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

Environmental Assessment

Egan and Johnson Basins Restoration Project

Final

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PREPARING OFFICE

U.S. Department of the Interior

Bureau of Land Management

Bristlecone Field Office, Nevada

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Environmental Assessment

Egan and Johnson Basins Restoration Project

Chapter 1 Introduction

1.1 Background

The purpose of this Environmental Assessment (EA) is to identify issues, analyze alternatives, and disclose the potential environmental impacts associated with the proposed Egan and Johnson Basins Restoration Project. This EA fulfills the National Environmental Policy Act (NEPA) requirement for site-specific analysis of resource impacts. The analysis in this EA assists in making a determination of the significance of impacts to the human environment associated with the actions developed to meet the purpose and need. If a determination is made that impacts are significant, an Environmental Impact Statement (EIS) will be prepared. If impacts are not significant, a "Finding of No Significant Impact" (FONSI) will be prepared.

The Bureau of Land Management (BLM), Bristlecone Field Office is proposing a hazardous fuels reduction and habitat improvement project within Egan and Johnson Basins, including the area near Nine-mile summit, Cherry Creek Range and the North Egan Range. The project would occur over extended periods of time, as budgets allow.

1.2 Location of Project

The project area is located approximately 5 miles west of Cherry Creek, Nevada and 50 miles northwest of Ely, Nevada. The Egan and Johnson Basins Restoration Project area is comprised of approximately 84,675 acres located in the Egan and Cherry Creek Ranges near Cherry Creek, White Pine County, Nevada. Located within the project area are private lands that would be included in treatment if a cooperative agreement is arranged with the property owner. See Appendix A; Map 1 for a map of the project and treatment areas.

The proposed project is located within all or parts of the following sections Mount Diablo base and meridian:

Township (T) 21 North (N), Range (R) 62 East (E), various Sections

T 22N, R 61E, Sections 25, 35, 36

T 22N, R 62E, various Sections

T 23N, R 61E, various Sections

T 23N, R 62E, various Sections

T 24N, R 61E, Sections 13, 24, 35, 36

T 24N, R 62E various Sections

1.3 Purpose and Need for Action

1.3.1 Purpose and Need

The purpose of this project is to restore natural site conditions, reduce potential for large wildfires by reducing fuel loading, increase understory grass and forb species diversity, and increase available wildlife habitat. The need of this action is to respond to the ecological departure of plant communities from the natural range of variability within Egan and Johnson Basins relative to desired conditions. The need arises primarily due to successional changes in sagebrush and pinyon-juniper stands resulting in establishment, and above normal density of single-leaf pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) trees. Important habitats for greater sage-grouse, as well as other wildlife have been identified within the project area.

A majority of the area within the treatment units identified for this project has been classified as black sagebrush (*Artemesia nova*), mountain big sagebrush (*Artemesia tridentata ssp. vaseyana*), and Wyoming sagebrush (*Artemesia tridentate ssp. wyomingensis*) ecological sites. The sagebrush communities within the proposed project area have undergone major changes in vegetation structure, composition, production and resiliency due to the expansion of pinyon pine and Utah juniper trees. These changes have resulted in a reduction in plant community resilience to disturbance, soil loss, degradation or loss of wildlife habitat; as well as dramatic shifts in fire frequency, size and severity (Davies et al., 2011; Pyke, 2011; Chambers et al., 2005; Miller and Tausch, 2001). Many sagebrush ecosystems are approaching, or have already crossed an ecological threshold to an alternate plant community that could be more susceptible to invasion of non-native annual grasses and other invasive species after disturbance. Returning these communities to, or near, their original state would likely not occur without human intervention. This includes controlling undesirable species and re-introducing previously dominant native species (Pyke, 2011). Additionally, the sagebrush plant communities in the project area are not meeting objectives set in the Ely Resource Management Plan.

Throughout many areas of eastern Nevada, sagebrush plant communities are being or have been converted to areas dominated by homogenous stands of sagebrush or to areas with dense canopy cover of pinyon-juniper trees. These areas often are characterized by declining, remnant populations of native perennial grasses and forbs. In some areas, the establishment of pinyon-juniper trees on sagebrush/grass sites has not only resulted in the loss of the grass and forb component, but in the decadence and low vigor of important shrub species such as sagebrush, antelope bitterbrush (*Purshia tridentata*), serviceberry (*Amelanchier spp.*), and snowberry (*Symphoricarpos spp.*). Loss or decline of ecologically valuable grass, forb and shrub species can result in excessive surface runoff and soil erosion; reduced soil moisture and decreased

groundwater recharge (Bedell, 1993). Effects of pinyon pine and juniper expansion into sagebrush grassland include loss of nutrients, accelerated erosion, changes in soil water storage, reduced forage, and altered habitat. Studies show that as diversity of stand structure declines, diversity and abundance of wildlife also declines (Miller et al., 2005).

A tool used to assess the ecological condition of an area across a landscape scale is Fire Regime Condition Class (FRCC). This interagency, standardized tool is based on scientific and peer reviewed literature and is used for determining the degree of departure from a reference vegetation condition within a given biophysical setting (BpS) (Barrett et al., 2010; more information regarding this tool can be found at the following website: http://www.landfire.gov). Assessing FRCC can help guide management objectives and set priorities for treatments. The classification is based on a relative measure describing the degree of departure from the historical natural disturbance regime for a given BpS. This departure is described as changes to one or more of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure and mosaic pattern); fuel composition; fire frequency, severity and pattern; and other associated disturbances (e.g. insects and disease mortality, grazing and drought). There are three FRCC classes used to describe the departure from reference BpS conditions. The three classes are based on low (0-33% departure; FRCC 1), moderate (34-66% departure; FRCC 2) and high (67-100% departure; FRCC 3) departure from the central tendency of the natural (historical) regime. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside the range of variability. The FRCC rating is accompanied by indicators of the potential risks that may result. Biophysical setting models have been developed for most major (dominant) vegetation types. These models describe the vegetation, geography, biophysical characteristics, succession stages, disturbance regimes, and assumptions for each vegetation type (Barrett et al., 2010). Reference (historical) conditions described in the BpS models are compared to actual conditions for purposes of determining the current FRCC rating. A FRCC rating is determined for an area by calculating the weighted average of all major (dominant) vegetation FRCC ratings. FRCC 1 is desired for each BpS and for the proposed treatment area. A departure from FRCC 1 (reference condition) to FRCC 2 or FRCC 3 serves as an indicator that changes need to be implemented. The current rating for the project area is FRCC 2; see Appendix A, Map 2. This indicates that fire regimes and vegetation attributes have been moderately altered from their historical range. Risk of losing key ecosystem components is moderate.

1.3.2 Goals

The project goals are to increase vegetation community resistance and resilience to natural disturbance, shift the area closer to a Fire Regime Condition Class (FRCC) 1 and reduce the risk of large wildland fire within Egan and Johnson Basins.

The goals of this proposed project are to:

- Create conditions in sagebrush communities that better meet historical fire regime variation and shift the project area closer toward FRCC 1.
- Create a mosaic of vegetation types and stand age classes that would increase shrub and herbaceous composition, enhance vegetation community resistance and resilience, slow potential fire progression and aid in fire suppression.
- Increase perennial understory vegetation composition and increase the diversity of grass and forb species.
- Reduce the density of pinyon-juniper trees from within historically sagebrush dominated plant communities.
- Increase available habitat for nesting and early brood rearing/yearlong greater sage-grouse use.
- Increase and protect valuable mule deer and elk habitat within the watersheds.

Resource management objectives include the following:

1.3.3 Short Term Objectives (5 years post treatment)

- Reduce trees to less than 5% in treated areas of Phase I, Phase II and Phase III pinyon-juniper establishment on sagebrush ecological sites to increase greater sage-grouse habitat (see Miller et al., 2008 for Phase I, II and III descriptions).
- Reduce tree canopy cover in sagebrush communities to 5% or less in Phase I conifer expansion sites and 3% or less in greater sage-grouse lek habitat (.6 miles from lek center).
- Reduce tree density to approximately 10 - 30 trees per acre or a Stand Density Index of 40-60 (10%-15% of maximum) in thinned treatment areas within woodlands sites and some sagebrush sites.
- Create mosaic of treated and untreated areas to enhance wildlife habitat and meet visual resource objectives.
- Keep annual grass cover (*Bromus tectorum*, cheatgrass) at less than 5% in previously unestablished areas.

1.3.4 Long Term Objectives (5 to 10 years post treatment)

- Enhance greater sage-grouse habitat by maintaining or increasing sagebrush canopy cover to 15 – 25%, increasing herbaceous foliar cover to a minimum of 10%, and reducing standing tree cover in priority, and general habitat. These objectives would be matched up with Table 2–2, Appendix E.

- Reduce tree cover and increase sagebrush and understory species density in Phase II and III pinyon-juniper expansion areas (Miller et al., 2008) within sagebrush ecological sites.

1.4 Relationship to Planning

The Proposed Action and alternatives being considered in this EA are in conformance with the Ely District Record of Decision and Approved Resource Management Plan (August 2008), as amended, as required by regulation (43 CFR 1610.5–3(a)). The Proposed Action is in conformance with the following specific goals, objectives and decisions of the Ely Resource Management Plan:

Fish and Wildlife

Goal

Ely RMP (2008): Provide habitat for wildlife (i.e., forage, water, cover, and space) and fisheries that is of sufficient quality and quantity to support productive and diverse wildlife and fish populations, in a manner consistent with the principles of multi-use management, and to sustain the ecological, economic, and social values necessary for all species.

Objectives

Ely RMP (2008): To manage suitable habitat for aquatic species, priority wildlife species, and migratory birds in a manner that will benefit wildlife species directly or indirectly and minimize conflicts among species and wildlife or habitat losses from permitted activities. Priority species for terrestrial wildlife habitat management related to this project are greater sage-grouse, mule deer, pronghorn antelope, and migratory birds. Priority habitats include calving/fawning/kidding/lambing grounds, crucial summer range, crucial winter range, and occupied habitat. To use wildlife water developments, both natural and artificial, to enhance the condition of wildlife habitat, and to use artificial wildlife water developments to mitigate impacts to wildlife species from loss of natural water sources or loss of habitat.

Management Actions

General Wildlife Habitat Management (Aquatic and Terrestrial)

Ely RMP (2008) WL-1: Emphasize management of priority habitats for priority species.

Parameter- Elk, Mule Deer, Pronghorn Antelope, and Rocky Mountain Bighorn Sheep Habitats

Ely RMP (2008) WL-8: Focus restoration projects initially in priority habitats (i.e., calving/fawning/kidding/ lambing grounds, crucial summer range, and crucial winter range), and then in other seasonal habitats within a watershed.

Ely RMP (2008) WL-9: Manage elk habitat by implementing the action and strategies identified in the Central Nevada, Lincoln County and White Pine County Elk Management Plans that the Ely District Office has the authority to implement, and that are consistent with watershed restoration strategies.

Special Status Species RMP Goal- SSS and Greater Sage-grouse (GRSG) Goal

Goals

Ely RMP (2008): Manage public lands to conserve, maintain, and restore special status species populations and their habitats; support the recovery of federally listed threatened and endangered species; and preclude the need to list additional species.

Ely GRSG RMP Amendment (2015): SSS 1: Conserve, enhance, and restore the sagebrush ecosystem upon which greater sage-grouse populations depend in an effort to maintain and/or increase their abundance and distribution, in cooperation with other conservation partners.

Objectives

Ely RMP (2008): SSS: To manage suitable habitat for special status species in a manner that will benefit these species directly or indirectly and minimize loss of individuals or habitat from permitted activities.

Ely GRSG RMP Amendment (2015) SSS 1: Manage land resource uses to meet greater sage-grouse habitat objectives, as described in Table 2–2. The habitat objectives will be used to evaluate management actions that are proposed in greater sage-grouse habitat. Managing for habitat objectives will ensure that habitat conditions are maintained if they are currently meeting objectives or if habitat conditions move toward these objectives in the event that current conditions do not meet objectives.

Ely GRSG RMP Amendment (2015) SSS 2: Maintain or improve connectivity between, to, and in Priority Habitat Management Areas (PHMAs) and General Habitat Management Areas (GHMAs) to promote movement and genetic diversity for greater sage-grouse population persistence and expansion.

Ely GRSG RMP Amendment (2015) SSS 3**:** Identify and implement greater sage-grouse conservation actions that can augment, enhance, or integrate program conservation measures

established in agency and state land use and policy plans, to the extent consistent with applicable law.

Management Actions

Ely RMP (2008) SS-1: Prioritize conservation, maintenance, and restoration actions for special status species based on the following order of importance: 1) federally listed endangered species; 2) federally listed threatened species; 3) federal proposed species; 4) federal candidate species; and 5) BLM sensitive species.

Parameter- Great Basin Sagebrush Habitat

Ely RMP (2008) SS-37: Manage greater sage-grouse habitat by implementing those actions and strategies identified in the BLM National Sage-Grouse Habitat Conservation Strategy, Greater Sage-Grouse Conservation Plan for Nevada and Eastern California, and local greater sage-grouse conservation plans that the Ely District Office has the authority to implement.

Ely RMP (2008) SS-38: Maintain intact and quality sagebrush habitat. Prioritize habitat maintenance actions from the BLM National Sage Grouse Conservation Strategy to: 1) maintain large areas of high quality sagebrush currently occupied by greater sage-grouse; 2) maintain habitats which connect seasonal sagebrush habitats in occupied source habitats; and 3) maintain habitats that connect seasonal sagebrush habitats in occupied isolated habitats.

Ely RMP (2008) SS-39: Implement proactive and large scale management actions to restore lost, degraded, or fragmented sagebrush habitats and increase greater sage-grouse populations. Prioritize habitat restoration actions from the BLM National Sage Grouse Conservation Strategy to: 1) reconnect large patches of high quality seasonal habitats, which greater sage-grouse currently occupy; 2) enlarge sagebrush habitat in areas greater sage-grouse currently occupy; 3) reconnect stronghold/source habitats currently occupied by greater sage-grouse with isolated habitats currently occupied by greater sage-grouse; 4) reconnect currently occupied and isolated habitats; 5) restore potential sagebrush habitats that currently are not occupied by greater sage-grouse. Develop allowable use restrictions in greater sage-grouse habitats undergoing restoration, on a case-by-case basis, as dictated by monitoring.

Vegetation

Goal

Ely RMP (2008): Manage vegetation resources to achieve or maintain resistant and resilient ecological conditions while providing for sustainable multiple uses and options for the future across the landscape.

Objective

Ely RMP (2008): To manage for resistant and resilient ecological conditions including healthy, productive, and diverse populations of native or desirable nonnative plant species appropriate to the site characteristics.

Management Actions

General Vegetation Management

Ely RMP (2008) VEG-1: Emphasize treatment areas that have the best potential to maintain desired conditions or respond and return to the desired range of conditions and mosaic upon the landscape, using all available current or future tools and techniques.

Ely RMP (2008) VEG-5: Focus restoration of undesirable conditions initially on those sites that have not crossed vegetation transitional thresholds.

Ely RMP (2008) VEG-6: Emphasize the conservation and maintenance of healthy, resilient, and functional vegetation communities before restoration of other sites.

Ely RMP (2008) VEG-7: Determine seed mixes on a site-specific basis dependent on the probability of successful establishment. Use native and adapted species that compete with annual invasive species or meet other objectives.

Parameter— Sagebrush (basin big sagebrush, Wyoming big sagebrush, mountain big sagebrush, and black sagebrush)

Ely RMP (2008) VEG-16: Implement actions to attain the desired vegetation states shown in Table 1.

Table 1.1. Desired Range of Conditions of Sagebrush (Distribution of Phases and States)

State/Phase Name	Total Herbaceous State (Early, Mid, and Late Phases)[1]	Total Shrub State	Total Tree State	Altered State Annual/Perennial Invasive	Altered State Nonnative Perennial Seeded
LANDFIRE	A, B, and C	D	E	Uncharacteristic	Uncharacteristic
RMP[2]	85% (4,776,500 acres)	5% (281,000 acres)	5% (281,000 acres)	0% (0 acres)	5% (281,000 acres)

[1]Sagebrush in the mid-late phase of the herbaceous state is desired for wildlife habitat.

[2]The Proposed RMP approximates and incorporates the LANDFIRE Biophysical Setting Models for Great Basin xeric mixed sagebrush and Inter-Mountain Basin big sagebrush. Altered states (annual/perennial invasive and nonnative perennial seeded) are an uncharacteristic condition not recognized by LANDFIRE Biophysical Setting Models but are part of current conditions

Ely RMP (2008) VEG-17: Integrate treatments to:

1. Establish and maintain the desired herbaceous state or early shrub state where sagebrush is present along with a robust understory of perennial species.

2. Prioritize treatments toward restoration of sagebrush communities on areas with deeper soils and higher precipitation.

Ely GRSG RMP Amendment (2015) Greater Sage-grouse Sagebrush-steppe MD VEG 2: Incorporate Greater Sage-grouse Habitat Objectives (Table 2–2, Appendix E) in the design of habitat restoration.

Ely RMP (2008) VEG-18: Manage native range to meet the requirements of wildlife species. Management will focus on maintaining or establishing diversity, mosaics, and connectivity of sagebrush between geographic areas at the mid and fine scales.

Ely GRSG RMP Amendment (2015) Greater Sage-grouse Sagebrush-steppe MD VEG 3: Use BLM greater sage-grouse habitat maps, habitat objectives (See Table 2–2, Appendix E for greater sage-grouse habitat objectives), ecological site potential, state and transition models, and concepts of resistance and resilience to prioritize habitat restoration projects, including those following wildfire, to address the most limiting greater sage-grouse habitat vegetation components and connect seasonal ranges. Habitat restoration includes the following:

- Restoring sagebrush canopy in PHMAs and GHMAs to meet greater sage-grouse habitat objectives (Table 2–2, Appendix E)
- Reestablishing perennial grasses and native forbs in PHMAs and GHMAs

- Reducing or removing pinyon or juniper in PHMAs and GMHAs to enhance seasonal range connectivity and to maintain sagebrush canopy and understory integrity
- Restore areas affected by wildfire and the continuing invasive annual fire cycle to meet greater sage-grouse habitat objectives (Table 2–2, Appendix E)
- Prioritize restoration in areas that have not crossed ecological threshold

Ely GRSG RMP Amendment (2015) Greater Sage-grouse Conifer encroachment MD VEG 13: Remove conifers encroaching into sagebrush habitats, in a manner that considers tribal cultural values. Prioritize treatments closest to occupied greater sage-grouse habitats and near occupied leks and where juniper encroachment is phase 1 and phase 2. Use of site-specific analysis and tools like Vegetation Dynamics Development Tool (VDDT) and Fire and Invasive Assessment Tool (FIAT) will help refine the location for specific areas to be treated.

Visual Resources

Goals

Ely RMP (2008): Manage public land actions and activities in a manner consistent with Ely District Office visual resource management class objectives.

Objectives

Ely RMP (2008): To implement multiple use activities within the planning area with mitigation measures consistent with the visual resource management classes.

Management Action

Ely RMP (2008) VR-4: Manage the Pony Express National Historic Trail corridor under Visual Resource Management Class II objectives.

Fire Management

Goals

Ely RMP (2008): Provide an appropriate management response to all wildland fires, with emphasis on firefighter and public safety, consistent with overall management objectives. Return fire to its natural role in the ecological system and implement fuels treatments, where applicable, to aid in returning fire to the ecological system. Establish a community education program that includes fuels reduction with the wildland urban interface to create fire-safe communities.

Objectives

Ely RMP (2008): To manage wildland and prescribed fires as one of the tools in the treatment of vegetation communities and watersheds to achieve the desired range of condition for vegetation, watersheds, and other resource programs (e.g., livestock, wild horses, soils, etc.).

Management Action

Ely RMP (2008) FM-4: Incorporate and utilize Fire Regime Condition Class as a major component in fire and fuels management activities. Use Fire Regime Condition Class ratings in conjunction with vegetation objectives (see the discussion on Vegetation Resources) and other resource objectives to determine appropriate response to wildland fires and to help determine where to utilize prescribed fire, wildland fire use, or other non-fire (e.g., mechanical) fuels treatments.

Ely RMP (2008) FM-5: In addition to fire, implement mechanical, biological, and chemical treatments along with other tools and techniques to achieve vegetation, fuels, and other resource objectives.

The action would also assist with meeting the *Standards and Guidelines for Nevada's Northeastern Great Basin,* which states in part (page 13), "Create and maintain a diversity of sagebrush age and cover classes on the landscape through the use of prescribed fire, prescribed natural fire, mechanical, biological and/or chemical means to provide a variety of habitats and productivity conditions" and "Where pinyon pine and/or juniper trees have encroached into sagebrush communities, use best management practices to remove trees and re-establish understory species".

1.5 Relationship to Statutes, Regulations or other Plans

The proposal is also consistent with other Federal, State and local plans or decisions including, but not limited to, the following:

- The National Environmental Policy Act of 1969 (42 U.S.C. §§ 4321-4347, January 1, 1970, as amended 1975 and 1994)
- The Federal Land Policy and Management Act of 1976 (43 U.S.C. §§ 1701-1782, October 21, 1976, as amended 1978, 1984, 1986, 1988, 1990-1992, 1994 and 1996)
- Migratory Bird Treaty Act (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989)
- The Endangered Species Act of 1973 (16 U.S.C. §§ 1531-1544, December 28, 1973, as amended 1976-1982, 1984, and 1988)

- Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds (2001)

The Proposed Action is consistent with the following local plans:

- White Pine County Public Lands Policy Plan (2007)
- White Pine County Portion (Lincoln/White Pine Planning Area) Sage-grouse Conservation Plan (2004)
- White Pine County Elk Management Plan (2007 revision)

Archaeological

- State Protocol Agreement between the Bureau of Land Management (BLM), Nevada and the Nevada State Historic Preservation Office (2014)
- Section 106 and Section 110 of the National Historic Preservation Act (1966)

Pony Express Trail

- National Trails System Act (1968)
- P.L. 102–328 (1992)
- U.S.D.I. BLM Manual 6280 – Management of National Scenic and Historic Trials and Trails Under Study or Recommended as Suitable for Congressional Designation (2012)

The Proposed Action would facilitate the following National goals:

- The National Strategy: The Final Phase of the Development of the National Cohesive Wildland Fire Management Strategy (2014).
- The Healthy Forests Restoration Act (HFRA) (2003).

