Northwest Sheep, and Lower Rock Creek.

Seedbed treatment and follow-up seeding efforts to establish perennial vegetation, including shrubs such as big sagebrush, would be completed. The direct effects to wildlife including Special Status Species and migratory birds for this action would efforts to reestablish shrub and perennial grass and forb cover needed on affected habitat types for seasonal or yearlong use. The proposed treatment actions would also help to protect intact habitat areas with a shrub component and mixed diversity of perennial grasses and forbs. This includes mule deer and pronghorn antelope (both RMP-featured species) seasonal use areas that were rehabilitated on several thousand acres on the affected allotments, including seeding of various sagebrush species and other shrubs primarily after wildfires since 1999 and rehabilitation of other wildfire burn areas that occurred since 1984.

The Proposed Action would not occur during the birthing/nesting period and young-rearing period for essentially all wildlife species. Most highly mobile wildlife species would likely avoid the Proposed Action area where operations are in progress and thus

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avoid direct contact with any operations. Less mobile mammalian and reptilian species would likely be temporarily displaced by Proposed Action activities. In some extreme instances, less mobile wildlife species that use burrows could be crushed by equipment.

It is anticipated that the use of herbicides and mechanical methods, would have the greatest short term impacts on wildlife and their habitat, and that impacts would be somewhat in proportion to acres treated. Direct spray of herbicides, discussed in Section 2.1.4, are not likely to pose a risk to terrestrial animals. Therefore, use of these herbicides would primarily affect wildlife through habitat modification. Its use in wildlife habitat areas could benefit wildlife by controlling invasive plant species and promoting the establishment and growth of native plant species that provide more suitable wildlife habitat and forage.

Mowing of herbaceous vegetation would be considered on a site-specific basis. Less than one percent of the project area would be considered for mechanical brush treatments in linear strips on site-specific areas. Some species of wildlife, including those designated as Special Status and Migratory Birds species could be attracted to areas with reduced shrub cover. Brush removal could result with a move to adjacent habitat which would increase population in those areas. However, most habitat areas are likely at their respective carrying capacities for given species so animals could be lost from given populations. Depending on variables such as species, behavior, density, and habitat, adjacent populations may experience increased mortality, decreased reproductive rates, or other adverse responses. Species most likely to be effected are small mammals, reptiles, and passerine birds.

Fencing would be completed in a manner to mitigate effects to wildlife species, including migratory birds and Special Status Species. This would include wire spacing configurations that would help to facilitate wildlife movements and help to make the fence outline visible to wildlife. The Guard Corral portion would also be temporary three wire that would be let-down in the winter months to facilitate mule deer and pronghorn movement

Overall, the direct effects would be similar on all project areas due to similarities in vegetation types and the wildlife species that potentially inhabit the project areas. Activities associated with the Proposed Action might be sufficient to cause mammals, birds, and reptiles to temporarily avoid use of suitable habitat in the direct project area while operations are in progress. There could be a temporary avoidance of an undetermined area around a given project area by some species such as pronghorn or mule deer, while other species such as horned larks might tolerate active treatment operations and inhabit areas relatively close to or within the project areas.

Indirect Effects

The indirect effects of the restoration treatments would be long term establishment of shrubs and perennial grasses and forbs. This would provide sagebrush habitat for a number of wildlife species. The successful establishment of the seedings would in the

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long term reduce annual grass and forb cover and allow for shrubs to establish by reducing the fire cycle.

No Action

Direct Effects

With the No Action Alternative, no seedbed treatment and follow-up seeding efforts to establish perennial vegetation, including shrubs such as big sagebrush, would be completed. The direct impacts to wildlife including Special Status Species and migratory birds for this action would be the ongoing long-term to more permanent loss of shrub and perennial grass and forb cover needed on affected habitat types for seasonal or yearlong use. This would be considered a critical limiting factor for those species that utilize sagebrush habitats on a seasonal or yearlong basis.

Indirect Effects

Under this alternative there will be no changes to site on the collective project area and the potential of a large- scale wildfire continues to pose a threat to habitat for wildlife species on the affected allotments and adjoining allotments and private land areas. Sage grouse are considered to be an “umbrella species” for sagebrush-obligate species where negative effects such as catastrophic wildfires would also result in negative effects to other sagebrush-obligate species.

Cumulative Impacts

The proposed treatment actions would cumulatively help to protect intact habitat areas with a shrub component and mixed diversity of perennial grasses and forbs. This includes mule deer and pronghorn antelope (both RMP-featured species) seasonal use areas that were rehabilitated on several thousand acres on the affected allotments, including seeding of various sagebrush species and other shrubs primarily after wildfires since 1999 and rehabilitation of other wildfire burn areas that occurred since 1984.

Past and Present Actions

As mentioned above under Subsection 3.1.2, Dispersed recreation, mineral exploration, fire suppression and rehabilitation efforts, and livestock grazing are considered past and present actions within the proposed project area(s). There would be no effects to past and present actions; livestock grazing would be managed in an effort to help allow for treatments to be successful and to allow livestock grazing to be compatible with other multiple uses.

Reasonably Foreseeable Future Actions

As mentioned above under Subsection 3.1.2, the Ruby Pipeline, fire suppression activities, fire rehabilitation activities, continued mining exploration and expansion, grazing/grazing permit renewals, the Carlin Trend Mule Deer Working Group project are all reasonably foreseeable future actions.

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Ruby Pipeline – There would be no effects as a result of the proposed action. Reclamation of this proposed pipeline would complement treatment efforts as a result of the proposed action on the Owyhee Bluffs project area.

Fire Suppression - There would be no effects as a result of the proposed action. Treatment areas that provide for vegetative fuelbreaks due to any successful establishment of vegetation that stays succulent during all or part of the summer and fall period would complement fire suppression actions.

Fire Rehabilitation - There would be no effects as a result of the proposed action. Proposed treatment actions in this EA would complement collective fire rehabilitation actions over thousands of acres on the Proposed Action area.

Mining Exploration and Expansion - There would be no effects as a result of the proposed action.

Grazing/grazing permit renewals - There would be temporary effects to livestock grazing, but no long-term effects, as a result of the proposed action. Livestock grazing would be managed in an effort to help allow for treatments to be successful and to allow livestock grazing to be compatible with other multiple uses. This would include temporary closures to grazing while seeding areas are allowed to establish. There would be no effects to grazing permit renewal process for affected grazing allotments.

Area 6 Mule Deer Working Group - Habitat Management Plan - There would be no effects as a result of the proposed action. Specific actions in the plan relative to management of MA 6 deer habitat would be completed that include, but are not limited to, the establishment of fire breaks, seeding of fire resistant vegetation, modification of grazing regimes, mowing, disking, and herbicide application.

3.2.11 Wildlife - Special Status Species

Affected Environment

No Federally listed or proposed threatened, endangered or candidate terrestrial species are known to occur in the affected area, and no critical habitat for any species has been designated. Table 3.2.11 below includes a list of BLM Special Status Species that could potentially inhabit the project area on a seasonal or yearlong basis. Appendix B discusses each of these species.