1.6 Tiering

This EA is tiered to the analysis and effects disclosed in:

- Nevada and Northeastern California Greater Sage-Grouse Proposed Land Use Plan Amendment (ARMPA) and Final Environmental Impact Statement. (2015)
- The Ely Proposed Resource Management Plan/Final Environmental Impact Statement. (November 2007)

- The Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States. (2007)

- Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States Programmatic EIS and Record of Decision (BLM 2016)

- Final Environmental Impact Statement- Vegetation Treatments on BLM Lands in Thirteen Western States. (1991)

1.7 Scoping, Public Involvement and Issues

The Egan and Johnson Basins Restoration Project was scoped internally by the BLM Egan Field Office (now known as The Bristlecone Field Office) Interdisciplinary Team on January 14, 2013. A coordination letter was sent to the Nevada Department of Wildlife (NDOW) on January 25, 2013 to initiate greater sage-grouse and other wildlife consultation and coordination. NDOW and BLM met several other times to coordinate and designate possible treatment areas and methods that would be beneficial to wildlife.

A scoping letter was sent to interested publics on February 5, 2013 for a scoping period ending March 1, 2013. One letter of support was received from the Nevada Wilderness Project on February 21, 2013. The project was presented and discussed at the White Pine County Public Lands User Advisory Council (PLUAC) meeting on February 12, 2013. The PLUAC suggested that the wood be made available to the public for fuelwood. A letter was received from the Duckwater Shoshone Tribe on February 15, 2013 in which the Duckwater Shoshone Tribe requested a site visit. The site visit was conducted on April 11, 2013.

The project was posted on the National NEPA Registrar (https://www.blm.gov/epl-front-office/eplanning/nepa/nepa_register.do) on February 14, 2013.

The proposed project was briefly delayed, but the BLM continued planning efforts in November 2015. In 2015 the project lead, BLM wildlife biologist and NDOW re-visited the project proposal and additional treatment areas were recommended due to the location of greater sage-grouse habitat. On November 11, 2015, Ely District BLM sent individual tribes a letter inviting them to participate in formal Government to Government consultation. An additional scoping letter was sent to interested public on February 17, 2016 with project updates due to the addition of 22,000 proposed project acres. The letter provided a 15-day scoping period, and included updates to the project proposal and included a project map. Identification of issues for this EA was accomplished through consideration of internal and external scoping comments and the resources which could potentially be affected by the Proposed Action and alternatives.

Key issues or potential impacts identified during the scoping process included the following resources:

- Cultural and Historic Resource Values;
- Wildlife;
- Forest Resources;
- Rangeland Resources;
- Livestock Grazing;
- Special Status Species;
- Soil;
- Vegetation;
- Lands with Wilderness Characteristics; and
- Riparian Zones
- Climate Change

Chapter 2 Proposed Action and Alternatives

2.0 Introduction

This chapter describes the Proposed Action, the No Action Alternative, and Alternatives Considered but Eliminated from Detailed Analysis. Alternatives were considered if presented during scoping if they met the Purpose and Need for the project. The No Action Alternative is considered current management, and is presented as comparison of impacts from the Proposed Action.

2.1 Adaptive Management

Adaptive management is proposed for this project due to the extended proposed project timeline and need for flexibility in treatments. Adaptive management as described by the National Research Council and adopted by the Department of Interior is a decision making process that supports flexibility in decision making and allows for adjustments due to uncertainties of outcomes. Adaptive management allows the use of primary or other appropriate treatment methods to achieve objectives for each treatment unit. Adaptive management recognizes the importance of natural variability in contributing to ecological resilience and productivity.

Treatment methods available for consideration include those listed in Section 2.2. Treatments would be altered or adjusted if not meeting or making progress towards objectives described in the following Section 2.2 and Table 2–2 Habitat Objectives for Greater Sage-grouse, described in Appendix E of this document.

If short term objectives are not met, additional treatments could be implemented to assist the area in meeting objectives. For example, if cheatgrass cover is greater than 5% and there is no other perennial species cover, the area could be treated with pre-emergent herbicide. When tree cover exceeds the objectives, additional treatments could be implemented. Additional seeding of perennial species could be implemented if original seeding fails to establish within 5 years.

2.2 Description of the Proposed Action

The Proposed Action project boundary is approximately 84,675 acres and encompasses 21 treatment units identified within that boundary. The 21 treatment units are approximately 37,455 acres of public lands administered by the BLM and 1,045 acres of private lands in the Egan and Johnson Basins. Treatment of private land would only occur if a cooperative agreement is executed with the private land owners. Up to future of the treatment unit acres may be treated within the identified units. A combination of vegetation treatment methods would be used to achieve resource objectives. The proposed treatment methods would include: tree thinning (mechanical and manual methods), prescribed fire, seeding, and invasive species control. Areas targeted for treatment are sagebrush communities where pinyon-juniper trees have become established. Some pinyon-juniper woodlands could be incidentally treated near transition areas of

sagebrush and woodland communities. Within the project boundary and between treatment units, hand thinning of Phase I pinyon-juniper would occur. Estimated acres of targeted Phase I pinyon-juniper that occurs outside the treatment units but within the project boundary is approximately 2,300 acres. See Appendix A, Map 1 for a map of the proposed project and treatment units.

Treatment Methods

Tree removal treatment methods being considered for this project include hand thinning, chaining, mastication, whole tree thinning, mulching/chipping, prescribed fire and fuelwood harvest. Additionally, select areas of the project would be seeded and treated for noxious and invasive weeds. All trees would be cut within 200 feet of identified springs and associated riparian areas. Treatments may require maintenance in the future in order to maintain achieved or desired vegetation conditions. Any maintenance treatments would be held to the same design features as initial treatment design. Following treatments, fuelwood may be available for harvest.

Tree thinning would consist of removing pinyon-juniper trees from the sagebrush and woodland sites. Methods for thinning trees would consist of both hand felling (e.g., chainsaw) and mechanical methods (e.g., chainsaw, mastication, feller buncher). The mechanical methods would occur in the areas that exhibit higher tree density (e.g., Phase II and III areas). A large portion of the trees would be thinned from the project area. Single trees, small patches, larger islands and stringers of trees would be left so that the treatment appears as a natural as possible and to provide for wildlife habitat. In order to reduce the visual impact on the landscape, the mechanical treatment edges would follow natural contours to avoid straight lines and to better mimic natural patterns across the landscape. Units would be irregular and curvilinear (not a straight line), following natural vegetation and topographic boundaries as much as possible. Islands of vegetation would be left to create a mosaic. Appendix I of this document shows similar treatments in Ely District and gives the reader a visual idea of what treatments can like both close up and from a distance. Mechanical tree thinning would consist of selective and group tree thinning as well as creating larger clearings and openings through mastication or chaining. Both methods would require the use of heavy equipment such as a masticator, bull hog, feller-buncher, or similar piece of equipment that would selectively remove or shred the trees, or using an Ely chain (ship anchor chain with railroad iron welded perpendicular to the links) pulled by two bulldozers to thin/remove trees. Biomass resulting from the thinning of the pinyon-juniper would be available to the public for fuelwood and the remaining slash may be left onsite or piled and burned to remove excess fuel from the sites.

Chaining

Chaining would be the primary treatment method in areas identified as Phase II and Phase III woodland succession (Miller et al., 2008) and areas of higher pinyon- juniper densities. The chaining would consist of two bull dozers pulling a large ship anchor chain between them to

remove larger areas of trees. The chain would be pulled in one direction and would then be pulled in the opposite direction to increase tree mortality. Chaining would be conducted in such a way to create irregular edges that blend the treatment areas into the landscape and replicate natural disturbance patterns. Island and stringers would be left to provide cover for wildlife. Timing of the chaining would follow design feature restrictions. Chaining would avoid areas of high density and established stands of mahogany.

Mastication

The mastication method would consist of grinding trees to mulch using a cutting head attached to a piece of machinery. Mastication would thin/remove trees while still maintaining a natural mosaic appearance. Studies show that mastication is most effective when desirable perennials are still present and abundant enough to out-compete invasive annuals for released nutrients (Young et al., 2014). Mastication is designed to be implemented in areas where perennials and desired vegetation would likely be more abundant or areas of Phase II and Phase III woodland succession that require more selective thinning. Seeding areas prior to or immediately after mastication would also be considered. Mastication would be used in conjunction with other methods like hand felling, seeding, prescribed fire, chaining, and feller buncher. Biomass from the mastication process would be left on-site to degrade naturally and the resulting wood chips would be spread out no more than 5 inches thick across the area.

Mechanical Whole Tree Thinning

Whole tree thinning would use a piece of machinery with an attachment that cuts the trees at the base, like a feller buncher. Trees thinned with this method would be either left on-site or removed from the site. Biomass utilization would occur in areas that are easily accessible by vehicles for fuelwood harvest. Similar to mastication, this method would be used in areas of Phase II and Phase III woodland succession that require more selective thinning treatments. Whole tree thinning would be used in conjunction with other methods like mastication, seeding, hand felling, prescribed fire and chaining. This method would be primarily used where access is conducive to biomass utilization.

Hand Felling and Piling

Hand felling would consist of cutting trees using chainsaws to selectively thin the treatment area. Hand felling would occur in the areas that exhibit lower tree density, Phase I or Phase II woodland succession, around spring sources and other sensitive areas or in areas where slope prevents access by heavy machinery. Hand felling would be used in areas where trees are establishing into sagebrush habitat. Larger pieces of biomass would be made available to the public for removal as biomass (fuelwood). Leftover slash may be lopped and scattered, chipped, removed from the site, or piled and burned. A prescribed fire burn plan would be completed and approved separately for burning piles associated with this project. Hand felling would be used in conduction with all other methods and may be used before and after other methods. In high

density areas (e.g., Phase II areas) thinned trees would be piled and later burned, scattered within the treatment unit or be made available for biomass as fuelwood and removed from the site. In areas of low tree density (e.g., Phase I), the cut material would be limbed and scattered or left next to the stump. Cut trees would be limbed to a height that allows greater sage-grouse movement through the area.

Prescribed Fire

Broadcast prescribed fire is a technique used to burn vegetation in place. Isolated north and east facing drainages and slopes identified within several project units may be treated by prescribed fire to create natural mosaic opening where there is continuous tree cover. These areas mainly consist of pinyon-juniper woodlands and sagebrush sites dominated by single leaf pinyon pine and/or Utah juniper trees. Prescribed fire operations would target approximately 3,557 acres of public land. An estimated 50% to 70% of the total prescribed fire allowable burn area would be targeted for burning operations. Ignition would be strategically timed to best reduce fuel hazards to acceptable levels and benefit ecological system health. A combination of ground and/or aerial ignition resources would be used to implement the prescribed burn. Ground firing resources would include drip torches and terra torch where applicable. Clean up and control would also be conducted with the use of drip torches and/or terra torch. Aerial application would be through the use of a helicopter equipped with a Plastic Sphere Dispenser (PSD) machine or helitorch. Safety, property, current and expected weather, topography (ingress/egress), and holding capabilities would determine the proper fire application. Control lines for prescribed fire would utilize natural barriers as much possible. In the event natural barriers cannot be utilized, tree and shrubs would be cut and removed along prescribed fire boundaries. Vegetation removed along the control line would be piled inside the prescribed fire boundary and burned during firing operations. In some cases, control lines would include scraping, blading, and/or digging to expose mineral soil. Prescribed burning would be conducted during times of year that would prevent hydrophobic soil formation to the greatest extent possible. An approved burn plan would be prepared prior to any ignition operations. The extent of the prescribed fire would be determined by management decisions according to burn plans. Plans would be designed and approved by qualified resource specialists on a project-by-project basis. Prior to implementing any broadcast prescribed burn in the project area, BLM would coordinate with NDOW so they could conduct a site visit during the appropriate time of year. No prescribed broadcast burning is proposed in areas where there is a high potential for cheatgrass, areas below 5,500 feet on north and east facing slopes or below 6,000 feet on west and south facing slopes.

Pile burning is a technique used to remove slash created from hand felling or other whole tree thinning. Piles would be burned when the ground is frozen and there is sufficient snow on the ground to prevent burning surrounding vegetation. Pile burning would require an approved prescribed fire burn plan before being implemented at the project site. Piles would either be created by hand piling slash in area of hand felling or by mechanized equipment dragging slash

to piles in areas of whole tree thinning. Number and height of piles would depend on density and size of trees being removed in area.

Seeding

Seeding would primarily occur in late Phase II and Phase III pinyon-juniper expansion areas and would be applied in treated areas that do not have an appropriate amount of grasses, forbs and shrubs present prior to or post treatment. This would mostly occur in areas where very dense tree cover has prevented adequate understory vegetation to grow or in areas where herbicide is applied to cheatgrass. Native seed would be the priority however, non-native seed would be used depending on availability of native seed, site characteristics, and risk of invasive species establishment. Seed could be applied by a number of methods or a combination of the following methods: hand broadcast seeding, aerial seeding, drill seeding or broadcast seeding with all-terrain vehicles (ATVs). Hand broadcast seeding would consist of people walking through the treatment area with portable seed spreaders. Aerial seeding would be completed with a helicopter using a large aerial broadcast seeder. Drill seeding would be completed by a tractor pulling a rangeland drill to apply and bury the seed directly into the soil. ATV seeding would consist of driving ATVs through the treatment area with broadcast seeders mounted to the ATV. In areas that would be chained or in some mastication areas, the seed would be aerially applied after the first pass of the chaining to help incorporate the seed into the soil. Seed dribblers may also be used on the bulldozers to press smaller seed onto the soil. Sagebrush and antelope bitterbrush seedlings may also be planted manually by hand. Species typically used in seed mixes for restoration projects similar to those proposed in this EA are listed in table below. The seed mix used during the project could differ depending on specific site characteristics and seed availability.

Species (N=native, I=introduced)
Snake River wheatgrass - N
Crested wheatgrass, Hycrest - I
Indian ricegrass, - N
Squirreltail, - N
Needle and Thread - N
Small Burnett - I
Blue Flax – N
Palmer’s Penstemon - N
Bluebunch wheatgrass - N
Eski Sanfoin - I
Canby's or Sandberg’s bluegrass – N
Antelope Bitterbrush - N

Invasive Species and Weed Control

Management of weeds would include best management practices for early detection and to prevent spread; and treatments to control current populations and any new weed populations

discovered during the life of the project. Treatments could include biological controls, targeted grazing, mechanical controls and herbicide. For biological controls only the release of U.S. Department of Agriculture (USDA) - Animal and Plant Health Inspection Service approved insects or pathogens would be used and would be accompanied by a BLM Biological Control Agent Release Proposal. Targeted grazing would only be used to suppress large patches of cheatgrass that are hindering successful recovery of desired plant species. Sheep, cattle, or goats may be used as long as the animals are intensely managed and removed when the targeted species is reduced to a height of two to three inches. Timing restrictions would apply when using targeted grazing to reduce impacts to desired plant species.

Treatments for weed control may include hand pulling, mowing, cutting using hand or chainsaw, and prescribed fire. Chemical treatments would be used to target cheatgrass or newly discovered noxious and invasive weeds within the vegetative treatments areas.

Any herbicide treatments would require a Pesticide Use Proposal (PUP) prior to treatment and a Pesticide Application Record (PAR) following implementation. Herbicides most likely to be used for treatment of noxious and invasive weeds before, during or after proposed treatments include: glyphosate and/or imazapic for cheatgrass; 2,4-D, dicamba, picloram for yellow star thistle; 2,4-D, dicamba, chlorsulfuron, metsulfuron, picloram, glyphosate for other thistles; 2,4-D, dicamba, clopyralid, picloram, aminopyralid for spotted knapweed; 2,4-D, chlorsulfuron, metsulfuron, imazapic for hoary cress; and 2,4-D, glyphosate for water hemlock.. Other herbicides that have similar mode of action as those above may be used if approved by BLM and are listed in the BLM Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (EIS) and Record of Decision (BLM 2007), the Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States Programmatic EIS and Record of Decision (BLM 2016). Surfactants appropriate to the herbicide and targeted plants that have been approved and described in the above listed EISs would be used. Depending on chemical, size of the area and acceptable amount of drift, applications of treatments could include backpack application, pack animal tank application, ATV/UTV tank application, truck or tractor tank application, and aerial application. All activities would follow the Standard Operating Procedures outlined in the Weeds Risk Assessment (Appendix B). Riparian resources along the border of the proposed treatment area would be buffered to avoid introduction of herbicide into water sources. Herbicide would be used according to label instructions. In addition, all Standard Operating Procedures (SOPs) listed in the BLM Programmatic EIS for Vegetation Treatments Using Herbicide (BLM 2007) and the Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States Programmatic EIS and Record of Decision (BLM 2016) would be followed.

Treatment Unit Descriptions

Specific units within the project area have been identified as areas targeted for treatment. The type of treatment within each unit varies depending on the successional phase of the existing vegetation and the desired range of conditions. Table 2.1 describes specific treatments for the project units. Primary vegetation communities is based on Biophysical Settings (BpS) from LANDFIRE (NIFTT 2009). All units described below would potentially be seeded and treated for non-native invasive species. Biomass in treated areas would be available for public purchase for fuelwood or other forestry products if such use would meet vegetation objectives. Treatment types selected for each unit are dependent on ecological state and succession. Woodland expansion into sagebrush sites in the project area is characterized using the model described by Miller et al., 2008. Phase I is an early stage with pinyon pine and juniper trees in an early establishment stage with shrubs still being a dominant component. Phase II is mid-succession with shrubs and trees co-dominating the landscape. Phase III is a late succession stage with trees dominating the landscape and shrubs are reduced or non-existent. Phase III generally lacks a healthy understory of shrubs, forbs and grasses. Photos 1 and 2 show examples of these characteristics from the Egan and Johnson Basins proposed project area.

Photo 1: Example of Phase I pinyon-juniper early successional stage, Unit 9.

Photo 2: Example of Phase III pinyon-juniper late successional stage, Unit 10. This plot has 32% pinyon-juniper cover and 509 trees/acre.

Table 2.1 Project Description

Unit Name, Number and Acres	BLM Acres	Private Acres	Primary Vegetation Communities	Specific Treatment Area Objectives/Comments*	Preferred Treatment Methods**
Project Treatment Areas	37,455	1,045			
Unit 1	3,068	---	Black Sagebrush Mtn Sagebrush Wyoming Big Sagebrush Pinyon/Juniper Mt Mahogany	Create mosaic openings, reduce fuel loading and enhance shrub, forb and grass composition within Phase II and III areas. Reduce tree cover in Phase I areas and along boundary with other treatments.	Double chaining with Ely chain and/or mastication and seeding of shrubs, forbs and grasses within Phase II and III. Treat ~1,990 acres of difficult to access North facing slopes with prescribed fire if Phase II. Hand cutting in Phase I areas and along edges of mechanical treatments.
Unit 2	2,166	---	Wyoming Big Sagebrush Mtn Sagebrush Black Sagebrush Pinyon/Juniper	Create mosaic openings, reduce fuel loading and enhance shrub, forb and grass composition within Phase II and III areas. Reduce tree cover in Phase I areas and along boundary with other treatments.	Double chaining with Ely chain and/or mastication and seeding of shrubs, forbs and grasses within Phase II and III. Hand cutting in Phase I areas and along edges of mechanical treatments. Treat ~727 acres of difficult to access North facing slopes with prescribed fire if Phase II.
Unit 3	2,413	---	Wyoming Big Sagebrush Mtn Sagebrush Black Sagebrush Pinyon/Juniper	Create mosaic openings, reduce fuel loading and enhance shrub, forb and grass composition within Phase II and III areas. Reduce tree cover in Phase I areas and along boundary with other treatments.	Double chaining with Ely chain and/or mastication and seeding of shrubs, forbs and grasses within Phase II and III. Hand cutting in Phase I areas and along edges of mechanical treatment. Treat ~840 acres of difficult to access north facing slopes with prescribed fire of Phase II.
Unit 4	1,108	---	Black Sagebrush Wyoming Big Sagebrush	Increase shrub, forb and grass composition. Reduce tree cover and create mosaic openings.	Masticate and/or mechanical treatment in Phase II areas. Hand thin in Phase I and along edges of mechanical treatment.

Unit Name, Number and Acres	BLM Acres	Private Acres	Primary Vegetation Communities	Specific Treatment Area Objectives/Comments*	Preferred Treatment Methods**
Unit 5	3,110	---	Black Sagebrush Wyoming Big Sagebrush Mtn Sagebrush Pinyon/Juniper	Create mosaic openings in pinyon-juniper. Remove trees from open sites and sagebrush dominated areas.	Masticate/mechanical and hand thin lower elevation areas of Phase I and II pinyon-juniper. Ely double chain Phase II and III areas.
Unit 6	1,531	---	Wyoming Big Sagebrush Mtn Sagebrush Pinyon/Juniper	Create mosaics in upper elevation sites and create habitat corridor for Greater sage-grouse. Steepness of terrain within Telegraph Canyon may limit treatment options.	Hand thin- lop/scatter.
Unit 7	958	---	Mtn Sagebrush Wyoming Big Sagebrush Black Sagebrush Pinyon/Juniper	Create mosaic openings in pinyon-juniper. Remove trees from open sites and sagebrush dominated areas.	Masticate and/or mechanical removal and hand thin in Phase I and Phase II areas.
Unit 8	1,184	---	Black Sagebrush Mtn Sagebrush Wyoming Big Sagebrush Pinyon/Juniper	Create mosaic openings in pinyon-Juniper sites. Clear trees from open sites in drainage bottoms and open slopes.	Hand thin and masticate/mechanical in Phase I and Phase II areas.
Unit 9	1,572	---	Black Sagebrush Mtn Sagebrush Wyoming Big Sagebrush Pinyon/Juniper	Remove establishing pinyon-juniper from open sites and sagebrush dominated areas. Increase shrub, forb and grass competition by removing trees.	Hand thin in less dense and open areas. Masticate and/or remove biomass by mechanical means in Phase II and area with denser pinyon-juniper.
Unit 10	2,801	---	Black Sagebrush Mtn Sagebrush Wyoming Big Sagebrush	Remove establishing pinyon-juniper from open sites and sagebrush dominated areas. Increase shrub, forb and grass competition by removing trees from Phase I and Phase II areas. Create mosaics openings in Phase 3 areas.	Changing Phase II and Phase III areas and upper slopes of boundary. Hand thin and mechanical thin lower areas and Phase I and II areas.

Unit Name, Number and Acres	BLM Acres	Private Acres	Primary Vegetation Communities	Specific Treatment Area Objectives/Comments*	Preferred Treatment Methods**
Unit 11	12,458	---	Black Sagebrush Wyoming Big Sagebrush Mtn Sagebrush Pinyon/Juniper White Fir	Create openings for SG migration corridors in deeper drainages from Telegraph and north end of unit. Remove pinyon-juniper from lower elevations and increase shrub, forb and grass competition by removing pinyon-juniper from Phase I and Phase II areas.	Hand Thin or mechanical thin southern and lower elevation areas. Lop and scatter and/or remove biomass from drainages to create open corridors. Masticate Phase I and Phase II areas at mid elevation to create openings.
Unit 12	1,618	---	Mtn Sagebrush Wyoming Big Sagebrush Pinyon/Juniper	Increase shrub, forb and grass composition in all Phase areas. Reduce tree cover in Phase I areas and along unit boundaries. Leave stringers and islands of pinyon-juniper.	Chain and/or masticate higher elevation areas. Hand thin or mechanical thin lower areas of the unit and in area of Phase I and Phase II.
Unit 13	255	---	Wyoming Big Sagebrush Mtn Sagebrush Pinyon/Juniper	Remove younger age class pinyon-juniper, leaving only larger mature trees.	Hand thin trees within the unit.
Unit 14	278	---	Black Sagebrush Mtn Sagebrush Mtn Mahogany Pinyon/Juniper	Remove younger age class pinyon-juniper trees, leaving only larger mature trees.	Hand thin pinyon-juniper within the unit
Unit 15	353	---	Black Sagebrush Wyoming Big Sagebrush	Remove pinyon-juniper from Phase I and II areas and establishment in sagebrush dominated areas in northern part of unit.	Hand Thinning in Phase I, possible mastication and/or mechanical removal in Phase II areas.
Unit 16	1,195	---	Black Sagebrush Mtn Sagebrush Mtn Mahogany Pinyon/Juniper	Remove younger age class pinyon-juniper, leaving older mature trees.	Hand thin and mechanical removal in Phase I and Phase II areas.
Unit 17	---	959	Mtn Sagebrush Wyoming Big Sagebrush Pinyon/Juniper	Reduce pinyon-juniper tree cover and open drainages, creating corridors for wildlife movement.	Lop/Scatter, hand thinning with chain saws.

Unit Name, Number and Acres	BLM Acres	Private Acres	Primary Vegetation Communities	Specific Treatment Area Objectives/Comments*	Preferred Treatment Methods**
Unit 18, 19	---	86	Black Sagebrush Mtn Sagebrush Wyoming Big Sagebrush	Create mosaic openings in pinyon-juniper. Remove trees from open sites and sagebrush dominated areas.	Masticate and hand thin lower elevation areas of Phase I and II pinyon-juniper.
Unit 20	252	---	Mtn Sagebrush Wyoming Big Sagebrush Pinyon/Juniper	Reduce tree cover in Phase I areas. Improve sage-grouse habitat and create wider corridor to allow for sage grouse movement between quality habitats.	Lop/Scatter. Steep terrain could limit ability to treat certain areas within this polygon as well as type of equipment used.
Unit 21	1,135	---	Black Sagebrush Wyoming Big Sagebrush Mtn Sagebrush	Maintenance treatment of the Nine-Mile Chaining project by removing some pinyon-juniper re-growth and establishment.	Lop/Scatter, hand thinning with chain saws.

* All areas would potentially be seeded and treated for non-native species. Biomass in treated areas would be available for public purchase for fuelwood. All units would be maintained with treatments identified in the Proposed Action dependent on need and funds available. In some areas biomass would be piled and burned.

** All treatment methods would be available in all units and is not limited to preferred treatment methods described above.

2.3 Design Features (General Measures)

Cultural Resources

Prior to implementation, a Cultural Needs Assessment would be completed for each proposed habitat restoration unit, with a detailed description of the specific location and proposed activities. A cultural resource specialist would determine the appropriate inventory and actions needed to protect cultural properties and areas of traditional religious or cultural importance in accordance with the most recent Nevada State Protocol Agreement between BLM and the Nevada State Historic Preservation Office (BLM 2014), and Nevada BLM's most recent Guidelines and Standards for Archaeological Inventory (BLM, 2012). For areas that include the Pony Express Trail Corridor, consultation would also include the BLM National Historic Trails (NHT) Lead for Nevada, and the NPS National Trails Intermountain Region.

Depending on level of surface disturbance, some treatment areas would be inventoried prior to treatment. Treatment activities would avoid historic properties eligible for listing in the National

Register of Historic Places. Avoidance and buffer areas (or non-treated areas) would be irregularly shaped and blended with the landscape. Within the two mile wide Pony Express (PX) Trail corridor, and viewshed of the corridor, tree-thinning activities would be designed and monitored in consultation with a qualified cultural resource specialist to create a natural mosaic. To protect the visual integrity of the trail system and preserve the existing character of the landscape (i.e., VRM Class II), treatments within the PX Trail Corridor and view shed would leave vegetation mosaics, including remnant areas of old growth woodland where they still exist. Treatments along the PX Corridor would be integrated into surrounding treatments and the natural environment, and restored to a condition similar to the historic environment of the PX Trail in 1860-1861. Treatments would follow direction in BLM Manual 6280, Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation.

Mineral Claims

A survey for mining claim markers in documented active claim sites would be conducted prior to implementing treatments that could potentially damage claim markers. All active mining claim marker locations and tag information would be recorded. Active mining claim markers or stakes would be avoided to the extent practical. Active mining claim markers that are destroyed by prescribed burning, thinning, or chaining operations would be re-staked using a legal mining claim marker. The re-staking of mining claim markers would occur in coordination with the existing mining claimants to ensure accurate, legal staking procedures that would minimize damage to claims. If any mining sites or dumps are discovered within the project area, operations would avoid these sites in order to minimize risk from potentially hazardous materials or mine features. Sites would also be reported to the Ely District Hazardous Materials Coordinator.

Overland Travel

No new roads would be constructed or maintained during project implementation. Overland travel with heavy equipment and vehicles would occur during implementation. Loading and unloading any equipment would occur on existing roads, when available, to minimize overland disturbance and impacts. If determined necessary, signs would be posted along roads within or adjacent to treatment units in regards to travel restrictions to assist in mitigating impacts from future cross country travel. Temporary roads or overland travel may be allowed for harvesting fuelwood by the public as part of implementation. Any temporary roads or discernable cross country travel routes would be rehabilitated by scattering vegetation or slash over the road and seeding after they are no longer needed.

Grazing Management

Coordination with the affected livestock permittees within the allotments being treated would be conducted prior to treatment occurring. Any livestock grazing closure for the purpose of the vegetation treatment would be done through a grazing decision or agreement process and would

occur prior to the treatment. Livestock grazing would resume immediately within treatment areas that exhibit at least 10 percent foliar cover of well-established key forage species. Seeded areas would be closed to livestock grazing for at least two growing seasons, and may be closed longer, until the following vegetation objectives have been met. A minimum of three plants that are forage species per square meter would be firmly rooted in the treated area. Key forage species are those plants that are perennial, native or introduced and have the ability to maintain ecosystem processes and provide forage for livestock and wildlife.

Monitoring

Progress towards meeting vegetation objectives would be measured from selected monitoring sites using the standard Assessment, Inventory, and Monitoring (AIM) protocols. AIM is a standard set of methods for monitoring project design and data collection. Supplemental methods would be added in order to monitor the Habitat Assessment Framework (HAF) indicators required for activities in greater sage-grouse habitat and to capture tree density data. Monitoring sites would be established prior to project implementation. Additional sites may be established following treatment completion. The project area would be inspected prior to the mechanical treatments to solidify those areas targeted for each specific treatment in order to achieve desired management objectives. The treatment areas would be monitored following project implementation to determine success toward meeting objectives. All monitoring methods would follow objectives consistent with those in the ARMPA for site scale habitat objectives outlined in Table 2–2 (Appendix E). The treatment areas would be inventoried for weeds and monitored to ensure noxious weed infestations are controlled. Noxious weed infestations would be reported to the Ely District Office Weed Coordinator in order to be evaluated and to determine treatment needed.

When an area is closed to livestock grazing, an interdisciplinary team would conduct a review of the resource monitoring data and objectives to recommend when livestock grazing should be allowed to occur within the project area. If environmental factors prevent attainment of resource management objectives following the mandatory rest period, an interdisciplinary team would review resource monitoring data and recommend an appropriate grazing regime with the permittee. Monitoring locations would be measured the second year, and as needed thereafter during the livestock grazing closure period. The livestock closure period may be extended until vegetation objectives have been met, after which livestock grazing would resume as permitted.

Cadastral Markers

In accordance with IM-NV-2007-003, surveys would be conducted for cadastral monuments and markers prior to any surface disturbing activities and, if they are disturbed, they would be restored after treatment where possible.

Non-Native and Invasive Species

Stipulations identified in the Weed Risk Assessment (Appendix B), and the Ely District Integrated Weed Management Plan and Environmental Assessment (DOI-BLM-NV-L000-2009-0010-EA) would be carried out at the time of implementation within each treatment unit. Subsequent treatments or changes in treatment methods would require an additional weed risk assessment and those stipulations would also be implemented.

Greater sage-grouse

In accordance with Ely District RMP, as amended by the ARMPA, September 2015; Required Design Features (RDF) that apply to the project scope would be included or recommended in project implementation.

RDFs establish the minimum specifications for certain activities to help mitigate adverse impacts. Not all RDFs listed in the ARMPA apply to the proposed project. Greater sage-grouse seasonal habitat data for the proposed project area was requested through Nevada Department of Wildlife (NDOW) and recommendations for each habitat would be applied to proposed project design during implementation. Seasonal greater sage-grouse use restrictions are described in Table 2.2 below. Seasonal restrictions are from current guidelines identified in the ARMPA and are to be applied during specified periods. This proposed project is a habitat improvement project designed to increase and improve greater sage-grouse habitat within Egan and Johnson Basins. Seasonal restrictions would be requested to be modified to allow treatment activities to occur during periods of late brood-rearing (between August 1 and September 15) and winter seasonal habitat dates (between November 1 and December 31).

Table 2.2. Greater Sage-grouse Habitat Type and Seasonal Use

Seasonal Habitat Type	Seasonal Use
Lek	March 1- May 15
Nesting and Brood Rearing	May 15- September 15
Winter	November 1- February 29

Migratory Birds

In general, treatments other than prescribed fire would be completed in the summer, fall and winter, outside migratory bird and raptor nesting season (generally April 1 to July 31). If areas are to be treated during nesting season, areas would be surveyed for nest locations and nest sites would be avoided with an appropriate buffer. Active raptor nests would be avoided with the appropriate buffer during treatment. Through coordination with NDOW inactive, older raptor nests would be identified and potentially left for future raptor use. If a raptor nest site is within greater sage-grouse habitat, the tree housing the nest may be removed, after consultation with NDOW.

Pygmy Rabbit

Ground disturbing activities and prescribed fire would occur outside of the pygmy rabbit breeding season, January 15 through June 30, in areas that are deemed as active pygmy rabbit habitat by the corresponding land management agency biologist. Pre-treatment surveys would be conducted by a qualified biologist in potential pygmy rabbit habitat to determine presence and location of any pygmy rabbit burrows or colonies. The colonies would be flagged and avoided.

2.4 Description of Alternatives Analyzed in Detail

No Action Alternative

The No Action Alternative is the current management situation. Under the No Action Alternative no treatments to change the current vegetation would be conducted in the Egan or Johnson Basin project area and the current vegetation communities would remain in a departed state of condition class and would not be within a historic range of variability.

2.5 Alternatives Considered but Eliminated from Detailed Analysis

Native Seed Only Treatment Alternative

Under this alternative, all actions identified in the Proposed Action would remain the same except only native seed would be used in treatment seed mixes. The alternative was dropped from further analysis as due to the potential lack of available native seed and the costs associated with only native seed mixes. The Proposed Action refers to a preference for native seed but allows for non-native when it would meet objectives.

No Mechanical or Seeding Treatment Alternative

This alternative was proposed during the public comment period for the Preliminary EA. Under this alternative, hand cutting would be the only treatment tool used. A “let burn” policy would be implemented on wildfires occurring in the area, and no treatments would be conducted within the visual landscape of the Pony Express Trail.

Limiting treatments to hand thinning only would restrict treatments to Phase I areas. Treating Phase II and Phase III areas with hand cutting only would leave dense lateral fuel loading on the ground. Understory species germination and establishment could be limited in these areas, because existing understory is absent. Letting wildfires burn in Phase II and III areas could destroy large areas, causing considerable impacts to the landscape. There would be no treatments available to suppress cheatgrass if necessary. This alternative was dropped from further analysis, because it does not meet Purpose and Need of the project.

Chapter 3 Affected Environment and Environmental Effects

3.1 Introduction

The proposed project area occurs within White Pine County, and is located approximately 5 miles west and southwest of Cherry Creek, Nevada and approximately 50 miles northwest of Ely, Nevada. The area is described as including Egan Basin, Johnson Springs Basin, Cherry Creek Range and North Egan Range. More specific topographic features in the area are Flint Canyon, Carson Canyon, Ninemile Summit and Basin, Clonch Canyon, Black Canyon, Egan Canyon, Telegraph Canyon, Cocomongo Mountain and sections of Butte Valley. The proposed project area is located within the Butte, Egan Basin and Steptoe B Watersheds. The proposed project area is mostly located on the mid to upper benches with some locations in the open sagebrush flats where pinyon-juniper establishment is early, Phase I. Elevations of the project site range from approximately 6,200 feet to 8,300 feet and slopes range from 5 to 30 percent. Annual average precipitation in the project area ranges from 8 to 14 inches.

The portion identified within Egan Basin encompasses approximately 15,800 acres of public (14,755 acres) and private land (1,045 acres). The Johnson Basin, Flint Canyon, Carson Canyon and Cherry Creek Summit portion encompasses approximately 6,868 acres of public land. The south Nine Mile Summit area encompasses approximately 11,880 acres of public land. There are two small units identified on the west side of the Cherry Creek Range which encompass approximately 533 acres. The project area treatment units encompasses approximately 38,500 acres.

3.2 Resources/Concerns Considered for Analysis

The following items have been evaluated for the potential of significant impacts to occur, either directly, indirectly, or cumulatively, due to implementation of the Proposed Action and No Action Alternative. Consideration of some of these items is to ensure compliance with laws, statutes or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general and to the Ely BLM in particular, or were identified as issues during scoping.

A detailed analysis is presented below for resources which have been labeled “yes” in Table 3.1 as requiring further analysis. These resources were identified as issues during scoping, during the BLM resource specialist internal review period, or require detailed analysis according to law, statute, Executive Orders, or BLM policy. These resources are, Fish and Wildlife, Forest Health and Resources, Rangeland Resources, Health and Livestock Grazing, Special Status Species, Soil Resources, Vegetative Resources, Visual Resources, Lands with Wilderness Characteristics, and Wetlands/Riparian Zones.

Table 3.1 Resources Considered for Analysis

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Air Quality	No	White Pine County, Nevada is designated as attaining Air Quality standards for lead and attainment/unclassifiable for the other six criteria pollutants monitored in Nevada (sulphur dioxide, carbon monoxide, ozone, particulate matter <2.5 micrometers, particulate matter <10 micrometers, and nitrogen dioxide). The Proposed Action and No Action Alternative would not affect the designation of air quality standards in White Pine County. Detailed analysis is not necessary.
Areas of Critical Environmental Concern (ACEC)	No	No ACEC's occur within or adjacent to proposed project area.
Cultural and Historic Resource Values	No	Inventory needs, buffers and avoidance areas associated with each specific proposed treatment would be determined by following the Protocol Agreement between BLM and the State Historic Preservation Office. All Historic Properties that could potentially be affected through implementation of the project would be avoided. Cultural resources would be avoided through design features and avoidance using appropriate buffer areas. Impacts to the Pony Express Trail Corridor are analyzed under Visual Resources.
Environmental Justice	No	The community of Cherry Creek, Nevada is located approximately 5 miles northeast of project site. Impacts to the community would be negligible.
Fish and Wildlife	Yes	Elk *(Cervus canadensis)* and mule deer *(Odocoileus hemionus)* crucial summer habitat is present. Effects from the actions to wildlife habitat are expected and analyzed in EA.
Floodplains	No	Resource not present.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Forest Health and Resources	Yes	Direct or indirect effects to Forest Resources and Health would be expected. The effects from the Proposed Action to Forest Health are consistent with the need for the action and analyzed in the EA.
Lands and Realty	No	There are no conflicting Right-of-Ways within proposed project area.
Migratory Birds	No	Implementation is not anticipated during the migratory bird nesting period, from April 1 to July 31. If any of the proposed activities are necessary during that period, a survey of the areas to be disturbed would be completed prior to construction by a wildlife biologist in order to identify active nests so that they may be avoided. A list of migratory bird species that may be present in the area is included in Appendix C.
Mineral Resources	No	Some of the treatment areas are within the Limo-Butte exploration boundary. Currently there are no mineral operations occurring within the proposed project area. Active mine claims would be avoided or re-staked if impacted.
Native American Religious Concerns and other concerns	No	No properties of traditional religious or cultural importance have been identified by Tribes within or adjacent to the proposed project area. BLM would continue ongoing consultation with Native American Tribes to identify and avoid properties of traditional religious or cultural importance.
Noxious and Invasive Weed Management	No	A Weed Risk Assessment (Appendix B) has been completed for this project. The Design Features of the Proposed Action and weed stipulations would help minimize the spread of weeds. No further analysis is necessary.
Paleontological Resources	No	No paleontological resources have been identified resources within this Area of Potential Effects (APE).
Prime and Unique Farmlands	No	No Prime or Unique Farmland occurs within or adjacent to the proposed project area. No detailed analysis is necessary.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Rangeland Resources, Health and Livestock Grazing	Yes	The Proposed Action may have direct or indirect effects to rangeland health due to the change in livestock use as well as change in vegetation composition. There would be no changes in livestock use due to the direct effects of the Proposed Action. The proposed project area to be treated would be rested from livestock grazing until vegetation objectives are met. Effects from project are analyzed in the EA.
Recreation Uses	No	The Proposed Action would have a negligible effect to recreation resources. Recreation resources would not be closed. Hunting pressure could increase after completion of the project.
Special Status Animal Species, other than those listed or proposed by the FWS as Threatened or Endangered	Yes	General and Priority greater sage-grouse habitat is present. Special status bird species such as the golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), and loggerhead shrike (*Lanius ludovicianus*) may be present within or near the project area. Adherence to the minimization measure in the Migratory Bird section of the Proposed Action, would avoid impacts to most Special Status avian species. Impacts analyzed further in the EA.
Special Status Plant Species, other than those listed or proposed by the FWS as Threatened or Endangered	No	Resource not known to be present.
Soil Resources	Yes	Direct effects to soils during implementation are expected and analyzed further in the EA.
Threatened or Endangered Species or critical habitat.	No	There are no Threatened or Endangered species listed or proposed for listing known to occur within the proposed project area.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Vegetative Resources	Yes	Direct impacts to vegetation are expected and analyzed further in the EA.
Visual Resources	Yes	The project area falls within all VRM Classes, including the Pony Express Corridor. The Pony Express Corridor is being evaluated for effects to visual resource management (VRM).
Wastes, Hazardous or Solid	No	The Proposed Action or alternatives would not produce hazardous or solid waste.
Water Resources	No	The Proposed Action is not expected to lead to a measurable change in the surface and subsurface water sources, water rights, quantity, and quality of water that occurs in the analysis area.
Wilderness	No	No Wilderness occurs within or adjacent to the proposed project area. Goshute Canyon is the closest BLM Wilderness Area. It is one mile northeast of the project area. No further analysis is necessary.
Lands with Wilderness Characteristics	Yes	The 1979/1980 Initial Wilderness Inventory for the proposed project area found the unit to be lacking wilderness character. In 2011, the Ely District began updating the land with wilderness characteristics. The project area overlaps a portion of one unit found to possess LWC (Appendix D), so effects are analyzed further in this EA.
Wetlands/Riparian Zones	Yes	Direct or indirect impacts to riparian areas are expected, and analyzed further in the EA.
Wild Horses	No	Egan Basin project area is within the Triple B Herd Management Area (HMA). Wild horses would be temporarily disturbed during vegetation treatment activities that occur within this area. The treatment areas cover 37,500 acres within the Triple B HMA. 65% of 37,500 is 24,375 acres. The Triple B HMA is 1, 232,624 acres. The treatment area affects 2% of the Triple B HMA. No direct or indirect effects would occur to wild horses.

Resource/Concern Considered	Issue(s) Analyzed	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Wild and Scenic Rivers	No	No Wild and Scenic Rivers occur within or adjacent to the proposed project area.
Climate Change	No	Creating diverse plant populations would create vegetation communities that could adapt and respond to climate changes. The project would result in carbon sequestration as a result of additional vegetation productivity. This EA is tiered to the analysis described in the Nevada and Northeastern California Greater Sage-Grouse Proposed Land Use Plan Amendment and Final EIS (2015). Impacts from this project would be no more than those disclosed in the above listed EIS.

3.3 Fish and Wildlife

3.3.1 Affected Environment

The project area is within year-round, summer and crucial summer habitat for Rocky Mountain elk and mule deer as well as potential bighorn sheep habitat. A small portion of the most southern treatment unit (Unit 11) is identified as pronghorn winter range. The area also provides habitat for coyotes, rabbits, badgers, bobcats, fox, chukar, sagebrush obligate birds, and other small mammals and reptiles. There is no fish habitat within the project area.

3.3.2 Direct and Indirect Effects of Proposed Action

The Proposed Action would temporarily displace wildlife while treatment is occurring and mortality of less mobile animals may occur by heavy equipment; however there is adjacent suitable habitat to provide cover and protection. After project completion, big game and other wildlife would likely return to the area. In the long term, the removal of pinyon and juniper trees would create suitable conditions for most wildlife species by increasing forage and browse species as well as maintaining cover (Davies et al., 2011; Bates et al., 2005; Monsen et al., 2004). Islands and stringers of trees left after treatment would provide security and thermal cover for wildlife adjacent to open forage areas, which most wildlife need for appropriate habitat structure. Increasing forage in the area would reduce conflicts among wildlife, wild horses and livestock.

3.3.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, wildlife habitat would remain in its current condition; however, the available forage may be reduced through the continued departure from FRCC 1 (Davies et al., 2011; Pyke, 2011; Miller and Tausch, 2001). Wildlife forage habitat would continue to decline and become reduced over time. A reduction in forage could create conflicts and pressure among wildlife, wild horses and livestock, which could stress some wildlife species.

3.4 Forest Health and Resources

3.4.1 Affected Environment

Forest and woodlands in the Egan and Johnson Basins area begins at the transition from rangelands in the valley bottoms and bench areas. Single leaf pinyon pine, Utah juniper and curlleaf mountain mahogany are present in the lower elevations. Densities of pinyon-juniper woodlands are higher than would be expected with a more natural disturbance regime. The high tree densities have increased the departure from reference conditions. Proposed project treatments are generally in the rangeland and transition areas, compared to the woodland/forested areas. At higher elevations the pinyon-juniper woodland transitions into forest stands consisting of limber pine, white fir and quaking aspen. Historically, fire has played a role in providing natural disturbance within the ecosystem. Fire exclusion and suppression has occurred

throughout the area since Europeans arrived. The exclusion of fire has affected the volume and composition of vegetation and woodlands in the proposed project area (Miller et al., 2008). A majority of the landscape can be characterized as mature and decadent sagebrush shrubs and dense stands of pinyon-juniper trees. Native herbaceous understory of grasses and forbs has decreased in abundance and in some places is almost non-existent.