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Table 3.2.11 – Special Status Species

COMMON NAME	SCIENTIFIC NAME
Nevada BLM Sensitive Birds	
Golden Eagle	<i>Aquila chrysaetos</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Burrowing Owl	<i>Athene cunicularia</i>
Ferruginous Hawk	<i>Buteo regalis</i>
Swainson’s Hawk	<i>Buteo swainsoni</i>
Greater Sage Grouse	<i>Centrocercus urophasianus</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Vesper sparrow	<i>Poocetes gramineus</i>
Short-eared owl	<i>Asio flammeus</i>
Prairie falcon	<i>Falco mexicanus</i>
Black-rosey finch	<i>Leucosticte atrata</i>
Nevada BLM Sensitive Mammals	
Pygmy rabbit*	<i>Brachylagus idahoensis</i>
Small-footed myotis	<i>Myotis ciliolabrum</i>
Long-eared myotis	<i>Myotis evotis</i>
Long-legged myotis	<i>Myotis volans</i>

**Only likely to potentially inhabit intact big sagebrush stand(s) such as within South Guard Corral treatment area where successful treatment efforts around the stand would protect or enhance habitat*

Direct and Indirect Effects of Alternatives

Proposed Action

Direct Effects

The BLM has determined that the proposed action would not negatively affect Special Status Species habitat. The direct effect would be removal of existing vegetation (herbicide/mechanical), but by incorporating SOPs, surveys, and items discussed in Sec. 5.2 below, etc. there should be minimal direct impacts to Special Status Species habitat.

Indirect Effects

The indirect effects would be similar on all project areas due to similarities in vegetation types and the wildlife species that potentially inhabit the project areas as mentioned above under Subsection 3.4.1.3 Wildlife including Migratory Birds. There would be longer term positive indirect effects to sensitive species though increased forage diversity and cover.

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No Action

Direct Effects

In the event of a wildfire, this alternative would allow the remaining sagebrush habitat in the PMU to remain susceptible to stand-replacing fires leaving no sagebrush cover for Special Status Species habitat such as for pygmy rabbits and sage grouse over thousands of acres. Sage grouse are considered to be an “umbrella species” for sagebrush-obligate species where negative effects such as catastrophic wildfires would also result in negative effects to other sagebrush-obligate species. One primary concern for sage grouse is wildland fires that result in the complete loss of habitat in “block-burn” configurations over thousands of acres. Many sage grouse leks and associated habitat as well as other seasonal habitat could be negatively affected due to wildfire occurrences across the affected allotments and adjoining allotments and private land areas. Overall, direct effects would be similar to those mentioned above under Subsection 3.2.10 Wildlife including Migratory Birds.

Indirect Effects

Indirect effects would be similar to those mentioned above under Subsection 3.2.10 Wildlife including Migratory Birds.

Cumulative Impacts

The proposed treatment actions would be efforts to cumulatively help to establish a mixed diversity of perennial shrub, grass and forb component on areas that presently lack this type of vegetation or help to protect intact habitat areas with a sagebrush component. This includes sage grouse (RMP-featured species) seasonal use areas that were rehabilitated on several thousand acres on the affected allotments, including seeding of various sagebrush species, after wildfires since 1999 and rehabilitation of other wildfire burn areas that occurred since 1984.

The Cumulative Impacts that would result from the Proposed Action Alternative would be similar to those mentioned for Past and Present Actions and Reasonably Foreseeable Future Actions shown above under Subsection 3.2.10 Wildlife including Migratory Birds.

3.3 Mitigation

3.3.1 Cultural Resource Concerns

All historic properties (i.e. archaeological resources deemed eligible for inclusion on the National Register of Historic Places) will be avoided during project implementation. Avoidance will be achieved by placing flagging around the perimeter of the buffer surrounding the historic property. To avoid drawing undue attention to historic properties, flagging will be put in place no more than one week prior to project implementation and removed immediately after project implementation. Buffer zones will be approximately 30 meters in width but may be increased or decreased depending on the nature of the archaeological resource, environmental context, and/or treatment type. For example, a buffer zone of 15 meters may be employed for chemical treatments

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while a buffer zone of 50 meters may be employed for instable prehistoric sites with high depth potential.

All operators, contractors, and others involved in project implementation will be advised of whether there are any avoidance area(s) within the project area(s), how avoidance areas are marked, what constitutes an unanticipated discovery situation, and who to contact in case of an unanticipated discovery situation.

3.3.2 Wildlife Concerns

Protection measures would be in place to mitigate the effects of proposed actions on raptor nest sites in the event that they are documented in given areas prior to treatments. No liquid herbicide application or disking operations would occur within an approximate 200 meter distance of active raptor nest sites. No herbicide application within 100 meters of any stick nest if the substrate species is susceptible to the herbicide to be used in that treatment. It should be noted that the highest likelihood for protection would be for burrowing owls, a burrow-nesting raptor. Larger buffers would be considered for burrowing owls depending on factors such as location of any active nests to distances from the edge of untreated areas. Otherwise, treated acreage could be expanded away from buffer areas on the same general treatment area to adjust for buffered acreage. Wildlife avoidance areas will be flagged off prior to project implementation.

Equipment operators would be advised to avoid an approximate 200 meter area around burrows that are inadvertently observed while operating equipment during treatment operations and to inform the BLM of any observations of this species to allow for any further protective measures.

3.4 Monitoring

Monitoring programs will be implemented to gauge the effectiveness of treatments and mitigation measures.

3.4.1 Vegetation Treatments

Vegetation rehabilitation treatments will be monitored using techniques outlined by USGS in the *Strategy for Monitoring Post-fire Rehabilitation Treatments Handbook*. The methods used may include a combination of: photo point, paced and permanent density, line-point intercept, gap intercepts and belt transects, production plots and Rangeland Health Assessments. Treatment goals will be set on a site-by-site basis, taking into consideration site conditions pre-treatment, treatment method and species planted.

3.4.2 Invasive Species Treatments

Invasive species management treatments (including chemical, manual and mechanical treatments) will be considered effective if >80% of the targeted weed species are affected by the treatment during that year. Infestation size and density will be measured annually to determine progress and to adapt management plans for treatment areas.

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Monitoring of the seeding should be done for three years following drilling to discover if any noxious weeds were introduced from the seed lots. Sample size can be small in relation to the seed lot size and a small potential exists for noxious weed introduction even from inspected seed lots.

All vehicles and equipment used for implementation of the project will be required to be washed before use on the project and before moving to other treatment areas in order to limit the chances of the spread of noxious weeds. Also, any infestations of noxious weeds in the treatment areas will be treated prior to disturbance or avoided by vehicles and equipment during disking, harrowing, drill seeding, mowing and fence construction to limit the spread of weeds.

3.4.3 Cultural Resource Concerns

Within one week of project implementation (excepting cases of inclement weather) avoidance flagging will be removed from the project area and the avoidance area will be inspected for damages arising directly or indirectly from project implementation.

Any damages noted as arising from project implementation (directly or indirectly) will be documented in full. Where appropriate, data recovery plans will be formulated to mitigate any such damages to historic properties.

4. CONSULTATION AND COORDINATION

4.1 Persons, Groups or Agencies Consulted

Barrick Goldstrike Mines, Inc.	Bobbi Royle
Brenda Youkin	Carl Slagowski
Cindy MacDonald	Citizens Against Recreation Eviction
ConAgra Beef Company	Duane Erickson
Duckwater Tribe	Elko County
Elko Land and Livestock Company	Ellison Ranching Co.
Eureka County Natural Resource Department	Eureka County District Attorney
Farm Credit Services of the Mountain Plains	Hammond Ranches
James J. Wright Ranch, Inc.	Jerry Todd
Jim Bauman	Ken Conley
Kenneth Buckingham	Lander County
Laurel Marshall	Lenny Fiorenzi
Mori Ranches, LLC.	NRCS Elko, NV
Nelo Mori	Nevada Cattlemen's Association
Nevada Department of Wildlife	Nevada First Corporation
Resource Concepts, Inc.	Rhoads, Dean and Sharon
Sustainable Grazing Coalition	Trout Unlimited
25 Ranch LLC.	U.S. Fish and Wildlife Service
USFS Mountain City Ranger District	Van Norman Ranches, Inc.
Western Watersheds Project	Worthington, Cal Trust

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4.1.1 Coordination with Other Agencies

The Elko District Office of the BLM is engaged in consultation and coordination with the Nevada State Historic Preservation Office (as required by Section 106 of the National Historic Preservation Act) and the Nevada Department of Wildlife.

4.1.2 Native American Consultation

In accordance with the National Historic Preservation Act (P.L. 89-665), NEPA, FLPMA, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, and Executive Order 13007, the BLM must provide affected tribes an opportunity to comment and consult on the proposed Project. BLM must attempt to identify locations having traditional, cultural, or spiritual importance and limit, reduce, or possibly eliminate any negative impacts to identified traditional, cultural, spiritual sites, activities, and resources.

A letter concerning the proposed undertaking was sent to Lynette Piffero (Chair) of the Elko Band Council (cc: Alfreda Jake, Suzzanna Sandoval), Robert Bear (Chair) of the Duck Valley Sho-Pai Tribes (cc: Ted Howard), Julie Stevens (Chair) of the Wells Band Council (cc: Aurora Aboite), Davis Gonzales of the Te-Moak Tribal Council (cc: Pat Stevens), Michael Young (Chair) of the Battle Mountain Band Council (cc: Bernice Lalo), Carrie Dann and Mike Miller of the Western Shoshone Defense Project, Joe McDade (BIA) of the Eastern Nevada Agency, Cheryl Mose Temoke (Chair) of the South Fork Band Council (cc: Virgil Townsend), Jerry Millet (Chair) of the Duckwater Shoshone Tribe (cc: Annette George Harris, Maurice Frank Churchill), Wayne Dyer (Chair) of the Yomba Shoshone Tribe (cc: Teola Brady), Deb Blossom of the Western Shoshone Committee (cc: Kyle Prior, Reggie Primo), Dianna Buckner (Chair) of the Ely Shoshone Tribe (cc: Cindy Marques), Felix Ike of the Western Shoshone Descendents of Big Smoky, and Rupert Steele (Chair) of the Goshute Business Council (cc: Edwin Neranajo). This letter did not result in the identification of any locations having traditional, cultural, or spiritual importance; therefore Native American Concerns will not be brought forward for further analysis.

4.2 List of Preparers

<i>Project Lead</i>	Tom Warren
<i>Air Quality & Soils</i>	Mark Dean
<i>Water Resources</i>	John Daniel
<i>Special Status Plants, Special Status Animals, Special Status/Migratory Birds, & Wildlife/Habitat</i>	Ken Wilkinson
<i>Invasive/Non-native Species & Health/Safety</i>	Tyson Gripp
<i>Livestock Grazing & Vegetation</i>	Jerrie Bertola
<i>Cultural Resources</i>	Jill Jensen
<i>Visual Resources & Recreation</i>	Zachary Pratt
<i>Native American Concerns</i>	Leona Rodreick

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4.3 Distribution

Prior to issuance of any decision to implement the proposed action, this EA will be available for comment on the BLM public web site at:

http://www.blm.gov/nv/st/en/fo/elko_field_office/blm_information/nepa.html

A notice of availability and/or or hard copies of this EA will be sent to the following individuals who commented during scoping and/or requested one.

Individuals

Bobbi Royle
Brenda Youkin
Carl Slagowski
Duane Erickson
Jerry Todd
Jim Baumann
Ken Conley
Kenneth R. Buckingham
Laurel Marshall
Lenny Fiorenzi
Nelo Mori

Businesses

25 Ranch LLC.
Barrick Gold Corporation
Cal Worthington Trust
Conagra Beef Company, Monfort Finance Co.
Elko Land and Livestock Co.
Ellison Ranching Co.
Hammond Ranches Inc.
James J. Wright Ranch, Inc.
Mori Ranches, LLC.
Nevada First Corporation
Rhoads, Dean and Sharon
TS Ranch
Van Norman Ranches, Inc.

Non-Governmental Organizations

Citizens Against Recreation Eviction, USA
Nevada Cattlemen's Association
Resource Concepts, Inc.
Sustainable Grazing Coalition
Trout Unlimited
Western Watersheds Project

State and Local Governmental Agencies and

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Elko County

Eureka County Natural Resources Department

Nevada State Clearinghouse (e-mail: clearinghouse@budget.state.nv.us)

Nevada Department of Wildlife, Elko NV

Eureka County District Attorney

Lander County

Tribes

Duckwater Tribe

Federal Agencies

BLM Nevada State Office, Reno NV

Natural Resources Conservation Service, Elko NV

U.S. Fish & Wildlife Service, Reno NV

U.S. Forest Service, Mountain City Ranger District

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REFERENCES

- Blackburn, W.W. 1983. Influence of Brush Control on Hydrologic Characteristics of Range Watersheds. In proceedings of brush management symposium, ed. K.C. McDaniel. 73-78. Denver, CO: Society for Range Management.
- BLM. 1985. Draft Elko Resource Area Resource Management Plan and Environmental Impact Statement. DES 85-37. Elko, Nevada.
www.blm.gov/nv/st/en/fo/elko_field_office/blm_programs/planning.1.html
- BLM. 1987. Approved Elko Resource Management Plan and Record of Decision Elko Resource Area, Elko District Office. Elko, Nevada.
- BLM. 1998. Programmatic Environmental Assessment of Integrated Weed Management on Bureau of Land Management Lands. (BLM/EK/PL-98/008). Elko, Nevada.
- BLM. 1999. Nevada State Protocol Agreement Between the Bureau of Land Management, Nevada and the Nevada State Historic Preservation Office.
- BLM. 2003. Proposed Elko/Wells Resource Management Plans Fire Management Amendment and Environmental Assessment. Elko, Nevada
- BLM, 2004. Elko and Wells Resource Management Plans Approved Fire Management Amendment and Decision Record. Elko, Nevada.
- BLM. 2007. Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement. Washington DC. www.blm.gov
- BLM. 2007b. Record of Decision; Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement. Washington DC. www.blm.gov
- Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines for management of sage grouse populations and habitats. Wildlife Society Bulletin 28:967-985.
- Jensen, Jill. 2009 *The Owyhee Predictive Model*. BLM Report Number 1-2723. Report on file at the Elko District Office, Bureau of Land Management. Elko, NV
- Leckenby, D.A. et al. 1982 Wildlife habitats in managed rangelands—the Great Basin of Southeastern Oregon: mule deer. Gen. Tech. Rep. PNW-GTR-139. Portland, OR: U.S.Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Tuscarora Sagebrush Habitat Restoration Initiative

Nevada Partners in Flight Working Group (PIF). 1999. Bird Conservation Plan. Larry A. Neel, Editor; Reno, NV. 335pp.