Stand density, Stand Density Index (SDI) and canopy cover are methods of evaluating stand health and competition, both amongst the tree species present as well as understory species. Stand density is the number of trees per unit area and can give a visual perspective of the amount of trees and competition occurring within a stand. Stand Density Index is an index of competitive interaction. The maximum SDI varies for each tree species and is measured at a given reference diameter, for a pinyon-juniper woodland the maximum is 415. At 25% of maximum SDI, trees begin competing with each other and begin to out-compete understory species. At 35% of maximum SDI, trees fully occupy the site. At higher densities, competition between trees either results in reduced growth and vigor on individual trees or may result in competitive stress and tree mortality, perhaps due in part to secondary agents such as insects that are attracted to stressed trees (Page, 2008). Canopy cover is the proportion of ground that is covered by vegetative canopies. This is useful in determining the amount of light and precipitation that may be reaching the ground. It also can be an indicator of overstory and understory competition as well as potential soil erosion issues. Increasing tree canopy cover has been shown to reduce shrub and herbaceous understory (Davies et al., 2011; personal field observations). Currently, the project units exhibit an average density of 1,406 trees per acre, a SDI of 383 (92% of maximum), an average volume of 888 cubic feet per acre and a canopy cover of 58%. The understory species within the stands are almost non-existent.

3.4.2 Direct and Indirect Effects of Proposed Action

The Proposed Action would remove large areas of trees within the sagebrush and other shrub sites as well as thin tree density within the selected woodland sites while leaving small patches, stringers and large “islands” of untreated areas within the treated areas. Currently, there are approximately 26,000 acres that are within the project units which have trees established on them. This action could remove approximately 50% of the trees within the treatment units or approximately 13,000 acres of trees, which equates to approximately 11.5 million cubic feet or approximately 90,000 cords of volume and approximately 153,000 dry tons of biomass. The action would allow remaining trees within the thinned areas appropriate space to reduce competitive interactions and increase tree health and vigor. Thinning and removing trees would also reduce fire behavior and the spread of fire and bring the area closer to FRCC 1. The action would also allow important understory species to establish, creating overall ecological resiliency and health. Another possible effect from thinning trees would be an increase in pinyon pine nut production. Other effects would likely include those described in the Rangeland Resources and Health and Vegetative Resources sections.

3.4.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative no trees would be thinned or removed from the project area. The stand density would likely continue to increase and forest health would likely continue to decrease (Davies et al. 2011; Pyke, 2011; Miller and Tausch, 2001). Fire behavior during wildfire would be conducive to large scale wildfires, which could burn large portions of the forest and woodland areas, and could be difficult to rehabilitate to a resilient community.

3.5 Rangeland Resources, Health and Livestock Grazing

3.5.1 Affected Environment

The majority of the proposed project area is meeting the Upland Sites and the Habitat Rangeland Health Standards but is lacking in native herbaceous grass and forb cover (BLM 2008b, BLM 2010), which means portions of the area are departed from the reference conditions. Portions of the site may not be reaching the upland site standards due to the absence or limited occurrence of grass and forb species.

The proposed project is within the Cherry Creek and Medicine Butte grazing allotments. Currently, there are four grazing permits which authorize cattle grazing within the native portions of the Cherry Creek allotment. One permit authorizes sheep and cattle grazing within the Medicine Butte allotment. The proposed project treatment units within Egan Basin receive very little to no grazing use due to the lack of water, high density of trees and lack of forage. The treatment unit on Cherry Creek Summit receives occasional grazing use by cattle and can be described as slight to light use. This area also lacks a reliable water source. The western edge of the Flint and Carlson Canyon unit receives some use by cattle and can be described as light use. The reminder of this unit receives no use due to the high density of trees (BLM 2008b, BLM 2010).

3.5.2 Direct and Indirect Effects of Proposed Action

The short-term direct effects of the Proposed Action would temporarily close livestock grazing within the treated area until the desired species are established and vegetation objectives have been met. Livestock would be expected to use other areas of the allotments during closure of treatment areas or be removed from the allotments. Closures would be coordinated with the grazing permitee. Based on current research and field observations of similar treatments within the local area, the long term effects of the Proposed Action would be expected to shift the current plant community from a state with little understory to a more desired state and ecological condition, with more native perennial grasses and forbs as well as a healthy perennial shrub component. This would also make progress toward achieving the rangeland health standards by providing a more diverse vegetative community of perennial plants that provide for soil stability, hydrologic function, wildlife habitat and ecological resiliency (Davies et al., 2011; Bates et al., 2005; Monsen et al., 2004). This would also likely increase areas with available forage that could

be used by livestock, wildlife and wild horses. This would reduce competition among wildlife and livestock and wild horses as more foraging areas would be available for use.

3.5.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative grazing would continue as authorized within the area. Species composition would remain the same as they are currently and could continue to be reduced through the continued departure from the reference condition. The available amount of forage would also remain the same or slowly decrease in the long-term as trees continue to expand into the shrub/grass sites (Davies et al., 2011; Pyke, 2011; Miller and Tausch, 2001). Competition with wildlife and livestock and wildhorses may increase as forage declines. Future reductions in permitted uses and wild horse management levels may be necessary as understory species diminish.

3.6 Special Status Animal Species

3.6.1 Affected Environment

Greater Sage-grouse

The project area occurs adjacent to nesting, brood rearing and winter greater sage-grouse habitat and has been identified as general and priority habitat for greater sage-grouse. The seasonal habitat was mapped by NDOW (March 2016) and it was determined that there are nine active leks and three pending leks within a four mile buffer of the proposed project area. Telemetry data, as well as field observations, indicated that greater sage-grouse use the area year round. Greater sage-grouse habitat classification and seasonal greater sage-grouse habitat maps can be found in Appendix A (Maps 10-13). According to the seasonal habitat mapping, within a four mile buffer area there are 161,143 acres of nesting habitat; 155,788 acres of winter habitat; 158,145 acres of brood rearing habitat and 1,483 acres of riparian habitat. The following table details the number of acres of each habitat type within the four mile buffer and within the proposed project boundaries.

Table 3.2 Greater sage-grouse habitat type and targeted acres

Habitat Type	Total Acres in 4 Mile Buffer of Proposed Project Area	Number of Acres Targeted for Treatment in Proposed Project Boundaries*
Nesting	161,143	23,800
Winter	155,788	25,697
Brood Rearing	158,145	26,698
Riparian	1,483	138

*Habitat type within targeted treatment areas overlap.

The proposed project area is located within the Butte/Buck/White Pine Population Management Unit (PMU). The table below lists the nine active leks, the lek count from 2012 and 2014, and the ten year average count. The most recent data, available from 2014 shows that for eight of the nine active leks, the greater sage-grouse male bird count was either at or below the ten year average for that lek. The exception is the Log Canyon N lek, which recorded fourteen birds in 2014 while the ten year average is ten.

Lek Name	2012 Lek Count Numbers	2014 Lek Count Numbers	10 Year Average taken from data from 2005-2014
Paris Creek	6	7	20
Egan Basin SW	5	0	6
Log Canyon N	11	14	10
Black Sage	19	30	32
Gold Butte N	8	N/A*	8
Westside Spring Bench	5	2	7
Cherry Creek S	7	0	9
Borchert Spring N	10	13	13
Sevenmile	23	N/A*	23

*N/A= no data collected that year.

Pygmy Rabbit

The pygmy rabbit (*Brachylagus idahoensis*) is a sagebrush obligate species. The pygmy rabbit is currently designated as a federal species of concern but has not been warranted for listing. Pygmy rabbits prefer areas of tall, dense sagebrush growing in deep soils which are friable and suitable for digging burrows and is often found along washes or drainages (Larrucea and Brussard, 2008). Isolated portions of the project area do exhibit the preferred habitat for the pygmy rabbit. Larrucea and Brussard (2008) found current populations of pygmy rabbits throughout all of the species' historic range in Nevada and that the current distribution of active sites in Nevada is similar to the historical distribution. One individual or population was observed in 2005 at a location outside the proposed project treatment area.

Raptors

Numerous BLM sensitive raptors are known to utilize the project area including ferruginous hawks, golden eagle, and northern goshawk. The most common of these to occur in the area is the ferruginous hawk, which in Nevada prefers open, rolling sagebrush near the pinyon-juniper interface. Their favored prey is rabbits, but they also are known to take other small rodents and occasionally birds and reptiles. The golden eagle typically constructs more than one nest in its territory that it would return to over numerous years. The golden eagle is a year-round resident of Nevada. The northern goshawk forages in open sagebrush adjacent to riparian aspen stands. Nests are generally constructed in the largest tress of dense, large tracts of mature or old growth aspen stands.

3.6.2 Direct and Indirect Effects of Proposed Action

The Proposed Action may temporarily displace special status species while treatment is occurring. The vegetation treatments are designed to improve the sagebrush vegetative community conditions and habitat, particularly for the shrub and herbaceous understory. These changes should benefit greater sage-grouse populations within the project area. Based on the targeted treatment areas, most pygmy rabbit habitat would be avoided, since most treatments would occur on benches. No direct impacts would occur to nesting raptors because active nests would be avoided during treatments. Inactive ferruginous hawk nests would be evaluated to determine if they should remain for potential nesting opportunities. In the long term, the removal of pinyon pine and juniper trees would increase and improve sagebrush habitat by increasing grass, forb and shrub cover (Davies et al., 2011; Bates et al., 2005; Monsen et al., 2004), benefiting numerous sagebrush obligate species such as greater sage-grouse, pygmy rabbits, Brewer's sparrow, sage thrasher, and ferruginous hawk. A diversity of vegetation could expand the area being used by sage-grouse, which could improve populations at leks.

3.6.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, special status species would remain unaffected in the short term. The continued departure from FRCC 1 would reduce the available habitat for the greater sage-grouse and other special status species (Davies et al., 2011; Pyke, 2011; Miller and Tausch, 2001). Species that rely on shrub communities would reduce as tree densities increase while tree dependent wildlife species would increase with increasing tree densities.

3.7 Soil Resources

3.7.1 Affected Environment

The soils within the proposed project units are generally soil types found on mountain and fan remnants. Characteristics of these soils include very gravelly loam, gravely loam, extremely gravely sandy loam, and very gravely silt loam. In all these soil types the depth to the water table

is more than 80 inches and soils are characterized as well drained. These characteristics provide a stabilizing effect on surface erosion conditions and help resist compaction. Permeability is moderate, the soils are generally well-drained, and available water holding capacity ranges from very low to moderate. The current soil conditions appear to be stable with no signs of excessive erosion or compaction.

Soil was surveyed using the web soil survey online mapping tool (Soil Survey Staff, 2016). The most predominant soils found in the proposed project treatment area include:

- Urmafot-Bobs-Palinor association
- Pookaloo-Cavehill-Rock outcrop association
- Bobs very gravelly loam, 2 to 8 percent slopes
- Palinor very gravelly loam, 2 to 15 percent slopes
- Pookaloo-Cavehill-Hyzen association
- Pookaloo-Hyzen-Mijoysee association
- Cassiro association
- Pioche-McIvey-Birchcreek association
- Pyrat-Tulase association
- Yody-Fax association

3.7.2 Direct and Indirect Effects

The mechanical equipment would disturb soils by directly compacting and displacing surface horizons, which could lead to an increased risk of wind and water erosion. Soil textures throughout the treatment areas are not generally prone to compaction given their coarse, gravelly to rocky characteristics. Soil compaction is not expected to be measurably altered as a result of the Proposed Action and would be expected to recover over the course of one to two years.

Fire could leave areas of hydrophobic soil if burned severely. Large slash piles may exhibit small areas of hydrophobic soil underneath and adjacent to the piles due to high temperatures generated while burning. The potential for such effects is minor due to timing and snow that would be onsite. Hydrophobicity would be limited spatially and temporally, and could provide site characteristics conducive to cheatgrass establishment.

Use of chemicals to treat vegetation would not directly affect soils. Loss of ground cover vegetation may affect soil retention or soil stability in the short term or at least until perennial understory grasses, forbs and shrubs establish, which is expected to be one to two years.

The treatments would leave woody material on the surface of the soil, which would help protect and stabilize the surface soils and would also provide nutrients from decomposition within the soil. The chained areas would provide cover with downed trees, and mulch would provide soil protection in mastication areas. Studies have shown that tree harvesting can increase soil water content but the effects diminish over the following four years (USFS 1985). A recent snow water

study showed that treatment of Phase I and Phase II sagebrush sites increased water available for shrubs and perennial plants. Treatments in Phase III areas increased available water but ran the risk of invasion by non-native annuals, like cheatgrass, that can take advantage of the lack of competition from native plants (Kormos et al, 2017). It is expected that the efficacy of chemical treatments across landscape settings would not lead to increased potential for soil erosion or soil loss. Chemical treatment of target species would leave sufficient ground cover of non-target vegetation to retain soil resources. The removal of the trees may also improve soil retention and hydrological function over the long term on the site by allowing the herbaceous and shrub layers to re-establish (Pierson et al., 2007; Bates et al., 2005).

3.7.3 Direct and Indirect Effects of No Action Alternative

The No Action Alternative would result in no action-related effects to soil resources. There could be a long-term effect to soil productivity as shrub-grassland dominated systems change to dense tree dominated systems. In other words, there could be a change in the timing and processes involved in the way nutrients and organic matter enter the soils; finer vegetation potentially changing to coarser vegetation or shorter nutrient cycling times versus potentially longer times. Interspaces among trees would be bare, compared to a shrub-grassland community that would be filled with grasses and forbs. Erosion potential may increase across the area as understory plant resources continue to decline.

3.8 Vegetative Resources

3.8.1 Affected Environment

There are several vegetation communities within the proposed project area. These include Great Basin Pinyon-Juniper Woodland, Great Basin Xeric Mixed Sagebrush Shrubland, Intermountain Basins Big Sagebrush Shrubland, Intermountain Basins Curleaf Mountain Mahogany Woodland and Shrubland, and Inter-mountain Basins Montane Sagebrush Steppe. Undesirable non-native annual species such as cheatgrass occur within the project area. Pinyon-juniper woodland has become established in sagebrush sites within the proposed project area. Historically, these areas were composed of native shrubs, bunchgrasses and forbs but a lack of disturbance has resulted in grass and forbs that occur at levels below ecological site potential. The expansion of pinyon-juniper woodland and drought related impacts have reduced the overall health, vigor, recruitment and production of grass and shrub species and disrupted the desired plant succession. There are varying proportions of woodland establishment phases within the proposed project area.

Dominate vegetation types within the proposed project area was described using the Biophysical Setting (BpS) and succession class layers from LANDFIRE (LANDFIRE, 2013). BpS is vegetation that would have been dominate on the landscape prior to Euro-American settlement and is based on current biophysical environment and an estimation of the historical disturbance regime. BpS functions as a potential baseline to compare reference or historical conditions to current conditions (Barrett et al., 2010). Succession class is a characterization of the current

vegetation conditions for successional stages within each BpS. Successional class also describes uncharacteristic stages, like exotic species, that would not occur within the variability of a BpS. Successional stage descriptions can be found in the FRCC handbook (Barrett et al., 2010), and are described in Table 3.3, Successional Class Descriptions. Described in Table 3.4 below are the BpS and succession classes within the proposed project treatment area. The five major BpS vegetation types found within the proposed project area are described below. Further information about BpS community type descriptions can be found on the LANDFIRE website (http://www.landfire.gov/index.php).

Table 3.3 Successional Class Descriptions

Succession Class Code	Succession Class Description	Forests and Woodlands	Shrublands and Grasslands
A	Early-seral, post replacement	Single layer; fire response shrub, graminoids, and forbs; typically less than 10 percent tree canopy cover; standing dead and down	Fire response forbs; resprouting shrubs; re-sprouting graminoids
B	Mid-seral, closed canopy	One to two upper layer size classes; greater than 35 percent canopy cover (crown closure estimate); standing dead & down; litter/duff	Upper layer shrubs or grasses; less than 15 percent canopy cover (line intercept)
C	Mid-seral, open canopy	One size class in upper layer; less than 35 percent canopy cover; fire-adapted understory; scattered standing dead and down	Upper layer shrubs or grasses; greater than 15 percent canopy cover shrubs
D	Late-seral, closed canopy	Single upper canopy tree layer; one to three size classes in upper layer; less than 35 percent canopy cover; fire-adapted understory; scattered standing dead and down	Upper layer shrubs or grasses; less than 15 percent canopy cover
E	Characteristic; late-seral, closed canopy	Multiple upper canopy tree layers; multiple size classes; greater than 35 percent canopy cover; shade-tolerant understory; litter/duff; standing dead and down	Upper layer shrubs or grasses; greater than 15 percent canopy cover shrubs
UN	Uncharacteristic native vegetation cover or structure or composition	Example: conifer established in shrublands	
UE	Uncharacteristic exotic vegetation	Example: cheatgrass dominated community	

Table 3.4 Biophysical Settings and Succession Classes in the Proposed Project Area

Biophysical Setting	Succession Class (acres)							Total Acres
	A	B	C	D	E	UN	UE	
Great Basin Pinyon-Juniper Woodland	0	20	95	96	4637	0	0	4848
Great Basin Xeric Mixed Sagebrush Shrubland	32	6571	776	6430	N/A	3398	174	17381
Inter-Mountain Basins Big Sagebrush Shrubland	32	5	1039	271	3218	3247	22	7834
Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland and Shrubland	35	726	625	10	8	0	0	1403
Inter-Mountain Basins Montane Sagebrush Steppe	9	0	325	2170	2923	0	210	5636

Description of Biophysical Settings Vegetation Types

Great Basin Pinyon-Juniper Woodland

The Great Basin Pinyon-Juniper vegetation type occurs on dry slopes and ridges between 5,250 and 8,530 feet in elevation. This woodland type is dominated by single leaf pinyon pine and Utah juniper, with these species either co-dominating the woodland or occurring as a pure or nearly pure stand. Species commonly associated with this vegetation system includes curl-leaf mountain mahogany, sagebrush, and various grasses and forbs.

Great Basin Xeric Mixed Sagebrush Shrubland

This system can be found on a variety of landforms including mountain slopes, alluvial fans, piedmont, plains, basin floors and rolling hills and typically occurs between 3,280 and 8,530 feet elevation. Soils associated with this type are shallow and rocky. Vegetation is described as mostly black sage and low sagebrush and can occur with Wyoming big sagebrush and basin big sagebrush. There is a potential for pinyon-juniper establishment in this type. Other associated species include rabbitbrush (*Chrysothamnus sp.*), shadscale (*Atriplex confertifolia*), horsebrush (*Tetradymia sp.*) and spiny hopsage (*Grayia spinosa*). Common associated grasses include Indian ricegrass (*Achnatherum hymenoides*), desert needlegrass (*Achnatherum speciosum*), Thurber's needlegrass (*Achnatherum thurberianum*), and Sandberg bluegrass (*Poa secunda*).

Inter-Mountain Basins Big Sagebrush Shrubland

Elevation for this type ranges from 3,000-7,000 feet. It typically occurs on well-drained soils on foothills, terraces, slopes, and plateaus. Vegetation is dominated by Wyoming big sagebrush and basin big sagebrush. Other vegetation found in this type include rabbitbrush, and snowberry (*Symphoricarpos oreophilus*), Needle and thread grass (*Hesperostipa comata*), Indian ricegrass, and bottlebrush squirreltail (*Elymus elymoides*).

Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland and Shrubland

Curl-leaf mountain mahogany vegetation type is typically found on upper slopes and ridges between 5,000 and 8,000ft in elevation. Stands commonly occur on rocky shallow soils and outcrops. Associated species include mountain big sagebrush, snowberry, serviceberry (*Amelanchier sp.*), and prickly phlox *(Linanthus pungens*); as well as tree species like pinyon pine, juniper, white fir (*Abies concolor*) and limber pine (*Pinus flexilis*). Although curl-leaf mountain mahogany can rapidly colonize after disturbance if bare mineral soil is present or created, it is easily killed by fire and does not re-sprout. Curl-leaf mountain mahogany is described as a slow growing drought tolerant species.

Inter-Mountain Basins Montane Sagebrush Steppe

This system occurs at mid to high elevations, 3,200-10,000 feet. Soils are generally moderately deep to deep but at higher elevations can occur on shallow or rocky soils. Dominate vegetation is mainly mountain big sagebrush and silver sagebrush. Other shrub vegetation commonly associated with this type include snowberry, serviceberry, rabbitbrush, and currant (*Ribes sp*.). Grasses and forbs can be abundant and includes species like bottlebrush squirreltail, needle and thread, Idaho fescue (*Festuca idahoensis*), muttongrass (*Poa fendleriana*), Sandberg bluegrass, bluebunch wheatgrass, slender wheatgrass (*Elymus trachycaulus*), California brome (*Bromus carinatus*), needlegrass, spike fescue (*Leucopoa kingii*), and tufted hairgrass (*Deschampsia cespitosa*).

Current Vegetation Monitoring within Egan and Johnson Basins

There are four previously installed standard Assessment, Inventory and Monitoring (AIM) plots located within the proposed project treatment area. The plot locations were generated according to the AIM protocol and have been incorporated into the national database called TerrADat. See Appendix A, Map 8 for a description of the plot locations. Plots were selected based on ecological site descriptions (ESDs) and Ely District monitoring needs. ESDs are a framework for classifying and describing rangeland and forestland soils and vegetation. Detailed information about ecological site descriptions can be found on the Natural Resource Conservation Service website (https://esis.sc.egov.usda.gov/Default.aspx). The data from these plots provides a snapshot of the conditions at particular locations. Data summaries for the four plots plus an additional two AIM plots installed in 2016 can be found in Appendix G.

3.8.2 Direct and Indirect Effects of Proposed Action

The mechanically treated areas would remove a large portion of the trees and crush, remove or break a portion of the larger shrubs where the heavy equipment and/or chain travels through the project area. The hand cut areas would remove a large portion of the trees and have very minimal impacts to the remaining vegetation, because little disturbance would occur from foot travel.

Small strips and areas of vegetation may be crushed due to off-road travel by ATV or pick-up trucks in and out of the project area from existing roads.

Residual woody vegetation, which would consist of slash/biomass created from the various methods of vegetation treatments, would provide protection to regenerating grasses and other herbaceous plants, and well as sagebrush. The decomposition of woody plant material would also provide nutrients that would decompose within the soil, and become available for understory and existing shrub species. This nutrient availability would assist with the recruitment, establishment and long-term viability of the grass and shrub community, as well as provide protection to the soil resource. Additionally, soil water retention would be greater with the slash/biomass on the soil surface limiting evaporation, benefiting desirable plants. Organic matter would minimize the opening of mineral cycles (particularly nitrogen) which promote the establishment and perpetuation of introduced annuals.

The Proposed Action would increase the health, vigor, recruitment, and production of native perennial grasses, forbs, and shrubs due to the increased availability of light, water, and nutrients created by reducing resource competition from the tree species as well as seeding native grass, forb and shrub species (Davies et al., 2011; Bates et al., 2005; Monsen et al., 2004). The use of agency approved herbicides would target invasive species and reduce the density of these species (Davies et al., 2011; Pyke, 2011). The proposed treatment should shift vegetation composition towards FRCC 1, reducing the fuel loading and continuity of fuels and create a more resilient vegetation community (Miller and Tausch, 2001).