Northeast Nevada Stewardship Group. 2003. Elko County Sagebrush Ecosystem Conservation Strategy.

USDA Natural Resources Conservation Service May 2001. Soil Quality Information Sheet. Rangeland Sheets.

Wirth, Troy & David Pyke n.d. 2008 *Strategy for Monitoring Post-Fire Rehabilitation Treatments*. U.S. Geological Survey. <http://fresc.usgs.gov/research/esrmonitoring>

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APPENDICES

APPENDIX 1

*Wildlife Species List – North-central Nevada – Elko/Humboldt/Lander/Eureka Counties - Units 051, 066, 067, 068**

Habitats- (Sagebrush Steppe, Mountain Brush, Subalpine deciduous forest and Wetland / Riparian/ Lake Habitats)

Birds

Order: Gaviiformes (Diver/Swimmers)

Family: Gaviidae (Loons)

Common Loon *Gavia immer*

Order: Podicipediformes (Flat-toed Divers)

Family: Podicipedidae (Grebes)

Pied-billed Grebe *Podilymbus podiceps*

Horned Grebe *Podiceps auritus*

Eared Grebe *Podiceps nigricollis*

Western Grebe *Aechmophorus occidentalis*

Clark's Grebe *Aechmophorus clarkii*

Order: Pelecaniformes (Four-toed Fisheaters)

Family: Pelecanidae (Pelicans)

American White Pelican *Pelecanus erythrorhynchos*

Family: Phalacrocoracidae (Cormorants)

Double-crested Cormorant *Phalacrocorax auritus*

Order: Ciconiiformes (Long-legged Waders)

Family: Ardeidae (Bitterns, Herons, Egrets)

American Bittern *Botaurus lentiginosus*

Least Bittern *Ixobrychus exilis*

Great Blue Heron *Ardea herodias*

Great Egret *Ardea alba*

Snowy Egret *Egretta thula*

Cattle Egret *Bubulcus ibis*

Green Heron *Butorides virescens*

Black-crowned Night Heron *Nycticorax nycticorax*

Family: Threskiornithidae (Ibises)

White-faced Ibis *Plegadis chihi*

Family: Cathartidae (New World Vultures)

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<i>Turkey Vulture</i>	<i>Cathartes aura</i>
<i>California Condor</i>	<i>Gymnogyps californianus</i> (L.E.)

Order: Anseriformes (Waterfowl)

Family: Anatidae (Ducks, Geese, Swans)

<i>Greater White-fronted Goose</i>	<i>Anser albifrons</i>
<i>Snow Goose</i>	<i>Chen caerulescens</i>
<i>Canada Goose</i>	<i>Branta canadensis</i>
<i>Tundra Swan</i>	<i>Cygnus columbianus</i>
<i>Wood Duck</i>	<i>Aix sponsa</i>
<i>Gadwall</i>	<i>Anas strepera</i>
<i>American Wigeon</i>	<i>Anas americana</i>
<i>Eurasian Wigeon</i>	<i>Anas penelope</i>
<i>Mallard</i>	<i>Anas platyrhynchos</i>
<i>Blue-winged Teal</i>	<i>Anas discors</i>
<i>Cinnamon Teal</i>	<i>Anas cyanoptera</i>
<i>Northern Shoveler</i>	<i>Anas clypeata</i>
<i>Northern Pintail</i>	<i>Anas acuta</i>
<i>Green-winged Teal</i>	<i>Anas crecca</i>
<i>Canvasback</i>	<i>Aythya valisineria</i>
<i>Redhead</i>	<i>Aythya americana</i>
<i>Ring-necked Duck</i>	<i>Aythya collaris</i>
<i>Greater Scaup</i>	<i>Aythya marila</i>
<i>Lesser Scaup</i>	<i>Aythya affinis</i>
<i>Long-tailed Duck</i>	<i>Clangula hyemalis</i>
<i>Bufflehead</i>	<i>Bucephala albeola</i>
<i>Common Goldeneye</i>	<i>Bucephala clangula</i>
<i>Barrow's Goldeneye</i>	<i>Bucephala islandica</i>
<i>Hooded Merganser</i>	<i>Lophodytes cucullatus</i>
<i>Common Merganser</i>	<i>Mergus merganser</i>
<i>Red-breasted Merganser</i>	<i>Mergus serrator</i>
<i>Ruddy Duck</i>	<i>Oxyura jamaicensis</i>

Order: Falconiformes (Diurnal Flesh Eaters)

Family: Accipitridae (Hawks, Eagles, Osprey)

<i>Osprey</i>	<i>Pandion haliaetus</i>
<i>Bald Eagle</i>	<i>Haliaeetus leucocephalus</i>
<i>Northern Harrier</i>	<i>Circus cyaneus</i>
<i>Sharp-shinned Hawk</i>	<i>Accipiter striatus</i>
<i>Cooper's Hawk</i>	<i>Accipiter cooperii</i>
<i>Northern Goshawk</i>	<i>Accipiter gentilis</i>
<i>Red-shouldered Hawk</i>	<i>Buteo lineatus</i>

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<i>Broad-winged Hawk</i>	<i>Buteo platypterus</i>
<i>Swainson's Hawk</i>	<i>Buteo swainsoni</i>
<i>Red-tailed Hawk</i>	<i>Buteo jamaicensis</i>
<i>Ferruginous Hawk</i>	<i>Buteo regalis</i>
<i>Rough-legged Hawk</i>	<i>Buteo lagopus</i>
<i>Golden Eagle</i>	<i>Aquila chrysaetos</i>

Family: Falconidae (Falcons)

<i>American Kestrel</i>	<i>Falco sparverius</i>
<i>Merlin</i>	<i>Falco columbarius</i>
<i>Gyr Falcon</i>	<i>Falco rusticolus</i>
<i>Peregrine Falcon</i>	<i>Falco peregrinus</i>
<i>Prairie Falcon</i>	<i>Falco mexicanus</i>

Order: Galliformes (Chicken Relatives)

Family: Phasianidae (Grouse, Partridge)

<i>Chukar</i>	<i>Alectoris chukar</i>
<i>Gray Partridge</i>	<i>Perdix perdix</i>
<i>Ring-necked Pheasant</i>	<i>Phasianus colchicus</i>
<i>Ruffed Grouse</i>	<i>Bonasa umbellus</i>
<i>Greater Sage-Grouse</i>	<i>Centrocercus urophasianus</i>

<i>C. Sharp-tailed Grouse</i>	<i>Tympanuchus phasianellus col. (L.E.)</i>
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Family: Odontophoridae (New World Quail)

<i>California Quail</i>	<i>Callipepla californica</i>
<i>Mountain Quail</i>	<i>Oreortyx pictus</i>

Order: Gruiformes (Cranes and Allies)

Family: Rallidae (Rails, Coots)

<i>Virginia Rail</i>	<i>Rallus limicola</i>
<i>Sora</i>	<i>Porzana carolina</i>
<i>Common Moorhen</i>	<i>Gallinula chloropus</i>
<i>American Coot</i>	<i>Fulica americana</i>

Family: Gruidae (Cranes)

<i>Greater Sandhill Crane</i>	<i>Grus canadensis tabida</i>
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Order: Charadriiformes (Wading Birds)

Family: Charadriidae (Plovers)

<i>Black-bellied Plover</i>	<i>Pluvialis squatarola</i>
<i>Snowy Plover</i>	<i>Charadrius alexandrinus</i>
<i>Semi-palmated Plover</i>	<i>Charadrius semipalmatus</i>
<i>Killdeer</i>	<i>Charadrius vociferus</i>

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Mountain Plover	<i>Charadrius montanus</i>
Family: <i>Recurvirostridae</i> (Avocets)	
Black-necked Stilt	<i>Himantopus mexicanus</i>
American Avocet	<i>Recurvirostra americana</i>
Family: <i>Scolopacidae</i> (Sandpipers, Phalaropes)	
Greater Yellowlegs	<i>Tringa melanoleuca</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Solitary Sandpiper	<i>Tringa solitaria</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Long-billed Curlew	<i>Numenius americanus</i>
Marbled Godwit	<i>Limosa fedoa</i>
Western Sandpiper	<i>Calidris mauri</i>
Least Sandpiper	<i>Calidris minutilla</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Wilson's Snipe	<i>Gallinago gallinago</i>
Wilson's Phalarope	<i>Phalaropus tricolor</i>
Red-necked Phalarope	<i>Phalaropus lobatus</i>
Family: <i>Laridae</i> (Gulls, Terns)	
Franklin's Gull	<i>Larus pipixcan</i>
Bonaparte's Gull	<i>Larus philadelphia</i>
Ring-billed Gull	<i>Larus delawarensis</i>
California Gull	<i>Larus californicus</i>
Herring Gull	<i>Larus argentatus</i>
Caspian Tern	<i>Sterna caspia</i>
Forster's Tern	<i>Sterna forsteri</i>

Order: *Columbiformes* (Pigeons and Allies)

Family: *Columbidae* (Doves)

Rock Dove	<i>Columba livia</i>
White-winged Dove	<i>Zenaida asiatica</i>
Mourning Dove	<i>Zenaida macroura</i>
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>
Ringed Turtle-Dove	<i>Streptopelia risoria</i>

Order: *Cuculiformes* (Cuckoos and Allies)

Family: *Cuculidae* (Cuckoos and Roadrunners)

Yellow-billed Cuckoo	<i>Coccyzus americanus</i> (L.E.)
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Order: *Strigiformes* (Nocturnal Flesh Eaters)

Family: *Tytonidae* (Barn Owls)

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Barn Owl	<i>Tyto alba</i>
Family: <i>Strigidae</i> (Owls)	
Flammulated Owl	<i>Otus flammeolus</i>
Western Screech-Owl	<i>Otus kennicottii</i>
Great Horned Owl	<i>Bubo virginianus</i>
Snowy Owl	<i>Nyctea scandiaca</i>
Northern Pygmy-Owl	<i>Glaucidium gnoma</i>
Burrowing Owl	<i>Athene cunicularia</i>
Long-eared Owl	<i>Asio otus</i>
Short-eared Owl	<i>Asio flammeus</i>
Northern Saw-whet Owl	<i>Aegolius acadicus</i>

Order: *Caprimulgiformes* (Night Jars)

Family: *Caprimulgidae* (Goatsuckers)

Common Nighthawk	<i>Chordeiles minor</i>
Common Poorwill	<i>Phalaenoptilus nuttallii</i>

Order: *Apodiformes* (Small Fast Fliers)

Family: *Apodidae* (Swifts)

White-throated Swift	<i>Aeronautes saxatalis</i>
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Family: *Trochilidae* (Hummingbirds)

Black-chinned Hummingbird	<i>Archilochus alexandri</i>
Calliope Hummingbird	<i>Stellula calliope</i>
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>

Order: *Coraciiformes* (Cavity Nesters)

Family: *Alcedinidae* (Kingfishers)

Belted Kingfisher	<i>Ceryle alcyon</i>
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Order: *Piciformes* (Cavity Builders)

Family: *Picidae* (Woodpeckers)

Lewis' Woodpecker	<i>Melanerpes lewis</i>
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Northern Flicker	<i>Colaptes auratus</i>

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Order: *Passeriformes* (Perching Birds)

Family: *Tyrannidae* (Flycatchers)

Western Wood-Pewee	<i>Contopus sordidulus</i>
Willow Flycatcher	<i>Epidonax traillii</i>
Hammond's Flycatcher	<i>Epidonax hammondii</i>
Gray Flycatcher	<i>Epidonax wrightii</i>
Dusky Flycatcher	<i>Epidonax oberholseri</i>
Cordilleran Flycatcher	<i>Epidonax occidentalis</i>
Say's Phoebe	<i>Sayornis saya</i>
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>

Family: *Laniidae* (Shrikes)

Loggerhead Shrike	<i>Lanius ludovicianus</i>
Northern Shrike	<i>Lanius excubitor</i>

Family: *Vireonidae* (Vireos)

Plumbeous Vireo	<i>Vireo plumbeus</i>
Warbling Vireo	<i>Vireo gilvus</i>

Family: *Corvidae* (Jays)

Western Scrub-Jay	<i>Aphelocoma californica</i>
Clark's Nutcracker	<i>Nucifraga columbiana</i>
Black-billed Magpie	<i>Pica pica</i>
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>

Family: *Alaudidae* (Larks)

Horned Lark	<i>Eremophila alpestris</i>
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Family: *Hirundinidae* (Swallows)

Tree Swallow	<i>Tachycineta bicolor</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>
Bank Swallow	<i>Riparia riparia</i>
N. Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Barn Swallow	<i>Hirundo rustica</i>

Family: *Paridae* (Chickadees, Titmice)

Black-capped Chickadee	<i>Poecile atricapillus</i>
Mountain Chickadee	<i>Poecile gambeli</i>

Family: *Aegithalidae* (Bushtits)

Bushtit	<i>Psaltriparus minimus</i>
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Family: *Troglodytidae* (Wrens)