3.8.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, as canopy cover of trees continues to increase, the amount of light and water available to the understory becomes limited. Understory species eventually become stressed and die out. This may also indicate that an ecological threshold has been or is close to being crossed, and the sites are likely to become very vulnerable to catastrophic disturbance events such as fire, insects, or disease; and the resistance and resilience of the sites becomes drastically reduced (Tausch, 1999). Without the presence of a perennial herbaceous and shrub vegetation component, the site becomes open to other invasive species which may dominate. This results in a possible vegetation community change to invasive annual plants or weeds, like cheatgrass, and subsequently perennial invasive species may establish. Species diversity and composition would remain the same at the current conditions in the short term and may be reduced through canopy closure and reduced nutrient and water availability. Biomass loading would continue to increase in the long-term, increasing the likelihood of catastrophic wildfires. The Fire Regime Condition Class would continue trending away from FRCC 2 and moving towards FRCC 3. In the event of a future disturbance like wildfire, the project area would be more susceptible to a plant community-conversion, where the widespread colonization of cheatgrass is more likely (Davies et al., 2011; Pyke, 2011; Miller and Tausch, 2001).

3.9 Visual Resource Management

3.9.1 Affected Environment

BLM administered lands are placed into four visual resource management (VRM) classes; VRM Class I, II, III, and IV. The proposed project treatment areas occur within all four VRM classes.

Table 3.5 VRM Class Percentage within Proposed Project Area

VRM Class	Acres	Percentage of proposed treatment area	Treatment Units
Class I	363	<1%	Unit 10
Class II	10,687	28%	Units 1, 5-8, 11, 12, 17, 20
Class III	24,331	65%	Units 1-7, 9-16, 21
Class IV	1,882	5%	Units 9, 10, 15

Objectives for each VRM class are described below and can be found in BLM VRM manual H-8410-1 (USDOI, Bureau of Land Management. 1986b).

Class I Objectives: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II Objective: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer.

Class III Objective: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer.

Class IV Objective: The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The BLM VRM system relies on measuring or quantifying the degree of visual contrast that a project would have with the existing landscape to determine whether the project conforms to the applicable VRM class objectives. The degree of contrast is measured by comparing the major features of the project with the major features of the landscape. The basic design elements of form, line, color, and texture are used for the comparison of features and to describe the visual

contrast created by a project. The contrast analysis is conducted from one or more Key Observation Points (KOPs), which are locations with critical views of a project or locations providing typical views encountered in the landscape (BLM, 1986). Typically, KOPs are selected along well-used roadways and trails, recreation sites, and near communities, as these are areas where the greatest number of people would see a project for the longest period of time.

Five KOP locations along and within the viewshed of the Pony Express Trail were selected. The trail location is displayed in Appendix A, Map 6. The VRM for the proposed project area is displayed in Appendix A Map 9. In general the landscape visible from most locations with the proposed project area can be described as typical eastern Nevada. Many views from within the proposed project areas have evidence of human and natural disturbance, like wildland fire scars, mine exploration, and roads and trails.

Grayson (2011) states: "Although pinyon-juniper covers some 18 million acres of the Great Basin today, that was certainly not true 150 years ago. A wide variety of researchers, including ecologists Richard Miller, Robin Tausch, and Neil West, have shown that prior to the year 1850 or so, these trees were far less widespread in the Great Basin than they are today. Then, they, along with western juniper, began to spread across the Great Basin landscape. The rate of expansion seems to have peaked between about 1870 and 1920, but the process continues today." The travel corridor that contains the Pony Express Trail was utilized by the Shoshone with antelope drives over the Overland Summit near the headwaters of Cherry Creek (Steward 1938). The increase of pinyon-juniper communities is strongly correlated with the introduction of grazing. During the Pony Express' period of significance (1860-61), few if any cattle had been introduced to the Egan or Johnson Basins. This occurred soon after with the establishment of the mining towns of Egan and Cherry Creek in the 1870-80s. Archaeological surveys along the trail do not describe deforested corridors for the trails. The cut stumps in the area are in clover-leaf patters indicative of firewood cutting for the mine operations. The Overland Summit was no doubt chosen due to the open, treeless path allowing riders and wagons ease of travel.

3.9.2 Direct and Indirect Effects of Proposed Action

The proposed project area falls within all four VRM classes. The Pony Express Corridor crosses approximately eight miles of the proposed project area and is classified as VRM Class II. The Pony Express Trail is being evaluated for visual resource management as directed by BLM. All activities along the Pony Express would follow the Pony Express National Historic National Trail Comprehensive Management and Use Plan Final Environmental Impact Statement (National Park Service 1999). Presently Historic Properties known to exist within the project area include generalization linear routes of Pony Express, Overland Trail, and the First Transcontinental Telegraph line. All historic properties would be avoided during any surface disturbing activities, which typically would be incorporated with planned vegetative mosaic patterns with a minimum 50 meter buffer. Potential impacts would be adequately mitigated by incorporating design features into the Proposed Action. Changes to the characteristic landscape

would be weak to moderate and would create more natural patterns across the landscape. Less than 1% of the proposed project area occurs within VRM Class I. The proposed project is expected to better mimic the characteristic landscape as it was prior to tree canopy establishment. The treatment process would create more natural patterns across the landscape and that would create a more natural visual appearance overall.

3.9.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, there would be no immediate impacts to visual resources. However, in the long term, the susceptibility for impacts with possible disastrous results to the characteristic landscape is possible. The potential for a large high severity wildfire continues to increase over time due to the continued increase in dense vegetation within the proposed project area. The color, line and contrast would remain similar across the viewshed as it would be dominated by trees.

3.10 Lands with Wilderness Characteristics

3.10.1 Affected Environment

On June 1, 2011, the Secretary of the Department of the Interior issued a memorandum IM 2011-154 to the BLM Director that in part affirms BLM's obligations relating to wilderness characteristics under Sections 201 and 202 of the Federal Land Management Policy Act. The BLM Released Manuals 6310 and 6320 in March 2012, which provide direction on how to conduct and maintain wilderness characteristics inventories and provides guidance on how to consider whether to update wilderness characteristics inventory.

The primary function of an inventory is to determine the presence or absence of wilderness characteristics. An area having wilderness characteristics is defined by:

- Size - at least 5,000 acres of contiguous, road-less federal land,
- Naturalness (i.e. The degree to which an area generally appears to have been affected primarily by the forces of nature with the imprint of people's work substantially unnoticeable.), and
- Outstanding opportunities for solitude or primitive and unconfined types of recreation.
- The area may also contain supplemental values (ecological, geological, or other features of scientific, educational, scenic, or historical values).

The Nevada BLM completed the original wilderness review in 1979, and issued an initial wilderness inventory decision in 1980. At that point in time, one unit (NV-040-015) was found to have wilderness characteristics.

In 2011, the Ely District Office BLM began updating the lands with wilderness characteristics (LWC) inventory on a project-by-project basis until there is a land use plan revision. The proposed project area overlaps 15 LWC inventory units in which a portion of one LWC inventory unit was determined to possess LWC. There has not been a land use plan amendment to determine if or how these LWC units would be preserved to protect the wilderness characteristics.

Table 3.10. Updated Lands With Wilderness Characteristics Inventory Determination

Area Unique Identifier	Sufficient Size? Yes/No (acres)	Naturalness? Yes/No	Outstanding Solitude? Yes/No	Outstanding Primitive & Unconfined Recreation? Yes/No	Supplemental Values? Yes/No	Updated Determination	Date of Update
NV-040-015A-2a-2012	Yes 8,003	Yes	Yes	Yes	No	Yes	10/23/2012
NV-040-018-3-2012	No 475	n/a	n/a	n/a	n/a	No	10/23/2012
NV-040-018-2-2012	Yes 10,009	Yes	No	No	No	No	10/23/2012
NV-040-018-1-2012	Yes 11,405	Yes	No	No	No	No	10/23/2012
NV-040-015A-5-2012	No 1,766	n/a	n/a	n/a	No	No	11/16/2012
NV-040-019A-3	No 1,119	n/a	n/a	n/a	No	No	12/19/2014
NV-040-019A-2	No 2,957	n/a	n/a	n/a	No	No	12/18/2014
NV-040-019A-1	No 3,967	n/a	n/a	n/a	No	No	12/18/2014
NV-040-019-1b	No 834	n/a	n/a	n/a	No	No	12/18/2014
NV-040-019-1	Yes 19,531	Yes	No	No	No	No	12/19/2014

Area Unique Identifier	Sufficient Size? Yes/No (acres)	Naturalness? Yes/No	Outstanding Solitude? Yes/No	Outstanding Primitive & Unconfined Recreation? Yes/No	Supplemental Values? Yes/No	Updated Determination	Date of Update
NV-040-047-1-2013	Yes 37,248	Yes	No	No	No	No	5/14/2013
NV-040-048-1-2013	Yes 51,380	Yes	No	No	No	No	5/20/2013
NV-040-049A-3-2011	Yes 19,548	Yes	No	No	No	No	12/15/2011
NV-040-049A-1-2011	Yes 12,803	Yes	No	No	No	No	12/15/2011

Out of the 15 LWC inventory units that the project encompasses, only one unit (NV-040-015A-2a-2012) was found in the update to possess wilderness characteristics. In the original 1979/1980 inventory, a portion of the project area was identified as the Goshute Canyon WSA. This portion was not included in the 2006 designation of Goshute Canyon Wilderness. In the updated inventory, NV-040-015A-2a-2012, was found to be largely natural, and contiguous to designated wilderness, and therefore it was found to possess wilderness characteristics. The remainder of the project area was found in both the 1979/1980 and updated inventories to lack wilderness characteristics. A map of the Updated Inventory LWC units with the project boundaries can be found in Appendix D.

3.10.2 Direct and Indirect Effects of Proposed Action

The one unit (NV-040-015A-2a-2012) of LWC found in the inventory update is on the northern portion of the project area. One of the proposed treatment areas overlaps 21% of the LWC unit and totals 1,726 acres. None of the proposed treatments would affect the size of the unit, as no new roads would be established. Further, these treatments would not measurably affect the outstanding opportunities for primitive and unconfined recreation. Solitude may be temporarily affected due to loss of vegetative screening as well as noise

created during project implementation, but in the long term some may find solitude in the open space that is no longer crowded with pinyon pine and juniper. Naturalness may be temporarily affected depending on which treatment method is used.

Prescribed fire would have the least effect on naturalness, when or if the LWC unit is determined to be protected for its wilderness characteristics in the future. The appearance of this treatment upon completion may not be distinguishable as a prescribed fire when compared with a naturally-ignited fire. A large area of the adjacent hillside within the unit was previously burned by wildfire in 2000.

Some mechanical treatments may have a larger effect on naturalness than others. Chaining, mastication and mechanical whole tree thinning, in the near-term (1-2 years), would be most apparent as unnatural. Other mechanical treatments such as hand thinning may have less of an effect on naturalness. Design features are to create natural appearing islands and stringers, which would mimic the natural distribution of vegetation over the long-term, after treated vegetation has settled and starts decomposing.

Using any treatment (prescribed fire or mechanical) could have a temporary effect on naturalness. Design features would create a visual landscape similar to natural disturbances, which would blend in with the overall landscape. Visual effects from the treatment may affect naturalness for 1-2 years, depending on location, but would mostly blend in with the surroundings. As secondary plant succession and biomass breakdown occur, the treatments would become less noticeable and blend in with the surrounding natural landscape

3.10.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, there would be no immediate effects to the LWC unit.

3.11 Wetland/Riparian Zones

3.11.1 Affected Environment

There are seven spring sites or seep water sources in the project area that occur on both public and private land. Johnson Spring, Westside Spring and an unnamed spring are on public land and the Nine Mile Spring, Mustang Spring, and two unnamed springs are on private land. The springs are one quarter acre or less in size. The vegetation around the springs varies, with some springs covered by a dense canopy of trees.

The riparian potential for the spring systems are subsurface water with sedge/rush and grass communities. Johnson Spring is functional but includes risk factors such as bare ground, lack of vegetation cover and dense tree cover. Water quality in the project area is protected under Section 303 of the Clean Water Act and 40 CFR Part 131 where applicable, and state water standards.

3.11.2 Direct and Indirect Effects of Proposed Action

No direct impacts to riparian areas are expected since the Proposed Action would thin pinyon-juniper trees using chain saws near the spring sources. Most trees would be left on site, providing protection of vegetation and to prevent erosion. The are two possibilities that could occur by removing trees around the spring systems: 1) these small riparian systems could expand, and 2) more light would reach the plants and more water may be made available for riparian area development. The risk of sedimentation to spring riparian systems due to tree removal should be minimal due to the design features built into the Proposed Action and the filtering ability of existing riparian vegetation, and debris left from tree thinning.

3.11.3 Direct and Indirect Effects of No Action Alternative

Under the No Action Alternative, trees would remain onsite, and not be thinned or removed. The current conditions would likely continue. Dense vegetation would make the area more susceptible to a large, high severity fire which would impact the riparian resource and could cause erosion and sedimentation. Existing trees would continue to block the sunlight to plants and utilize water resources, which would limit the amount of water available at the spring source. Limited water could shrink the riparian areas and spring source, causing expansion of upland vegetation, and indirect effects to wildlife species that need this resource.

Chapter 4 Cumulative Effects

4.1 Introduction

Cumulative Effects are defined in 40 CFR 1508.7 as the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFA) regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." This section addresses the cumulative effects of the Proposed Action and the No Action Alternative, when added to the impacts of past, present and reasonably foreseeable future actions with the Cumulative Effects Study Area (CESA).

Cumulative effects are additive and have compounding effects when past and present impacts are combined. Significant impacts require consideration of both context and intensity (40 CFR 1508.27 (b) (7)). The Proposed Action would be implemented gradually over a 5-7 year period and the majority of the effects would dissipate within several years after implementation. Given this, a temporal extent of ten years would be used for the cumulative analysis.

Information used in the cumulative effects was collected from BLM Land and Mineral Legacy Rehost 2000 System (LR2000) and Geographic Information Systems (GIS) shapefiles provided by the BLM and NDOW.

Table 4.1, Cumulative Effects Study Areas, lists the analyzed resources and the name and size of each CESA. Both the Proposed Action and the No Action Alternative would have negligible effects or no more effects than disclosed in Chapter 3 on Cultural Resources, Visual Resources and Lands with Wilderness Characteristics, therefore those resources have not been discussed in this section. The CESA for analyzing effects of past, present and RFFA combined with implementation of the Proposed Action and with the No Action Alternative are defined as the Egan Basin Watershed and a large portion of the Butte Valley Watershed. The CESA varies depending on the resource analyzed due to the migratory nature of wildlife in this area, the location of active and pending greater sage-grouse leks, and previous fuels treatments. CESA boundaries are shown in Appendix A, Map 3.

Table 4.1 Cumulative Effects Study Areas

Resource	Cumulative Effects Study Area		
	Acres	Description	Explanation of Area
Big Game	621,750	NDOW Hunt Unit 121 north to the White Pine/Elko County line.	This CESA was chosen because it encompasses the proposed project area and accounts for the migratory nature of big game and other wildlife species.
General Wildlife; including Migratory Birds	254,010	4 mile buffer around the proposed project area.	This CESA incorporates habitat surrounding and within the proposed project area, where most of the impacts to general wildlife would occur.
Rangeland, Vegetation and Forest Resources	272,448	Proposed project area and buffered area including surrounding project units. Includes portions of Medicine Butte Allotment, Cherry Creek Allotment, South Butte Allotment and Thirty Mile Spring Allotment.	This CESA was chosen because it encompasses the proposed project unit boundaries, portions of impacted allotments, and previous fuels treatments within the watersheds.
Greater sage-grouse	254,010	The greater sage-grouse CESA includes Butte, Buck and White Pine Population Management Units (PMU).	This CESA includes the 4-mile buffer around the proposed project area that encompasses greater sage-grouse populations and seasonal habitat use.
Wetlands/Riparian and Soil Resources	614,975	Red Butte, Johnson Spring Basin, Butte Valley, Egan Basin-Egan Creek, Telegraph Creek, Westside Spring, Hunter Flat and Lower Duck Creek watersheds Hydrologic Unit Code (HUC) 12.	This CESA was used because this is the area where water and soil resources have the potential to be affected by the proposed project.
Visual Resource Management	84,675	Proposed project treatment units and surrounding project area including hand thinning area.	This CESA includes the treatment units and surrounding proposed project area. VRM objectives would be incorporated into these treatment designs.

4.1.1 Past and Present Actions

According to Council of Environmental Quality (CEQ) regulations, consideration of the individual effects of all past actions is not required to determine the present effects of past actions. In compliance with CEQ regulations only past actions that result in present impacts are considered in the analysis (CEQ, 2005). Past actions in the CESA include grazing, mining, recreation, wild horse gathers, vegetation treatments, range improvement projects and wildfire.

4.1.1.1 Vegetation Treatment Projects and Wildland Fires

The Cherry Creek Wildland and Urban Interface (WUI) Project, which included mowing, drill seeding, herbicide, and prescribed fire as treatment types, was implemented beginning in 2005. The project is located west and south of the town of Cherry Creek, Nevada. The Cherry Creek WUI Project area is on the eastern side of the CESA and is included in the proposed project area. The Cherry Creek Project objectives were to conduct a prescribed burn on approximately 1,800 acres and to create fire-resistant green strips by mowing and seeding approximately 515 acres south of Cherry Creek. Herbicide (tebuthiuron) was applied in 2006 to reduce pinyon-juniper densities on 3,725 acres west of Cherry Creek in the Johnson Basin area. In 2010 approximately 1,117 acres within the prescribed burn area were treated with the herbicide, imazapic. The project area was also seeded post treatment with a mix of native and non-native species. The project goals were to provide a fuel break for the town of Cherry Creek, reduce tree density in sagebrush sites, reduce invasive species like cheatgrass, and increase shrub density within the project area. Pre-treatment and post treatment data for the prescribed burn and mowing treatments of this project can be found in Appendix F of this document.

The Combs Creek Habitat Improvement and Fuels Reduction Project is an ongoing project located in the Butte Watershed. The purpose of the project is to improve habitat by creating conditions in sagebrush communities that better reflect the reference conditions as described in associated BpS models. Short term project objectives are to reduce tree canopy cover, create a mosaic of treated and untreated areas, and thin trees in and around riparian areas. Long term objectives are to create sagebrush communities with a perennial grass and forb understory.

Table 4.2 below shows range improvement projects, fuels treatments and wildfires by size, type of disturbance and year that are located within the Rangeland, Vegetation and Forest Resources CESA. Appendix A, Map 4 shows the location of these wildfires and Map 5 shows the location of these fuel and range treatments.

Table 4.2 Past and Present Range Treatments, Fuels Treatments and Wildfires within Rangeland, Vegetation and Forest Resources CESA

Name	Type	Total Size of Treatment (Approximate Acres)	Year
Snow Creek Seeding	Seeding	3,780	Unknown
North and South Egan Basin Seeding	Seeding	2,367	1960
South Egan Basin Seeding Prescribed Fire	Prescribed Fire	1,083	1996
Nine-Mile Chaining	Chain/Seed	1,135	2001
Cherry Fire Rehab	Herbicide/Seeding	5,612	2001
Cherry Creek WUI Prescribed Burn	Prescribed Fire and seeding	1,800	2005
Cherry Creek WUI	Mowing/Drill Seeding	515	2005
Cherry Creek WUI	Chemical- tebuthiuron	3,727	2006
Cherry Creek WUI	Chemical- impazapic	1,117	2010
Combs Creek Habitat Improvement and Fuels Reduction Project	Mastication/Seeding/Hand Thinning	4,362	2014-2016 On-going project
Butte Fire	Wildfire	225	1990
Cherry Fire	Wildfire	8,492	2000

Name	Type	Total Size of Treatment (Approximate Acres)	Year
Unnamed Fire (Lower Butte Valley)	Wildfire	621	2001
Telegraph Fire	Wildfire	74	2004

4.1.1.2 Wild Horses

Wild horse use has occurred throughout the CESA since the 1800s. Wild horse gathers have occurred in the project area, with the most recent being August 2016. Wild horses continue to utilize the area.

4.1.1.3 Livestock Grazing

Moderate grazing has occurred in the area for a number of years and intense to extreme grazing occurred in the late 1800's early 1900's. A crested wheatgrass seeding was implemented in the 1970's in the middle of Egan Basin. The CESA areas are currently in use by livestock, however, the project treatment units are not generally used by livestock due to the high density of trees and the lack of forage and water. There are fencing and other range improvements for livestock management within the CESA.

4.1.1.4 Mineral Development

Historical mineral mining has occurred throughout the project area. Located five miles south of the town of Cherry Creek is Egan Canyon, an area known historically for gold mining. Mining exploration has recently occurred in the Flint Spring area which is in the north part of the proposed project area, in Unit 10. There is active mining exploration occurring in the vicinity of Unit 1, Unit 7, Unit 8 and Unit 9.

4.1.1.5 Utilities

Utilities within the overall proposed project CESAs include the transmission line that crosses the north end of the project area, in Unit 10. The overhead power line, operated by Mount Wheeler Power, Inc., crosses approximately 2.5 miles within the proposed project treatment area and includes a 25 foot width. There are approximately 5 miles of White Pine Country Road Department Right of Way (ROW) maintained roads within the proposed project treatment area and they include a 60 foot width.

4.1.1.6 Recreation

Camping, hunting, off-highway vehicle use (OHV), and other recreational use including heritage tourism occasionally occurs. Roads through the area are a combination of maintained county roads and primitive two-track roads; and overall traffic in the area can be rated as low use.

4.1.1.7 Fuelwood and Forest Product Use

Personal-use fuelwood harvest and both personal and commercial Christmas tree harvest occurs on BLM administered land throughout the CESA, there is no surface disturbance associated with these activities.

4.1.2 Reasonably Foreseeable Future Actions

4.1.2.1 Vegetation Treatment Projects and Wildfires

Vegetation treatments in the CESA are expected to continue. Maintenance treatments on previous vegetation treatments projects can be expected within the CESA, for projects like Combs Creek Habitat Improvement Project and Cherry Creek WUI Project. Wildfires are a naturally occurring event on the landscape.

4.1.2.2 Wild Horse Use

Wild horse management is expected to continue with increased numbers compared to past use. Trends for horse gathers have declined, and populations are increasing.

4.1.2.3 Livestock Grazing

Grazing and range improvements are expected to continue within the CESA, but no proposed projects are currently identified.

4.1.2.4 Mineral Development

It can be assumed that mining activities would likely continue or increase based on current exploration results and future mineral markets. However, there are no known proposed developments expected at this time. There are permitted and proposed drill sites within the project area. Specifically in the vicinity of Unit 1, Unit 7, Unit 8, and Unit 9.