Rock Wren	<i>Salpinctes obsoletus</i>
Canyon Wren	<i>Catherpes mexicanus</i>
Bewick's Wren	<i>Thyromanus bewickii</i>

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House Wren	<i>Troglodytes aedon</i>
Winter Wren	<i>Troglodytes troglodytes</i>
Marsh Wren	<i>Cistothorus palustris</i>

Family: Cinclidae (Dippers)

American Dipper	<i>Cinclus mexicanus</i>
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Family: Turdidae (Thrushes)

Western Bluebird	<i>Sialia mexicana</i>
Mountain Bluebird	<i>Sialia currucoides</i>
Townsend's Solitaire	<i>Myadestes townsendi</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Hermit Thrush	<i>Catharus guttatus</i>
American Robin	<i>Turdus migratorius</i>
Varied Thrush	<i>Ixoreus naevius</i>

Family: Mimidae (Thrashers, Mockingbirds)

Northern Mockingbird	<i>Mimus polyglottos</i>
Sage Thrasher	<i>Oreoscoptes montanus</i>

Family: Sturnidae (Starlings)

European Starling	<i>Sturnus vulgaris</i>
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Family: Motacillidae (Pipits)

American Pipit	<i>Anthus rubescens</i>
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Family: Bombycillidae (Waxwings)

Bohemian Waxwing	<i>Bombycilla garrulus</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>

Family: Parulidae (Wood Warblers)

Orange-crowned Warbler	<i>Vermivora celata</i>
Nashville Warbler	<i>Vermivora ruficapilla</i>
Virginia's Warbler	<i>Vermivora virginiae</i>
Yellow Warbler	<i>Dendroica petechia</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
MacGillivray's Warbler	<i>Oporornis tolmiei</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Wilson's Warbler	<i>Wilsonia pusilla</i>
Yellow-breasted Chat	<i>Icteria virens</i>

Family: Thraupidae (Tanagers)

Western Tanager	<i>Piranga ludoviciana</i>
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Family: Emberizidae (Sparrows, Towhees, Juncos)

Green-tailed Towhee	<i>Pipilo chlorurus</i>
Spotted Towhee	<i>Pipilo maculatus</i>
American Tree Sparrow	<i>Spizella arborea</i>
Chipping Sparrow	<i>Spizella passerina</i>
Brewer's Sparrow	<i>Spizella breweri</i>
Vesper Sparrow	<i>Pooecetes gramineus</i>

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Lark Sparrow	<i>Chondestes grammacus</i>
Sage Sparrow	<i>Amphispiza belli</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Grasshopper Sparrow	<i>Ammodramus bairdii</i>
Fox Sparrow	<i>Passerella iliaca schistacea</i>
Song Sparrow	<i>Melospiza melodia</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>
Harris' Sparrow	<i>Zonotrichia querula</i>
Gambel's White-crowned Sparrow	<i>Zonotrichia leucophrys gambelii</i>
Mountain W-crowned Sparrow	<i>Zonotrichia leucophrys oriantha</i>
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>
Dark-eyed Junco (Oregon)	<i>Junco hyemalis therburi</i>
Dark-eyed Junco (Gray-headed)	<i>Junco hyemalis caniceps</i>
Lapland Longspur	<i>Calcarius lapponicus</i>
Family: <i>Cardinalidae</i> (Grosbeaks, Buntings)	
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
Lazuli Bunting	<i>Passerina amoena</i>
Indigo Bunting	<i>Passerina cyanea</i>
Family: <i>Icteridae</i> (Blackbirds, Orioles)	
Bobolink	<i>Dolichonyx oryzivorus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>
Great-tailed Grackle	<i>Quiscalus mexicanus</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Bullock's Oriole	<i>Icterus bullockii</i>
Family: <i>Fringillidae</i> (Finches, Grosbeaks)	
Gray-crowned Rosy-Finch	<i>Leucosticte tephrocotis</i>
Black Rosy-Finch	<i>Leucosticte atrata</i>
Cassin's Finch	<i>Carpodacus cassinii</i>
House Finch	<i>Carpodacus mexicanus</i>
Common Redpoll	<i>Carduelis flammea</i>
Pine Siskin	<i>Carduelis pinus</i>
Lesser Goldfinch	<i>Carduelis psaltria</i>
American Goldfinch	<i>Carduelis tristis</i>
Evening Grosbeak	<i>Coccothraustes vespertinus</i>
Family: <i>Passeridae</i> (Old World Sparrows)	
House Sparrow	<i>Passer domesticus</i>

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Mammals

Order: *Insectivora* (Insect Eaters)

Family: *Soricidae* (Shrews)

Merriam's Shrew	<i>Sorex meriammi</i>
Dusky Shrew	<i>Sorex monticolus</i>
Vagrant Shrew	<i>Sorex vagrans</i>
Northern Water Shrew	<i>Sorex palustris</i>
Preble's Shrew	<i>Sorex preblei</i>

Order: *Chiroptera* (Bats)

Family: *Vespertilionidae* (Plainnose Bats)

California Myotis	<i>Myotis californicus</i>
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>
Long-eared Myotis	<i>Myotis evotis</i>
Little Brown Bat	<i>Myotis lucifugus</i>
Fringed Myotis	<i>Myotis thysanodes</i>
Long-legged Myotis	<i>Myotis volans</i>
Yuma Myotis	<i>Myotis yumanensis</i>
Western Red Bat	<i>Lasiurus blossomii</i>
Hoary Bat	<i>Lasiurus cinereus</i>
Silver-haired Bat	<i>Lasionycteris noctivagans</i>
Western Pipistrelle	<i>Pipistrellus hesperus</i>
Big Brown Bat	<i>Eptesicus fuscus</i>
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>
Spotted Bat	<i>Euderma maculatum</i>
Pallid Bat	<i>Antrozous pallidus</i>

Family: *Molossidae* (Freetail Bats)

Brazilian Free-tailed Bat	<i>Tadarida brasiliensis</i>
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Order: *Lagomorpha* (Pikas, Hares, Rabbits)

Family: *Leporidae* (Hares, Rabbits)

White-tailed Jackrabbit	<i>Lepus townsendi</i>
Black-tailed Jackrabbit	<i>Lepus californicus</i>
Mountain Cottontail	<i>Sylvilagus nuttalli</i>
Desert Cottontail	<i>Sylvilagus audubonii</i>
Pygmy Rabbit	<i>Brachylagus idahoensis</i>

Order: *Rodentia* (Rodents)

Family: *Sciuridae* (Squirrels)

Yellow-pine Chipmunk	<i>Tamias amoenus</i>
Least Chipmunk	<i>Tamias minimus</i>
Uinta Chipmunk	<i>Tamias umbrinus</i>

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Yellow-bellied Marmot	<i>Marmota flaviventris</i>
White-tailed Antelope Squirrel	<i>Ammospermophilus leucurus</i>
Great Basin Ground Squirrel	<i>Spermophilus mollis</i>
Belding's Ground Squirrel	<i>Spermophilus beldingi</i>
Wyoming Ground Squirrel	<i>Spermophilus elegans</i>
Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>

Family: Geomyidae (Gophers)

Botta's Pocket Gopher	<i>Thomomys bottae</i>
Northern Pocket Gopher	<i>Thomomys talpoides</i>
Townsend's Pocket Gopher	<i>Thomomys townsendii</i>

Family: Heteromyidae (Kangaroo Rodents)

Little Pocket Mouse	<i>Perognathus longimembris</i>
Great Basin Pocket Mouse	<i>Perognathus parvus</i>
Dark Kangaroo Mouse	<i>Microdipodops megacephalus</i>

Family: Heteromyidae (Kangaroos cont.)

Ord Kangaroo Rat	<i>Dipodomys ordii</i>
Chisel-toothed Kangaroo Rat	<i>Dipodomys microps</i>

Family: Castoridae (Beavers)

American Beaver	<i>Castor canadensis</i>
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Family: Cricetidae (Mice, Rats, Voles)

Western Harvest Mouse	<i>Reithrodontomys megalotis</i>
Canyon Mouse	<i>Peromyscus crinitus</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Northern Grasshopper Mouse	<i>Onychomys leucogaster</i>
Desert Woodrat	<i>Neotoma lepida</i>
Bushy-tailed Woodrat	<i>Neotoma cinerea</i>
Mountain Vole	<i>Microtus montanus</i>
Long-tailed Vole	<i>Microtus longicaudus</i>
Sagebrush Vole	<i>Lemmiscus curtatus</i>
Muskrat	<i>Ondatra zibethica</i>

Family: Zapodidae (Jumping Mice)

Western Jumping Mouse	<i>Zapus princeps</i>
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Family: Erethizontidae (New World Porcupines)

North American Porcupine	<i>Erethizon dorsatum</i>
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Order: Carnivora (Flesh-Eaters)

Family: Canidae (Dogs)

Coyote	<i>Canis latrans</i>
Gray Wolf	<i>Canis lupus (L.E.)</i>
Kit Fox	<i>Vulpes velox</i>
Red Fox	<i>Vulpes vulva</i>

Family: Procyonidae (Racoons and Allies)

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Common Raccoon	<i>Procyon lotor</i>
Family: <i>Mustelidae</i> (Weasels and Allies)	
Short-tailed Weasel	<i>Mustela erminea</i>
Long-tailed Weasel	<i>Mustela frenata</i>
Mink	<i>Mustela vison</i>
Northern River Otter	<i>Lontra canadensis</i>
American Badger	<i>Taxidea taxus</i>
Striped Skunk	<i>Mephitis mephitis</i>
Western Spotted Skunk	<i>Spilogale gracilis</i>
Family: <i>Felidae</i> (Cats)	
Mountain Lion	<i>Felix concolor</i>
Bobcat	<i>Lynx rufus</i>

Order: *Artiodactyla* (Hoofed Mammals)

Family: *Cervidae* (Deer)

Rocky Mountain Elk	<i>Cervus canadensis</i>
Mule Deer	<i>Odocoileus hemionus</i>

Family: *Antilocapridae* (Pronghorn)

Pronghorn	<i>Antilocapra americana</i>
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Family: *Bovidae* (Bison, Sheep, Goats)

California Bighorn Sheep	<i>O. c. californiana</i>
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Reptiles

Order: *Squamata* (Lizards, Snakes)

Family: *Iguanidae* (Iguanas and Allies)

Common Zebra-tailed Lizard	<i>Callisaurus draconoides</i>
Long-nosed Leopard Lizard	<i>Gambelia wislizenii</i>
Desert Spiny Lizard	<i>Sceloporus magister</i>
Western Fence Lizard	<i>Sceloporus occidentalis</i>
Sagebrush Lizard	<i>Sceloporus graciosus</i>
Side-blotched Lizard	<i>Uta stansburiana</i>
Pigmy Short-horned Lizard	<i>Phrynosoma douglassii</i>
Greater Short-horned Lizard	<i>Phrynosoma hernandesi</i>
Desert Horned Lizard	<i>Phrynosoma platyrhinos</i>

Family: *Scincidae* (Skinks)

Great Basin Skink	<i>Eumeces skiltonianus utahensis</i>
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Family: *Teiidae* (Whiptails)

Western Whiptail	<i>Cnemidophorus tigrus</i>
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Family: *Boidae* (Boas, Pythons)

Rubber Boa	<i>Charina bottae</i>
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Family: Colubridae (Solid-toothed Snakes)

Ringneck Snake	<i>Diadophis punctatus</i>
Striped Whipsnake	<i>Masticophis taeniatus</i>
Western Yellow-bellied Racer	<i>Coluber constrictor mormon</i>
Great Basin Gopher Snake	<i>Pituophis cantenifer deserticola</i>
Common Kingsnake	<i>Lampropeltis getulus</i>
Long-nosed Snake	<i>Rhinocheilus lecontei</i>
Western Terrestrial Garter	<i>Thamnophis elegans</i>
Ground Snake	<i>Sonora semiannulata</i>
Night Snake	<i>Hypsiglena torquata</i>

Family: Viperidae (Vipers)

Great Basin Rattlesnake	<i>Crotalus viridis lutosus</i>
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Amphibians

Order: Anura (Frogs and Toads)

Family: Pelobatidae (Spadefoots)

Great Basin Spadefoot Toad	<i>Spea intermontana</i>
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Family: Ranidae (True Frogs)

Columbia Spotted Frog	<i>Rana luteiventris</i>
Northern Leopard Frog	<i>Rana pipiens</i>
Bullfrog	<i>Rana catesbeiana</i>

Family: Bufonidae (Toads)

Western Toad	<i>Bufo boreas</i>
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Family: Hylidae (Treefrogs)

Pacific Chorus Frog	<i>Pseudacris regilla</i>
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Fish

Order: Salmoniformes

Family: Salmonidae (Salmon and Trout)

Chinook Salmon	<i>Oncorhynchus tshawytscha(L.E.)</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
Redband Trout	<i>Oncorhynchus mykiss gairdneri</i>
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>
Brook Trout	<i>Salvelinus fontinalis</i>
Mountain Whitefish	<i>Prosopium williamsoni</i>
Brown Trout	<i>Salmo trutta</i>

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Order: Scorpaeniformes

Family: Cottidae (Sculpins)

Paiute Sculpin *Cottus beldingii*

Order: Cypriniformes

Family: Cyprinidae (Carps and Minnows)

Chiselmouth *Acrocheilus alutaceus*
Northern Pikeminnow *Ptychocheilus oregonensis*
Longnose Dace *Rhinichthys cataractae*
Speckled Dace *Rhinichthys osculus*
Redside Shiner *Richardsonius balteatus*
Tui Chub *Gila bicolor*
Asiatic Carp *Cyprinus carpio*

Family: Catostomidae (Suckers)

Mountain Sucker *Catostomus platyrhynchus*
Tahoe Sucker *Catostomus tahoensis*

Order: Siluriformes

Family: Ictaluridae (Catfish)

Channel catfish *Ictalurus punctatus*

Order: Perciformes

Family: Percidae (Walleye)

Family: Centrarchidae (Bass and allies)

Largemouth Bass *Micropterus salmoides*
Bluegill *Lepomis macrochirus*
Crappie *Pomoxis nigromaculatus*

* Note: Relative to the Proposed Action, this list encompasses a broad area that includes the Little Humboldt, Squaw Valley, Elevenmile Flat, and 25 livestock grazing allotments. Area is from just north of Interstate 80 including the Humboldt River riparian/wetlands corridor west of Battle Mountain, Nevada, northeast to the crest of the Tuscarora Range near Tuscarora, Nevada. This is a broad species list is for a large area where some species might not exist due to site-specific habitat needs versus those habitats provided on the collective project area on the allotments.