4.1.2.5 Utilities, Infrastructure and Public Purpose Activities

The Southwest Intertie Project (SWIP) transmission line corridor has been identified to cross through the southern portion of the CESA. Maintenance of existing ROWs is expected to continue. Infrastructure to support various developments is expected to continue.

4.1.2.6 Recreation

Recreation (hunting, hiking, camping, OHV use, tourism) is expected to continue in the CESA. Hunting could increase once treatments are completed, and wildlife move into the area to forage.

4.1.2.7 Fuelwood and Forest Product Use

Fuelwood harvesting within the proposed project area is expected to increase following treatments. A large amount of biomass from pinyon-juniper tree removal would be left on site and available to harvest through the BLM administered permit system.

4.2 Cumulative Effects Analysis

4.2.2 Fish and Wildlife

The CESA boundaries for wildlife are grouped into two categories, big game and general wildlife (including migratory birds). Past and present actions within general and big game species CESAs has resulted in general loss of habitat. Noise and travel on existing roads and trails could cause some areas to be avoided for short periods. Roads and utilities have also fragmented habitat. Past wildfires and vegetation treatments would have removed habitat for some species, but would create more available habitat for others. Livestock grazing and wild horse use would compete with forage plants that wildlife use for food.

Reasonably foreseeable future actions within the CESAs include any activities that remove or alter vegetation composition. Removal of vegetation could create more fragmentation causing fewer areas for wildlife cover and possibly forage. Activities or actions that remove pinyon-juniper would reduce habitat for species dependent on those vegetation communities. However, if the pinyon-juniper woodland was replaced with a more diverse sagebrush community, the number of sagebrush obligate species would increase.

Proposed Action

Past, present and future actions within the wildlife CESAs have typically resulted in habitat degradation, loss, and fragmentation. The Proposed Action would facilitate a mosaic landscape and a healthy, resilient plant community conducive to the viability of several species. Removing trees and facilitating grass and forb cover would improve big game and other wildlife species' habitat. Past treatments, similar to the Cherry Creek Prescribed Burn project where invasive species became a problem would not be implemented in the same manner for this project. Any prescribed burning would be implemented at elevation ranges that would minimize establishment of invasive species. Mechanical treatments proposed in this project, in combination of seeding have shown better success, and would create habitat conducive for most wildlife. The Proposed Action in combination with past, present, and reasonably foreseeable actions would create habitat conducive for wildlife, and could offset some negative effects from past and future projects that could fragment habitat. The Proposed Action, when combined with past and future

actions would move habitat toward the needs of most wildlife species by increasing understory components in treated areas while maintaining adjacent cover.

No Action

Implementation of the No Action Alternative, combined with the past, present, and future actions, would result in the current conditions continuing. This would likely result in tree density, cover and area increasing and shrub and herbaceous cover and area decreasing (Davies et al., 2011; Pyke, 2011; Miller and Tausch, 2001). This would result in a continued reduction in forage for wildlife, as well as an increase in hiding/thermal cover. Competition among wildlife, wild horses and livestock could increase, leaving fewer resources available, which could cause wildlife to move from the area.

4.2.3 Forest and Vegetation Resources

Within the CESA, native vegetation has been removed by roads and trails and smaller mining activities. Past and present activities in the CESA has changed the range of species abundance, composition, and diversity. A lack of natural disturbance by wildfire has caused substantial changes to the condition and composition of vegetation communities. Past and present grazing has affected species composition due to livestock selection of plant species. Pinyon-juniper woodland has become established in areas that would historically be a sagebrush community. Past vegetation treatments have reintroduced disturbance and in some cases improved the vegetation composition and species diversity, while in other areas have caused more invasive species (e.g., cheatgrass).

Reasonably foreseeable future actions that cause surface disturbance and removal of vegetation would impact vegetation cover with the CESA. Future action include possible mining exploration, wildfires, and vegetation treatments.

Proposed Action

The implementation of the Proposed Action, combined with the past, present, and future actions, is expected to establish vegetative communities with high vigor that are resilient and resistant to disturbances, and reduce the threat of insect and disease outbreaks within woodland sites where treatment occurs. It would also increase the shrub and herbaceous understory within woodland sites where treatments occur.

The implementation of the Proposed Action combined with the past, present, and future actions would diversify vegetation composition by providing a mosaic disturbance across the landscape which is necessary to restore the natural vegetative community structure. Implementation of the project would also increase water and other resources to be available for native grasses, forbs and shrubs to recolonize and establish. The vegetation community within the project area would be more resilient to future disturbance by moving toward a more historical (natural) regime.

No Action

Implementation of the No Action Alternative, combined with the past, present, and future actions, would likely result in the current vegetation conditions to continue to decline. This would likely result in tree density, cover, SDI and basal area increasing and shrub and herbaceous cover and area to decrease (Davies et al., 2011; Pyke, 2011; Miller and Tausch, 2001). Increasing density of trees would result in vegetation communities that would be more susceptible to reasonably foreseeable future large, high severity wildfires that convert to undesirable vegetation such as cheatgrass.

4.2.4 Rangeland Resources, Health and Livestock Grazing

Past and present surface disturbances within the CESA have altered and in some cases removed vegetation that would otherwise be available forage for livestock. Disturbance for roads and trails would have improved access to grazing locations within the CESA. Previous fuels treatments and rangeland treatment projects have altered vegetation cover for livestock grazing by promoting forage species. Surface disturbance from past and present actions likely has contributed to the increase of noxious and invasive species distribution within the CESA.

RFFA within the project area and CESA that would affect livestock grazing include mining operations, future vegetation treatments, and continued use and maintenance of roads and trails. Future vegetation treatments would require postponement of livestock grazing for two years or until the site has recovered from the disturbance. This postponement would temporarily reduce the area available but over time, the available grazing area with forage availability would most likely increase. Livestock would most likely distribute throughout the areas as available forage would be available in more locations. This would meet Rangeland Health Standards, and prevent competition among other resource users.

Proposed Action

The implementation of the Proposed Action combined with the past, present, and future actions should shift the area toward FRCC 1, which would facilitate and establish conditions that would promote healthier, more productive and resilient rangeland conditions; and could assist in progressing towards or meeting the rangeland health standards in the area. Livestock would most likely distribute throughout the areas as available forage would be available in more locations. This would meet Rangeland Health Standards, and prevent competition among other resource users.

No Action

Implementation of the No Action Alternative, combined with the past, present, and future actions, would result in the current declining conditions to continue. This would likely result in tree density and cover in the area to increase; and shrub and herbaceous cover in the area to

decrease (Davies et al., 2011; Pyke, 2011; Miller and Tausch, 2001). This could potentially reduce the amount of areas available for livestock grazing, and prevent Rangeland Health Standards from being met.

4.3.5 Special Status Animal Species

Greater sage-grouse

Surface disturbance from past and present activities within the greater sage-grouse CESA include activities such as recreation, road travel and maintenance, mining exploration and activities, and utility corridors. Past vegetation treatments and range improvements have generally moved the area toward meeting habitat objectives for greater sage-grouse habitat by removing pinyon-juniper woodland and creating a mosaic of vegetation with more species diversity. The mowing and seeding for the Cherry Creek Project has caused sage-grouse to move into the treated areas. Roads and trails have caused an increase in human activity which increase noise, which can impact greater sage-grouse habitat use. Roads and utility lines fragment habitat and create predator perches which impact greater sage-grouse.

Reasonably foreseeable future activities include vegetation treatment projects, wildland fires, mining activities and exploration and road maintenance. Future vegetation treatment projects would focus on meeting the needs or increasing the size of greater sage-grouse habitat that would be available for species use.

Proposed Action

Past, present and future actions within the greater sage-grouse CESA have typically resulted in habitat degradation, loss, and fragmentation. The Proposed Action would facilitate a mosaic landscape and a health, resilient plant communities conducive to the viability of several species. Removing trees and facilitating grass and forb cover would move the area toward greater sage-grouse habitat needs, as well as habitat for other special status species. The Proposed Action in combination with past, present, and reasonably foreseeable actions would create viable habitat needs the greater sage-grouse. The Proposed Action would create large, useable habitat areas for sage-grouse that could offset fragmentation from past actions. Lek populations is expected to increase, or new leks would be established as grasses and forbs establish in treated areas.

No Action

No action would likely result in continued decline in available greater sage-grouse habitat, and areas used by greater sage-grouse. Lek populations could continue declining as habitat diminishes.

4.3.6 Visual Resource Management

The cumulative effects of the project on VRM is directly associated with the VRM Class objective and whether or not past, present and future projects have met, or would meet the VRM Class objectives. Natural and man-made features are visible in most of the project area. Visibly present are roads, power-lines, fence-lines, range improvements, gravel pits, mining activities, vegetation treatments, wildland fire and private properties that may or may not meet the VRM Class objectives.

Proposed Action

The proposed vegetation treatments have incorporated design features that would meet VRM objectives for each VRM Class. The cumulative effects of the Proposed Action to VRM would create a visual landscape of diverse color, texture, line that represent a natural setting along the VRM Class I and II areas. Design features of treatments would create a mosaic visual setting of low distraction from the existing setting as observed from key observation points by a casual observer. The VRM objectives for each class would be met while incorporating design features to mimic the natural landscape for all projects. This project could assist with camouflaging or reducing visual effects from past or future projects by incorporating design features that mimic natural landscape character, and potentially shifting an observer's attention away from man-made objects or features on the landscape.

No Action

Implementation of the No Action would not have an immediate cumulative effect on VRM. Future planned projects would be subject to design features that meet VRM Class objectives. Long-term cumulative effects of the No Action could cause a monotypic visual landscape (e.g., same color, line form,) if pinyon and juniper continue increasing in density. Natural, uncontrollable disturbances such as wildfire could occur causing an abrupt change in the visual landscape that may not meet VRM objectives, especially in the VRM Class I and II areas.

4.3.7 Wetland/Riparian and Soil Resources

Past and present actions that create surface disturbances would have impacts on soil and water resources within the CESA. Soil and riparian areas continue to be impacted by activities such as utilities, mining exploration, roads, wildfires, and livestock grazing. Actions that remove vegetation cover or compact and disturb soils may have resulted in additional erosion or sedimentation in riparian areas.

Proposed Action

The implementation of the Proposed Action combined with past, present, and future actions would have limited effects to soil resources as the vegetation left on the site would provide cover to prevent erosion. Based on similar projects, soils could be expected to recover within 1-2 years

of implementation. Studies show that infiltration rates at given points on a debris-in-placed treatment have been only slightly affected by the chaining activities. Apparently, in these instances, the debris left scattered on the soil surface acts as both retention and detention storage, the magnitude of which is large enough to minimize or nearly eliminate all runoff. The soil under the debris-in-place treatment is not able to absorb water any faster than is the soil under the woodland; it's just held on the landscape until the soil has the time to absorb it (Gifford, G. 1973).

The implementation of the Proposed Action, combined with the past, present, and future actions, is expected to maintain or improve riparian area health of Johnson Spring. Reducing tree cover may increase water availability to the spring, but opening these areas may also attract more livestock use. The current livestock management plans provide protection from livestock use on riparian areas. Two of the springs are on private lands, in which BLM does not have any authority on what occurs at these springs and riparian areas, and therefore it is unrealistic to speculate the future effects to these springs after treatment has occurred. It can be assumed that the availability of water would increase to these springs.

No Action

Implementation of the No Action Alternative, combined with the past, present, and future actions, would likely result in the current soil conditions to continue. There is a possibility of soils becoming more susceptible to water erosion within wooded areas due to the decrease and lack of shrub and herbaceous understory (Pierson et al., 2013). A study by Farmer et al (1999), showed that “during five years of data collection, unchained plots produced 5.8 times more runoff and 9.2 times more sediment than chained plots. Results indicate that anchor chaining significantly reduced runoff and soil erosion by providing more protective ground cover.”

Implementation of the No Action Alternative, combined with the past, present, and future actions, would result in the current conditions continuing in the short-term for riparian resources, with likelihood they could decline in the long term.

Chapter 5 Tribes, Individuals, Organizations or Agencies Consulted

Table 5.1 List of Persons, Agencies and Organizations Consulted

Name	Purpose and Authorities for Consultation or Coordination	Finding and Conclusion
Nevada Department of Wildlife (NDOW) Moira Kolada, Kody Menghini, Curt Baughman, Steve Foree, and Scott Roberts	Greater sage-grouse Consultation, Potential Project Treatment Areas	NDOW supports the project and the efforts to improve Greater sage-grouse and mule deer habitat. NDOW was also involved in identifying additional project treatment areas to improve wildlife habitat.
Jessica Axsom, State Historic Preservation Office	Cultural Resource Inventory Needs Assessment	No additional concerns.
BLM Ely District Interested Public Mailing List	Public Scoping, Comments, and Input on Project	Comments varied from support of the project to concerns of impacts to resources. Comments incorporated during the development of the EA. Summary of comments included in Appendix J.
Confederated Tribes of the Goshute Reservation, Nevada-Utah	Consultation and Coordination with Indian Tribal Governments, Potential Project Treatment Areas.	Request for consultation.
Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada	Consultation and Coordination with Indian Tribal Governments, Potential Project Treatment Areas.	Request field visit.
Ely Shoshone Tribe of Nevada	Consultation and Coordination with Indian Tribal Governments, Potential Project Treatment Areas.	No response from consultation request.

Chapter 6 List of Preparers

Table 6.1 List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Katie Walsh	Natural Resource Specialist	Project Lead, Forest Resources, Fuels
Nancy Herms	Wildlife Biologist	Fish & Wildlife, Special Status Animal Species, Migratory Birds
Ruth Thompson	Wild Horse and Burro Specialist	Wild Horses
Kurt Braun	Archaeologist, Cultural Resource Specialist	Cultural Resources, Paleontological Resources
Andy Gault	Hydrologist	Soil, Air, Water
Ian Collier	Rangeland Management Specialist	Rangeland Resources, Vegetation Resources
Maria Ryan	Natural Resource Specialist	Vegetative Resources, Environmental Justice
Alicia Hankins	Land Law Examiner	Lands and Right-of-Way
Elizabeth Seymour	Native American Coordinator	Native American Religious Concerns and other concerns Tribal Coordinator
John Miller	Park Ranger (Wilderness)	Lands with Wilderness Characteristics, Visual Resources
Chris McVicars	Natural Resource Specialist	Noxious and Invasive Weed Management
Concetta Brown	Natural Resource Specialist	NEPA Compliance

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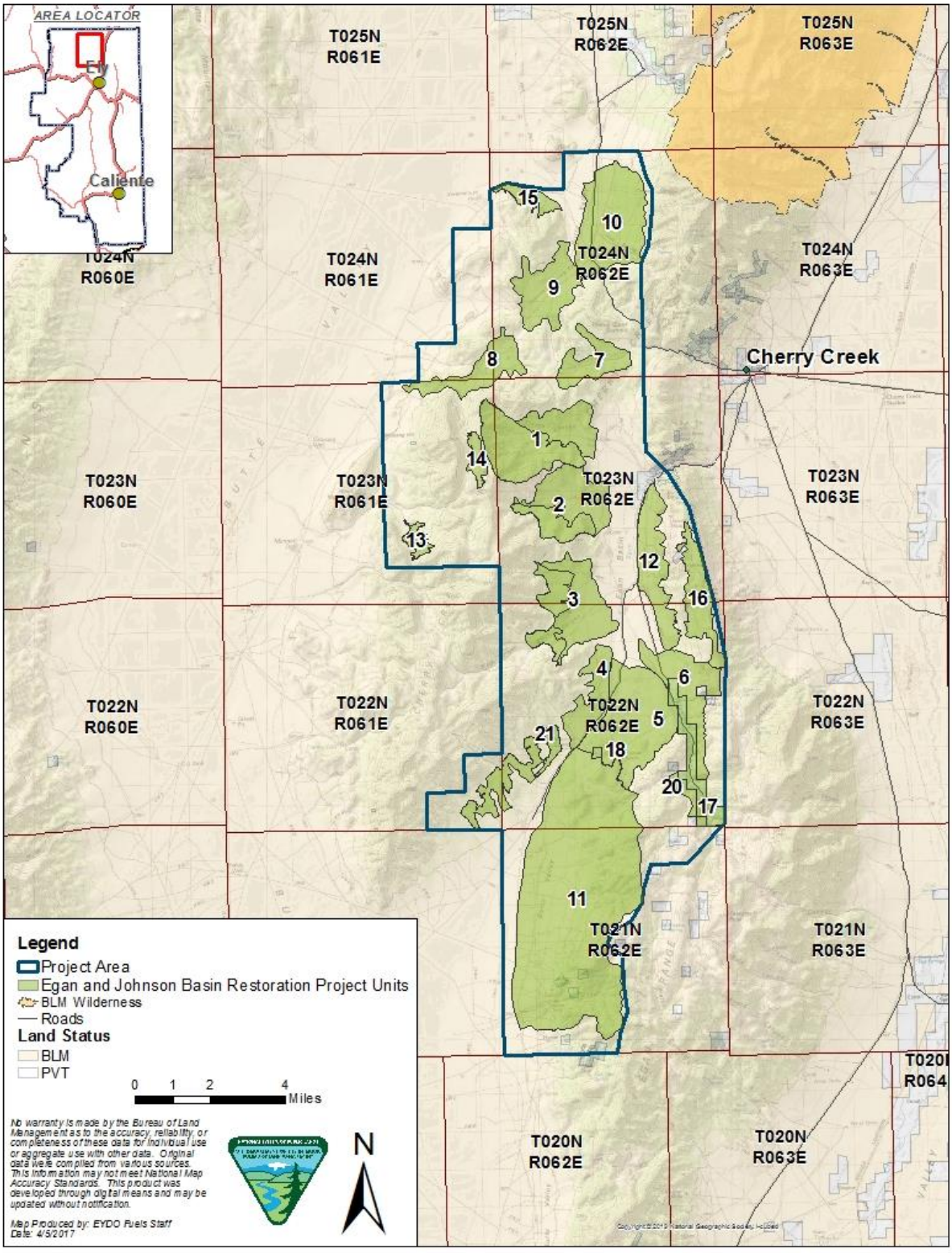
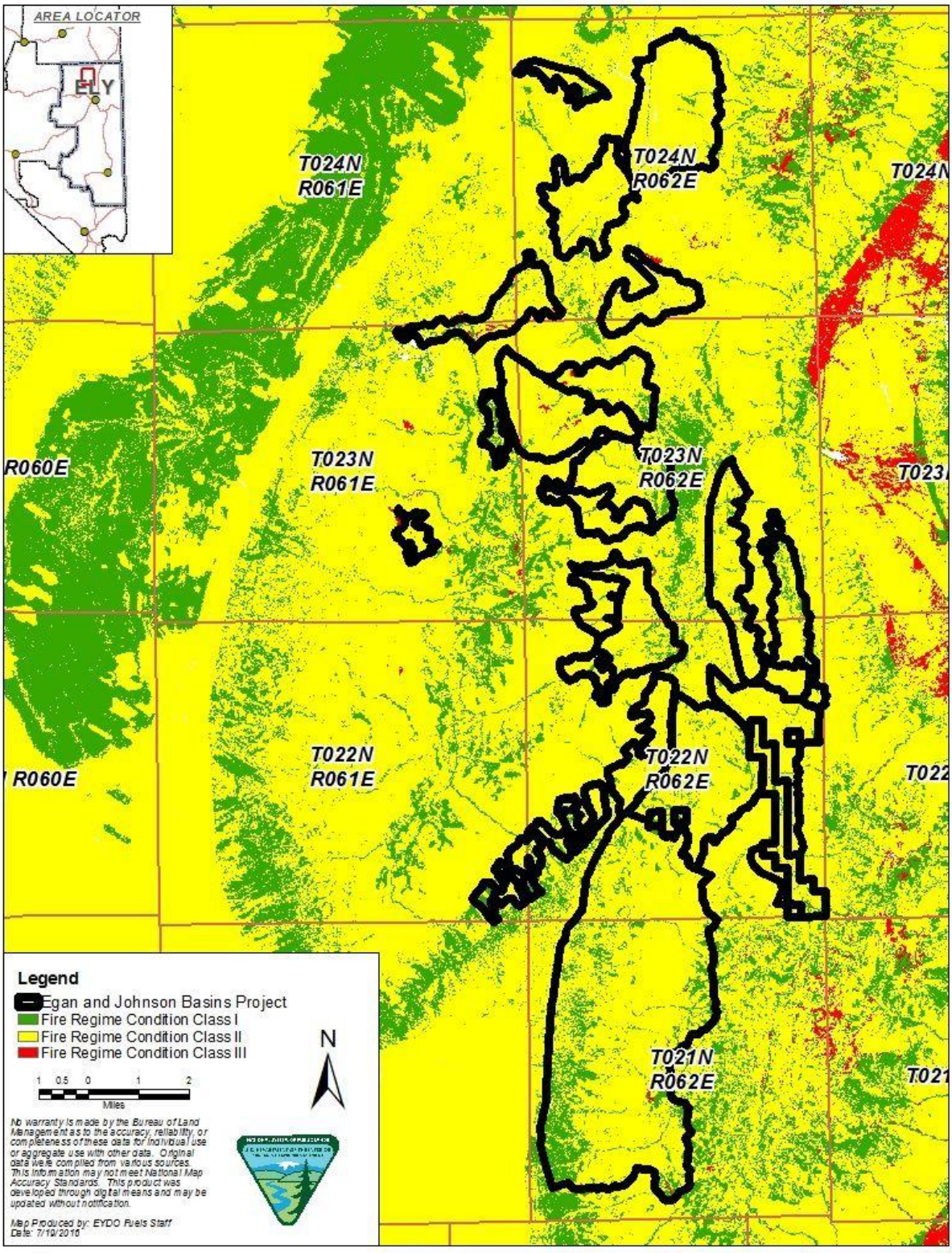
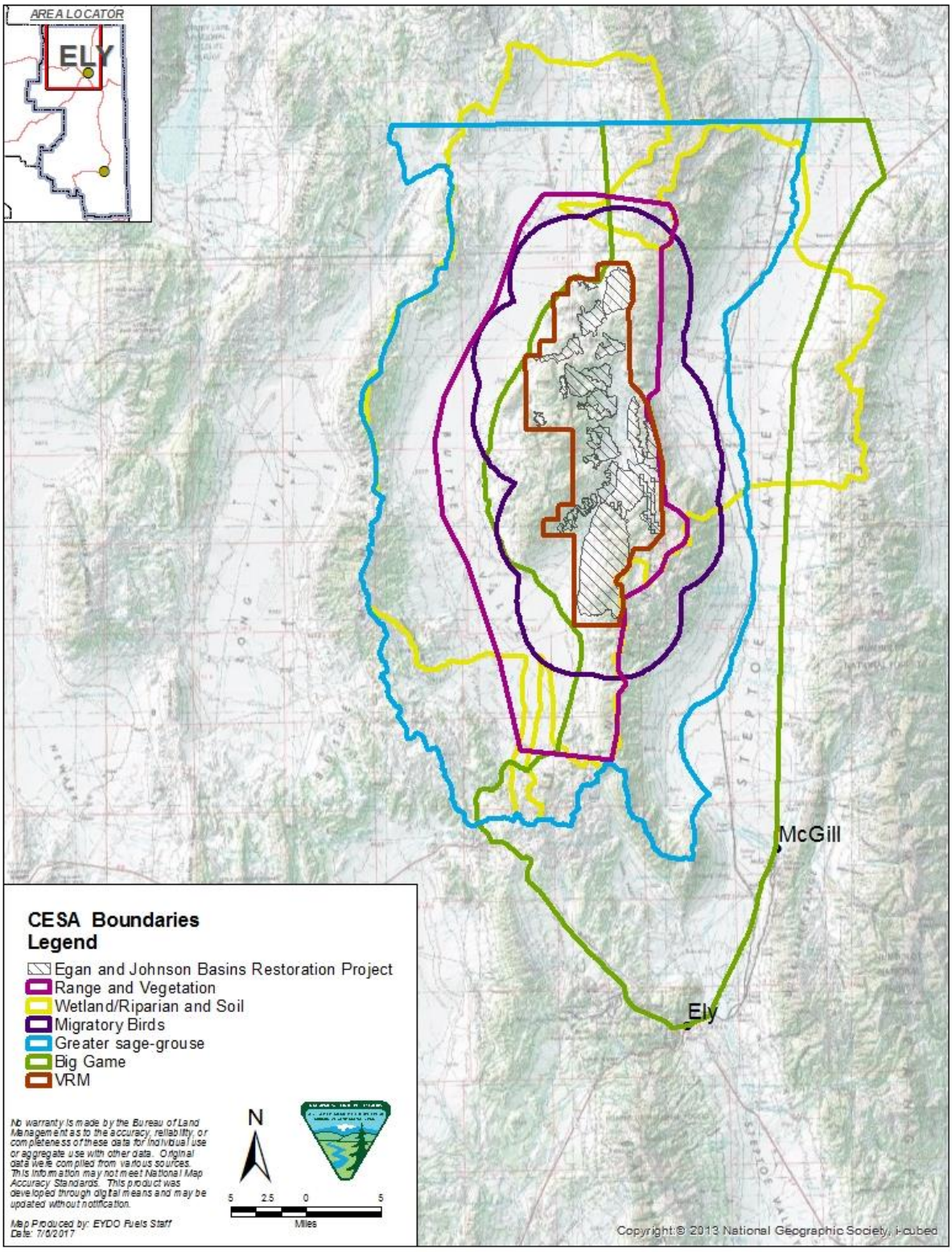
Appendix A. Maps



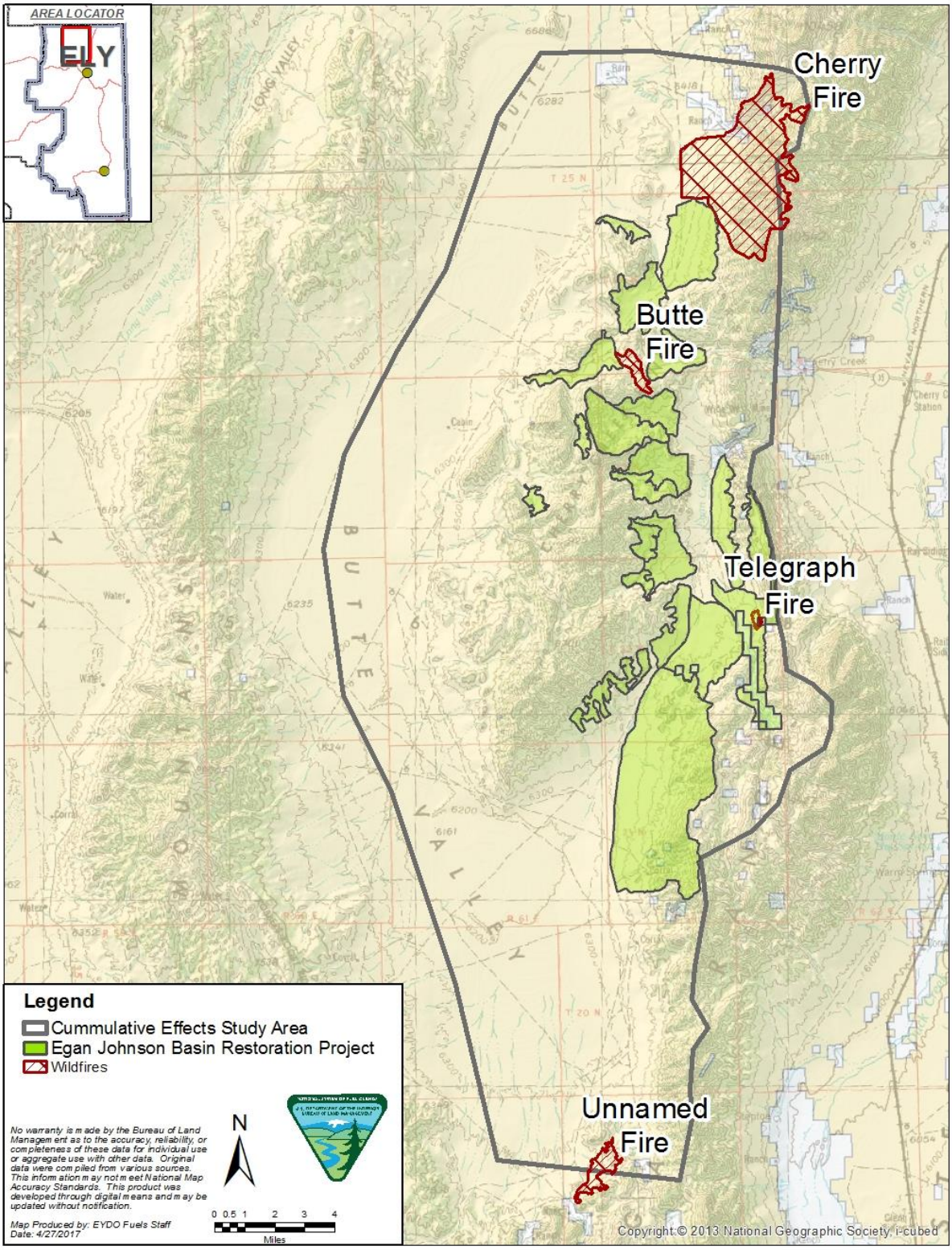
Map 1. Proposed Project Location and Layout



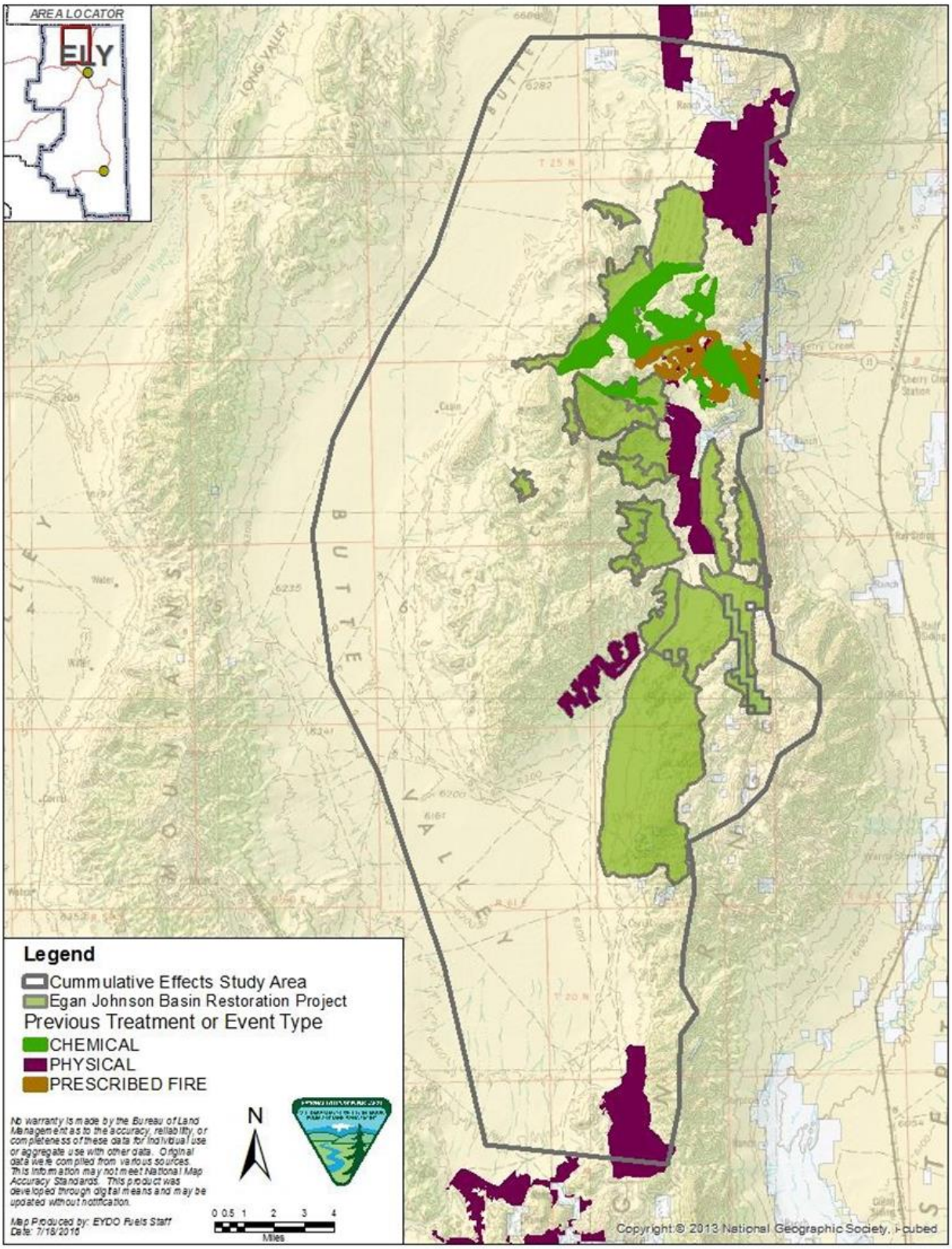
Map 2. Fire Regime Condition Class for the Egan and Johnson Basins Project Area



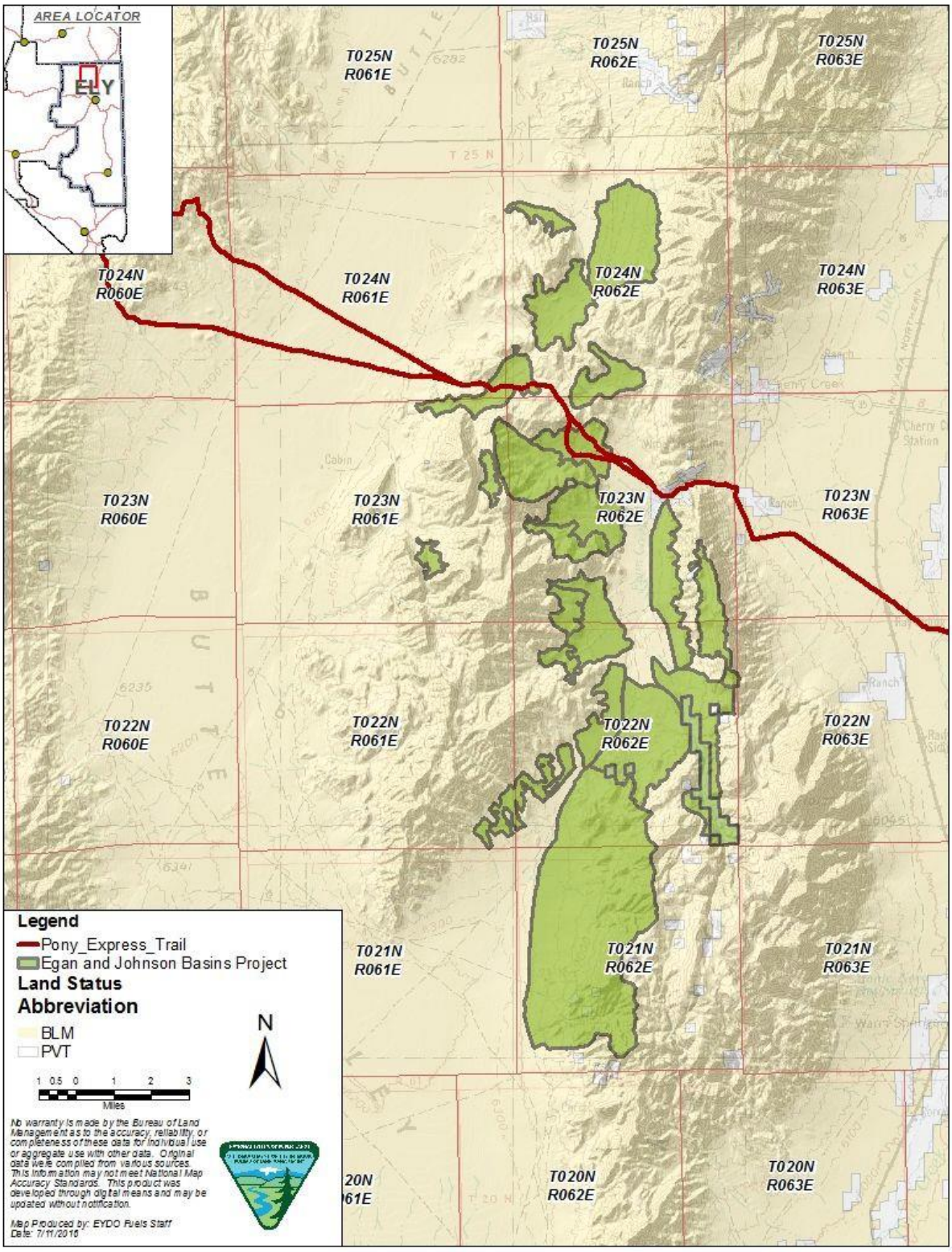
Map 3. CESA Boundaries



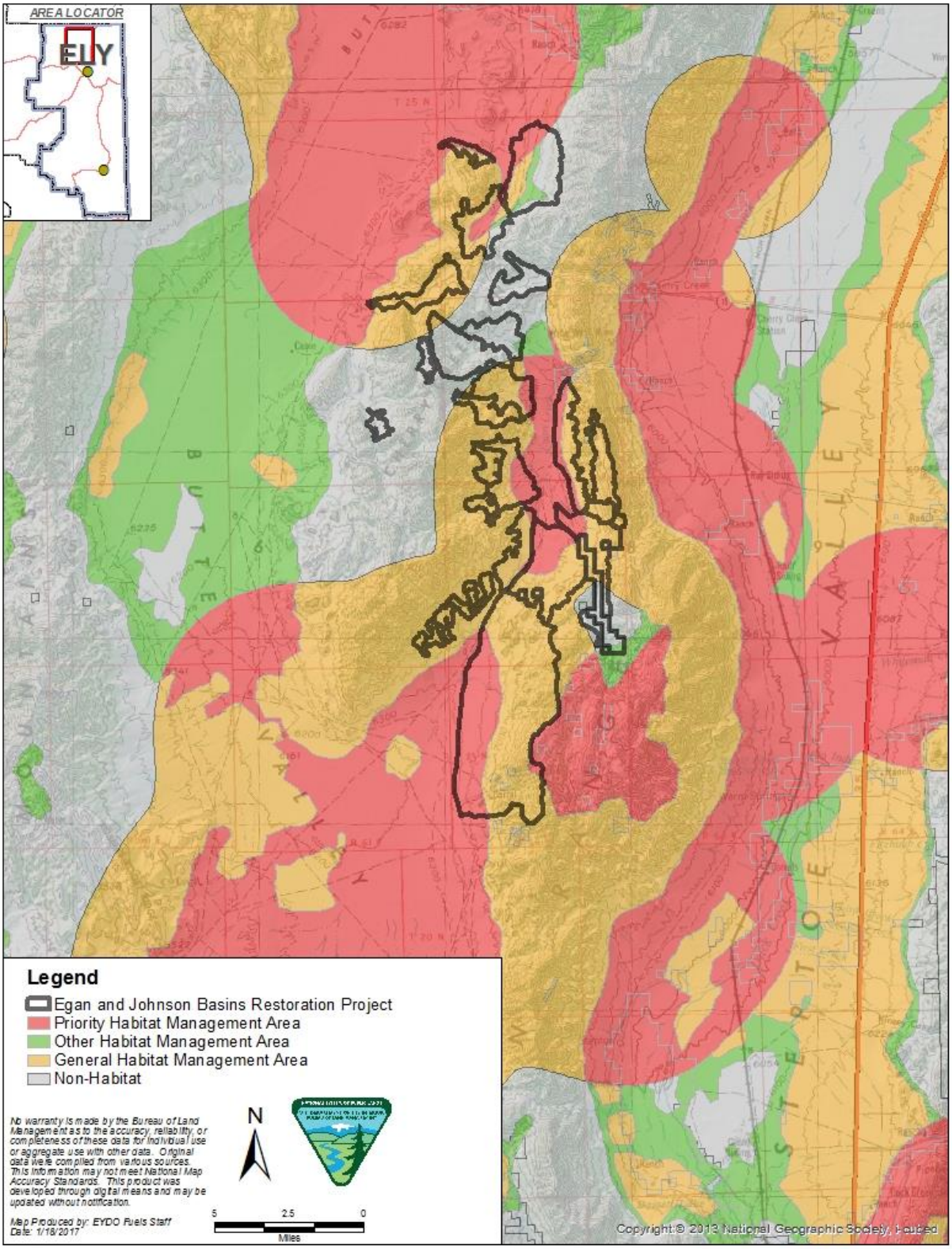
Map 4. Proposed Project Area and Recent Wildfires within the Vegetation CESA



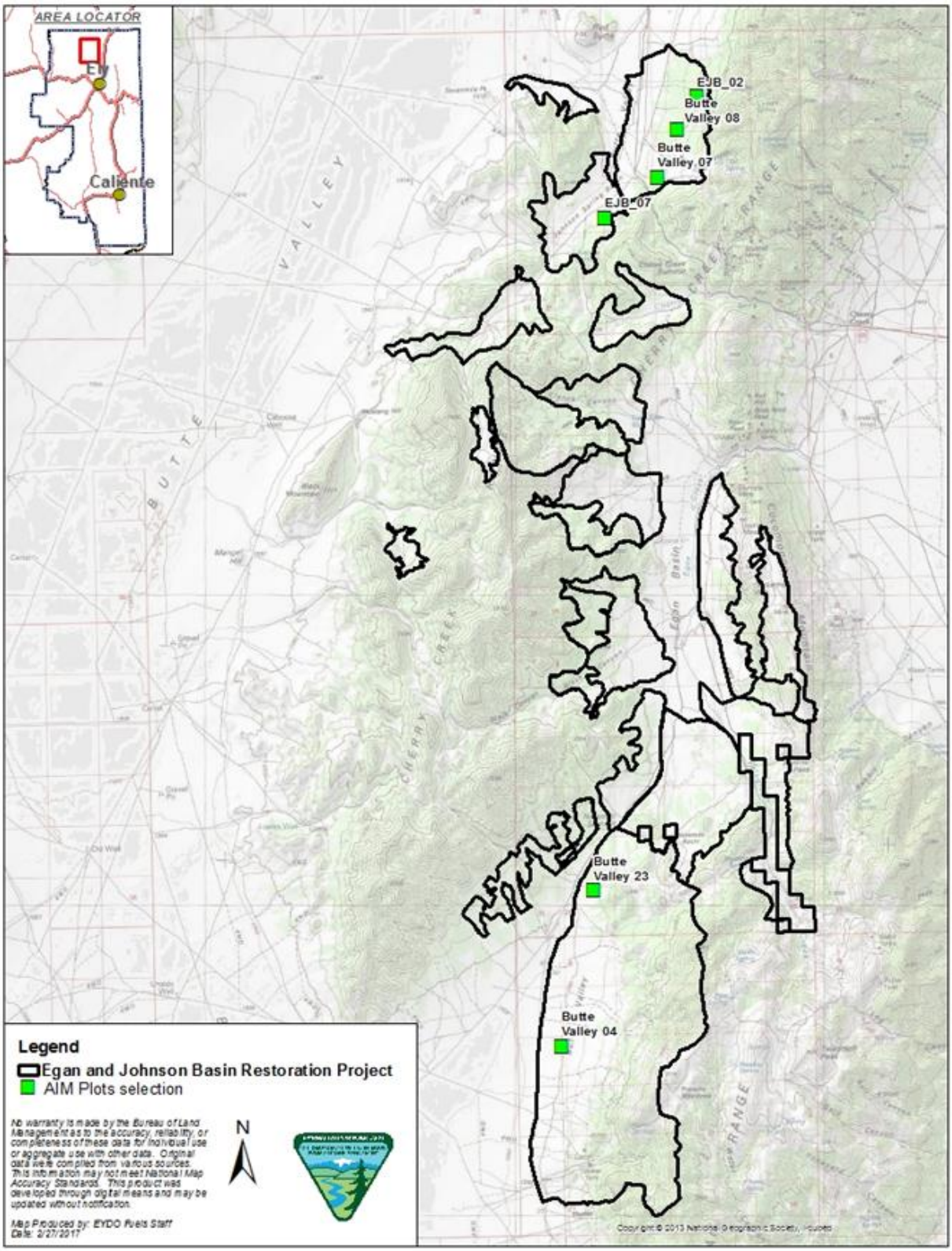
Map 5. Past and Present Range and Fuel Treatments within the Vegetation CESA