L.E. = Locally Extirpated

Note: This list is a combination of wildlife sight record data and our best effort to predict what wildlife species live in this area in all seasons and under optimum habitat

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conditions.

*With the exception of the European Starling, House Sparrow, Eurasian Collared-Dove, Ringed Turtle-Dove and Rock Dove, all birds are protected in Nevada by either the International Migratory Bird Treaty Act, Endangered Species Act or as game species. Several mammal, reptile and amphibian species are also protected as either game, sensitive, threatened or priority species. For further information on a species status, visit our web site at NDOW.ORG.

Updated: 5/2009 - Peter V. Bradley - Nevada Department of Wildlife - Elko, Nevada.

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APPENDIX 2

Nevada BLM Sensitive Bird Species

Greater Sage Grouse

Only isolated use during the winter period would be likely to occur on contiguous and intact blocks of sagebrush near the collective project area. However, contiguous blocks of sagebrush are absent. Some potential use could occur, and has been documented on an intact sagebrush area near Lander Well on the southern flank of the Izzenhood Range.

The proposed undertakings are within the Tuscarora Sage Grouse Population Management Unit (PMU) in Northeastern Nevada. This PMU has the highest priority for management due to risks to existing populations. Shrub cover is vital as a forage and cover component for sage grouse. Wildfires have been considered a “high risk” factor for potentially affecting habitat on the PMU area.

Bald Eagle

The bald eagle is a migrant and potential winter resident on the area. This species has been observed in Squaw Valley near Midas, Nevada to the north of the collective project area. Foraging areas on uplands, irrigated lands and riparian areas within suitable winter habitat is widely dispersed over tens of thousands of acres on uplands, irrigated lands and riparian areas throughout the Elko District. This has been documented during formal surveys completed through coordination by BLM and the Nevada Department of Wildlife. Areas that provide intact habitat with shrub cover for prey species and adjoining areas with open water foraging areas increase the suitability of use of habitat on the area.

Loggerhead shrike – Potential nesting habitat is provided on or near the area primarily within stands of basin and Wyoming big sagebrush, and inclusions of intact salt desert vegetation type habitat. Foraging habitat is provided on sagebrush-grass and salt desert areas with variable canopy cover of brush species.

Burrowing owls - This species could occur on or near the area. Abandoned mammal burrows, such as those created by badgers, help to provide nesting habitat. This species tends to use disturbed or open sites with minimal vegetation for nesting and loafing, such as recent burned areas or areas near troughs, corrals, or livestock mineral licks where open terrain exists. This may be due to the lack of vegetation at these sites that allows increased visibility from the burrow entrance. Improving or maintaining range conditions would improve conditions for the prey species on which this owl depends.

Golden eagles – The area provides foraging habitat where prey species are primarily small mammals. Black-tailed jackrabbits provide a primary forage base. Maintaining existing intact sagebrush stands/mixed brush stands and protecting stands with mature sagebrush plants that resulted from seeding efforts would help to provide habitat for jackrabbits.

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Swainson's hawks – Sagebrush/grass habitat on the area provide foraging habitat during the summer period, and during migration or seasonal movement events.

Ferruginous hawks – Relative to the area, nesting could occur on the ground or on rocky bluffs on mountainous terrain surrounding the project area. Otherwise, the allotment provides foraging habitat for ferruginous hawks during migration or seasonal movement events. Black-tailed jackrabbits provide a forage base and ground squirrels provide a forage base.

Vesper sparrows – This species is a ground-nester. Relative to the area, it is associated with sagebrush grasslands. Intact stands of sagebrush near the project area provide potential nesting and foraging habitat. Maintaining existing intact sagebrush stands/mixed brush stands and protecting stands with mature sagebrush plants that resulted from seeding efforts would help to provide habitat for this species.

Short-eared owls - The area provides nesting and foraging habitat for this ground-nesting species. This species has been observed foraging on a crested wheatgrass seeding with a sagebrush component on the Elko District. Nests with young have also been documented on mine sites under consideration for reclamation with no appreciable perennial vegetation. Maintaining existing intact sagebrush stands/mixed brush stands and protecting stands with mature sagebrush plants that resulted from seeding efforts would help to provide habitat for this species along with habitat for prey species.

Prairie falcons - The area provides foraging habitat for this species where prey species are primarily small mammals. Cliff areas near the project area provide nest sites. Black-tailed jackrabbits provide a forage base as mentioned above for golden eagles.

Black-rosy finches – Intact stands of sagebrush near the project area provide potential winter habitat.

Pygmy rabbits - This species has been documented to the east of the collective project area near Willow Creek Reservoir and Antelope Creek. However, it is unlikely to inhabit the collective project area due to the lack of sagebrush habitat. Intact sagebrush habitat and stands that have established as a result of rehabilitation efforts, or natural re-establishment, provide potential habitat. Pygmy rabbits are a BLM Sensitive Species petitioned for listing as threatened or endangered under the Endangered Species Act of 1973. On May 20, 2005, the U.S. Fish and Wildlife Service announced a 90-Day finding in the Federal Register indicating that, "... the petition does not provide substantial information indicating that listing the pygmy rabbit may be warranted." The Finding does not downplay the need to conserve, enhance or protect pygmy rabbit habitat. Pygmy rabbits are found in a variety of vegetation types that include big sagebrush that are suitable for creating their burrow system. No known formal surveys have been completed on the Proposed Action area.

Bats – Cliffs, caves, talus slopes and mine adits on mountainous terrain provide potential roost sites near the project area.. Foraging areas are provided on the uplands in the area

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where use could occur in concert with use on adjoining meadows/riparian corridors on public and private lands. Improvements of upland areas could provide habitat for insects utilized as a forage base.

Small-footed myotis (*Myotis ciliolabrum*). This species could occur in the area. This species has been observed in the Ruby Mountains east of the area and in a variety of habitats in eastern Nevada, including springs, canyons, and deciduous and coniferous forests. Roosting occurs primarily in caves or mine shafts or adits.

Long-eared myotis (*Myotis evotis*). This species is relatively common throughout northeastern Nevada and could occur in the area. It has also been reported to be found within a variety of other habitats.

Long-legged myotis (*Myotis volans*). This species uses a variety of sites for roosting, including trees and could potentially inhabit the area.

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Figure 14. Landownership within the Project Area.