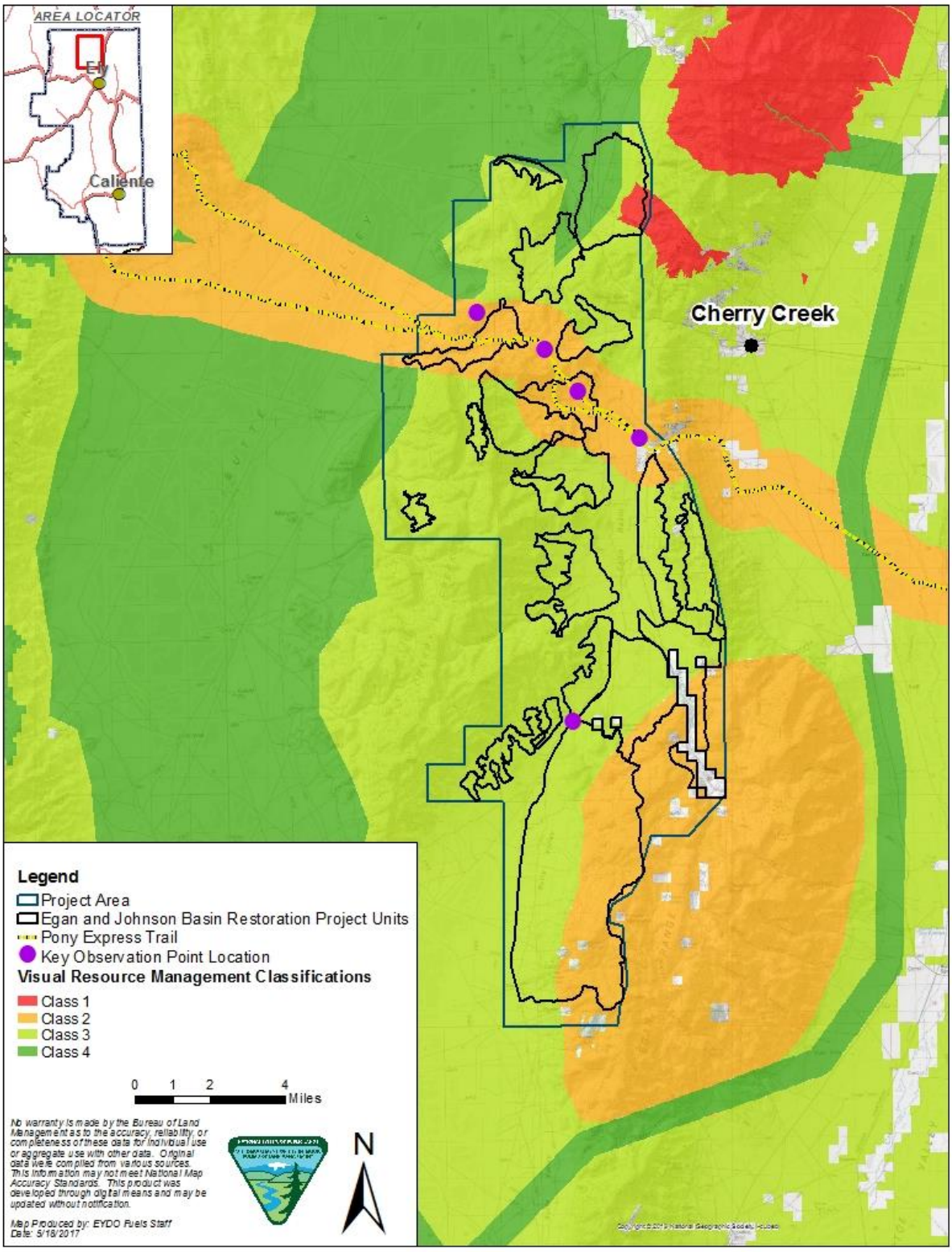
Map 6. Proposed Project Area and Pony Express Route



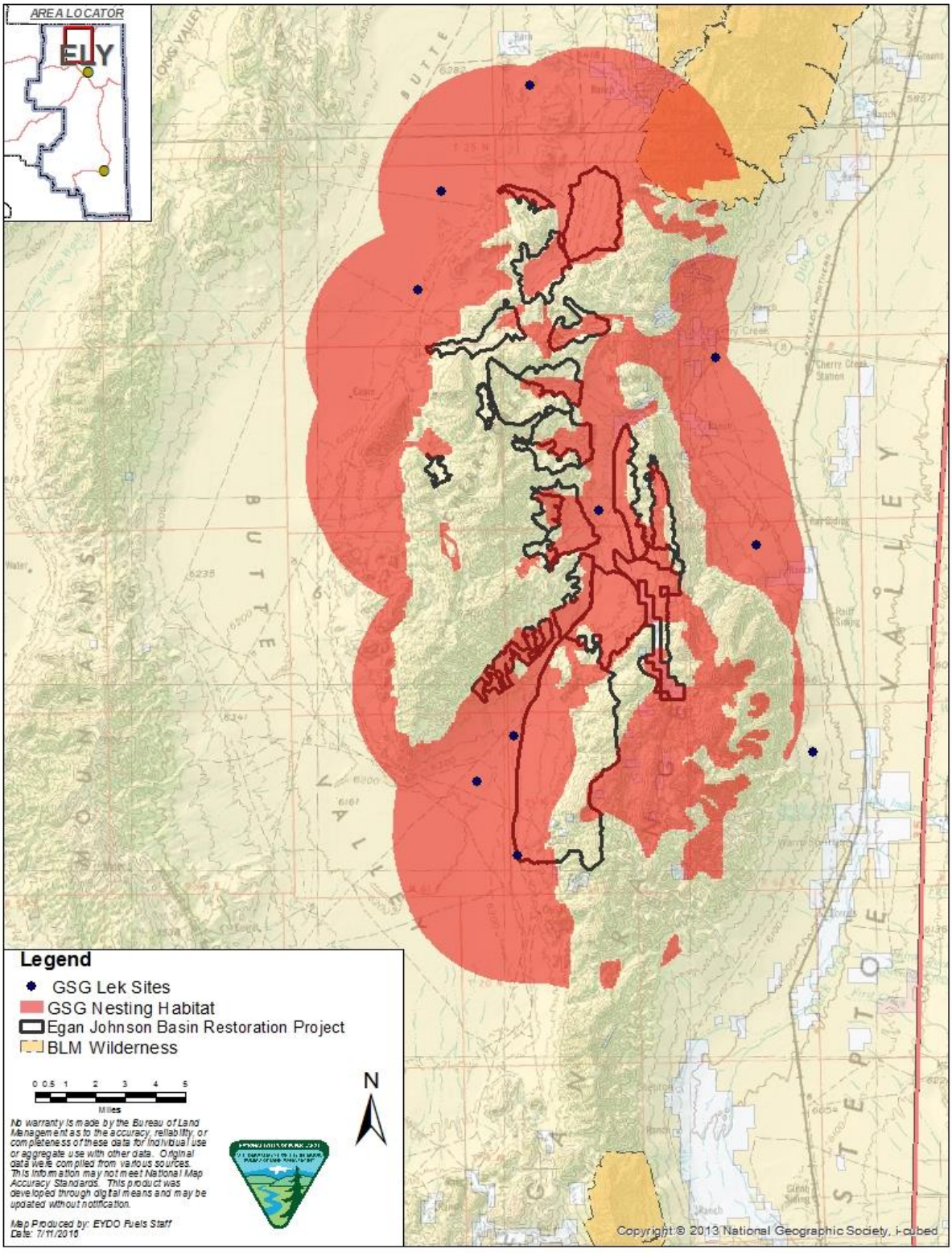
Map 7. Proposed Project Area and Greater Sage-grouse Habitat Classification



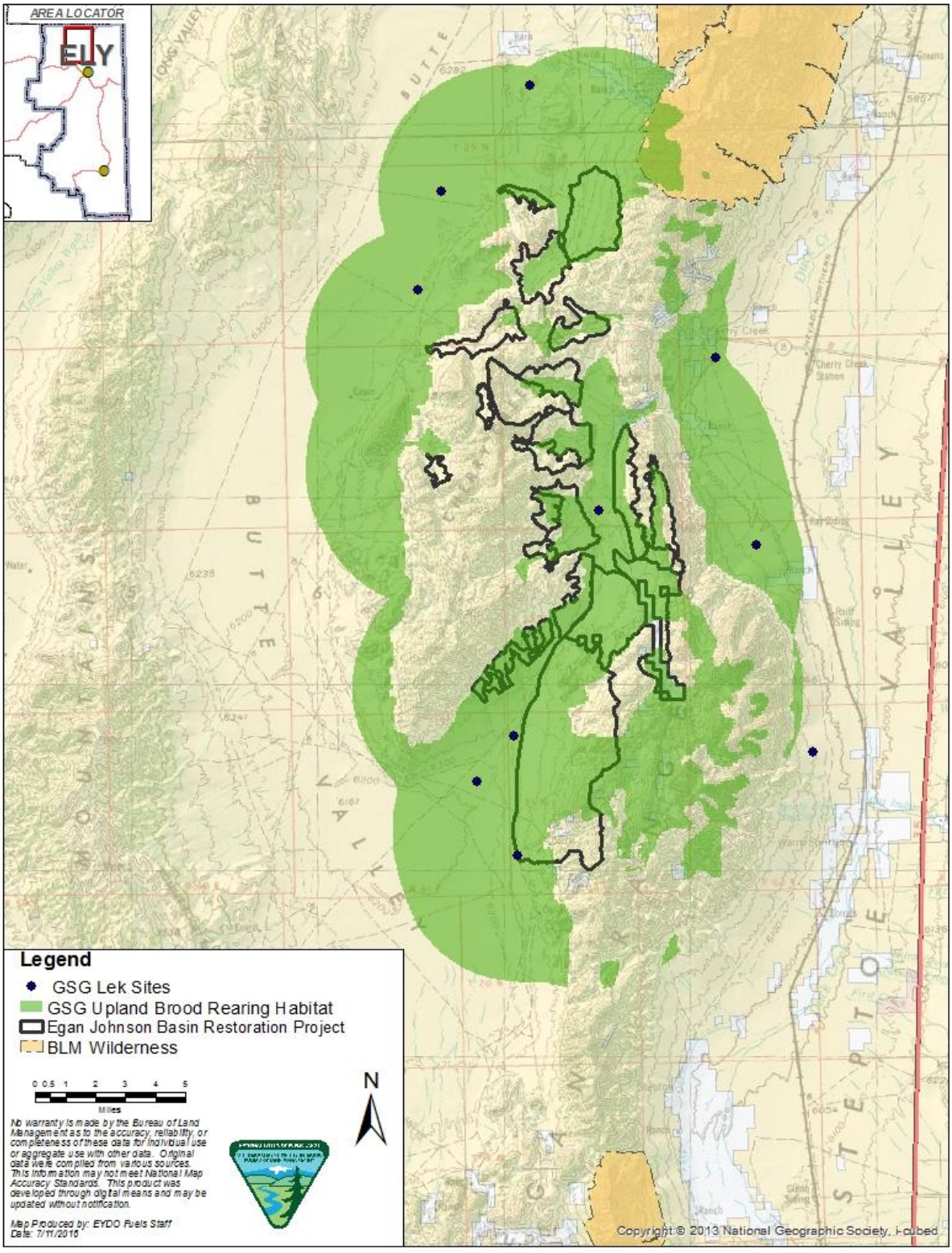
Map 8. AIM Plot Locations within the Proposed Project Area



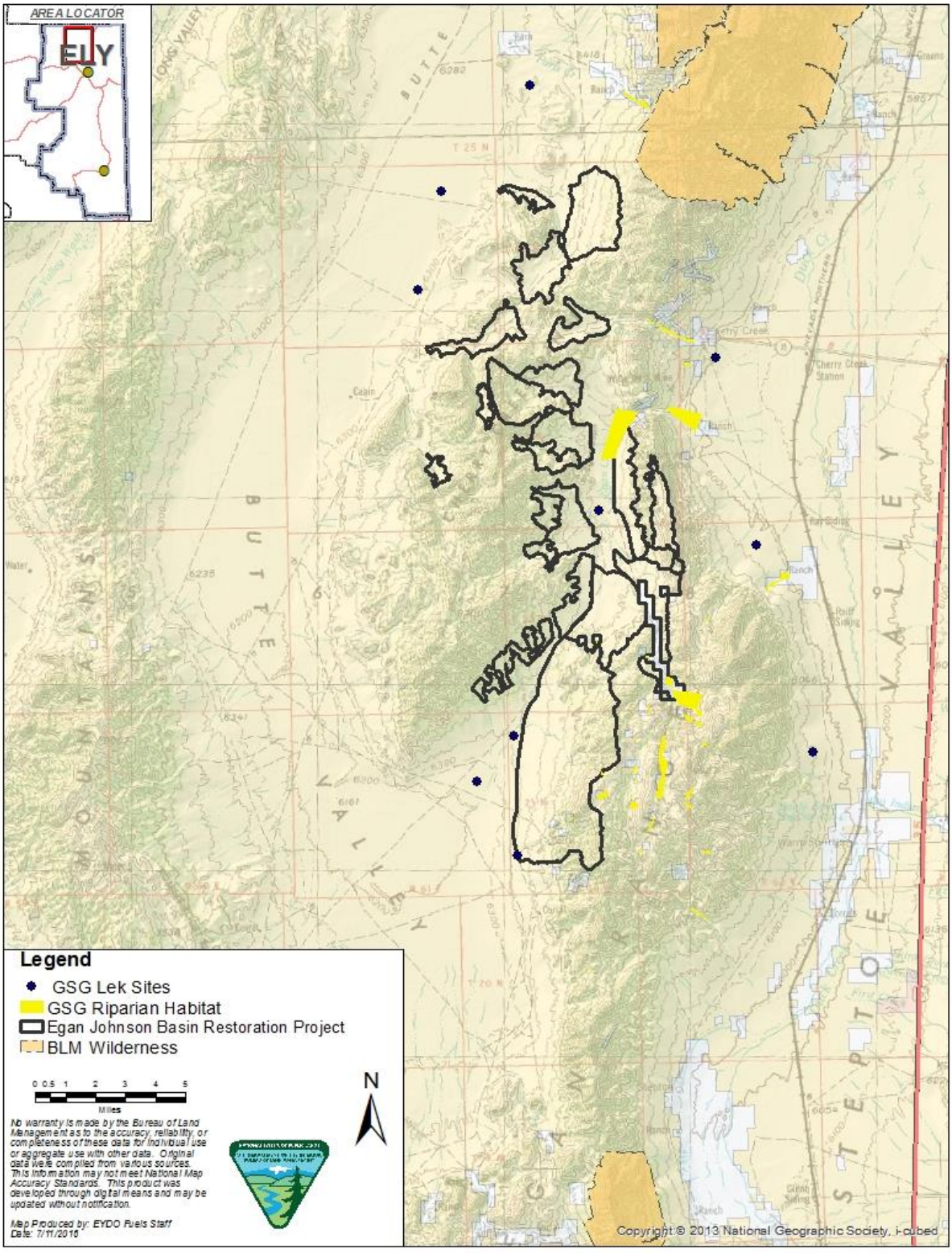
Map 9. Visual Resource Management and Proposed Project Area



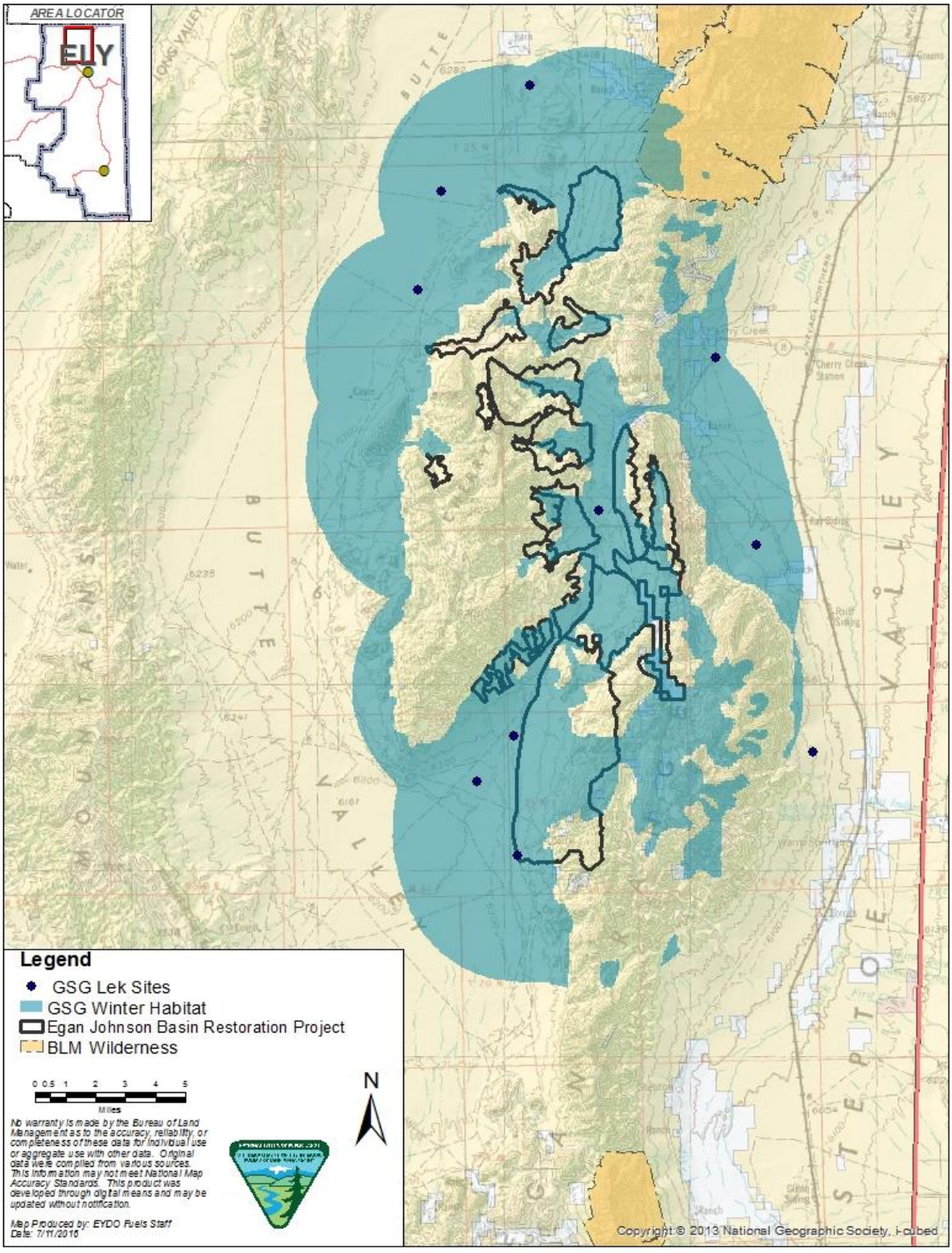
Map 10. Greater Sage-grouse Nesting Habitat and Proposed Project Area



Map 11. Greater Sage-grouse Upland Brood Rearing Habitat and Proposed Project Area



Map 12. Greater Sage-grouse Riparian Habitat and Proposed Project Area



Map 13. Greater Sage-grouse Winter Habitat and Proposed Project Area

Appendix B. Weed Risk Assessment

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS
Egan and Johnson Basin Restoration Project White Pine County, Nevada

SECTION 1 - PROPOSED ACTION

Description of the Proposed Action

The Proposed Action treatment units identifies approximately 38,500 acres of public lands administered by the BLM and private lands in the Egan and Johnson Basins. The treatment would be intended to shift vegetation species composition from FRCC 2 and 3 to FRCC 1 by reducing tree canopy coverage of pinyon-juniper, and restore sagebrush communities. Up to 65% of project acreage may be treated within the identified units. Biomass resulting from the removal of the pinyon-juniper would be available to the public for fuelwood, and the remaining slash may be piled and burned to remove excess fuels from the sites. The proposed treatments may include: tree thinning, prescribed fire, seeding and invasive species control. Chapter 2 of this EA includes a description of the Proposed Action and treatment methods.

SECTION 2– CURRENT CONDITIONS

On March 6, 2014 field weed surveys were completed for this project. In addition, the Ely District weed inventory data were consulted. Table 1 shows the documented noxious weed infestations by unit:

TABLE 1 - PROJECT AREA NOXIOUS SPECIES

COMMON NAME	LATIN NAME	INFESTATIONS WITHIN OR ADJACENT TO UNITS	NEVADA NOXIOUS WEED CATEGORY (NAC 555.010)
*Spotted knapweed	Centaurea biebersteinii	1, 2, 3, 7, 8, 9, 10, 12, 16,	CATEGORY A[1]
* Yellow starthistle	Centaurea solstitialis	2, 3, 4, 5, 6, 11, 12, 16, 17, 20, 21,	
Musk thistle	Carduus nutans	1, 3, 4, 5, 6, 7, 8, 9, 11, 12, 14, 16, 17, 20	CATEGORY B[2]
Russian knapweed	Acroptilon repens	7, 9, 10, 12, 16	
Scotch thistle	Onopordum acanthium	7, 9, 10	
Canada thistle	Cirsium arvense	5, 6, 7, 9, 10, 12, 15, 16, 17, 20	CATEGORY C[3]

Hoary cress	Cardaria draba	Present within or adjacent to all units	
Water hemlock	Cicuta maculata	10	

[1] Category A noxious weeds are weeds that are generally not found or that are limited in distribution throughout the state.
[2] Category B noxious weeds are weeds that are generally established in scattered populations in some counties of the state.
[3] Category C noxious weeds are weeds that are generally established and generally widespread in many counties of the state.

*Two Category A1 species are present adjacent to the project area. Yellow starthistle (*Centaurea solstitialis*) was discovered east of the project area in Telegraph Canyon in 2015. This is the only know occurrence of yellow starthistle within the Ely District BLM, and as such, is the highest priority species for treatment, inventory and control. Spotted knapweed (*Centaurea biebersteinii*) is known to be present east of the project area in two locations; near the town of Cherry Creek and at the mouth of Egan Canyon. Telegraph Canyon, Egan Canyon and Cherry Creek are all located along major roads which access the project area. Noxious weeds are most likely to spread along area reads.

The general area was last inventoried for noxious weeds in 2006. Table 2 shows a list of invasive (not noxious) species found within and/or adjacent to the project area.

TABLE 2 - AREA INVASIVE (NOT NOXIOUS) SPECIES	
COMMON NAME	LATIN NAME
Cheatgrass	Bromus tectorum
Bur buttercup	Ceratocephala testiculata
Bull thistle	Cirsium vulgare
Field bindweed	Convolvulus arvensis
Russian olive	Elaeagnus angustifolia
Filaree	Erodium circutarium
Kochia	Kochia scoparia
Halogeton	Halogeton glomeratus
Horehound	Marrubium vulgare
Russian thistle	Salsola kali
Tumble mustard	Sysimbrium altissimum
Common mullein	Verbascum thapsus

SECTION 3 - RISK RATING

TABLE 3 - FACTOR 1	
Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.	
None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.

High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

The rating for Factor 1 is Moderate (6). The project entails a high level of off-road vehicle traffic and other disturbances. All of the known noxious weed infestations are relatively small and sparse, but it is likely that the treatments listed above would result in some weed dispersal.

TABLE 4 - FACTOR 2	
Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.	
Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

The rating for Factor 2 is High (8). Due to the high level of disturbance, newly established noxious weeds would likely spread and disperse at higher rates than normal, increasing competition with native vegetation in the process. If yellow starthistle becomes established in the area, serious adverse effects would likely be seen in years to come. Yellow starthistle is incredibly pervasive, and very difficult to control, and can be toxic to livestock and wildlife.

TABLE 5 - RISK RATING	
The Risk Rating is obtained by multiplying Factor 1 by Factor 2.	
None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

The Risk Rating is Moderate (48). This indicates that the project can proceed as planned as long as the following measures are followed:

- Any discovery of newly established populations of noxious/invasive weeds would be communicated to the Ely District Noxious and Invasive Weeds Coordinator.

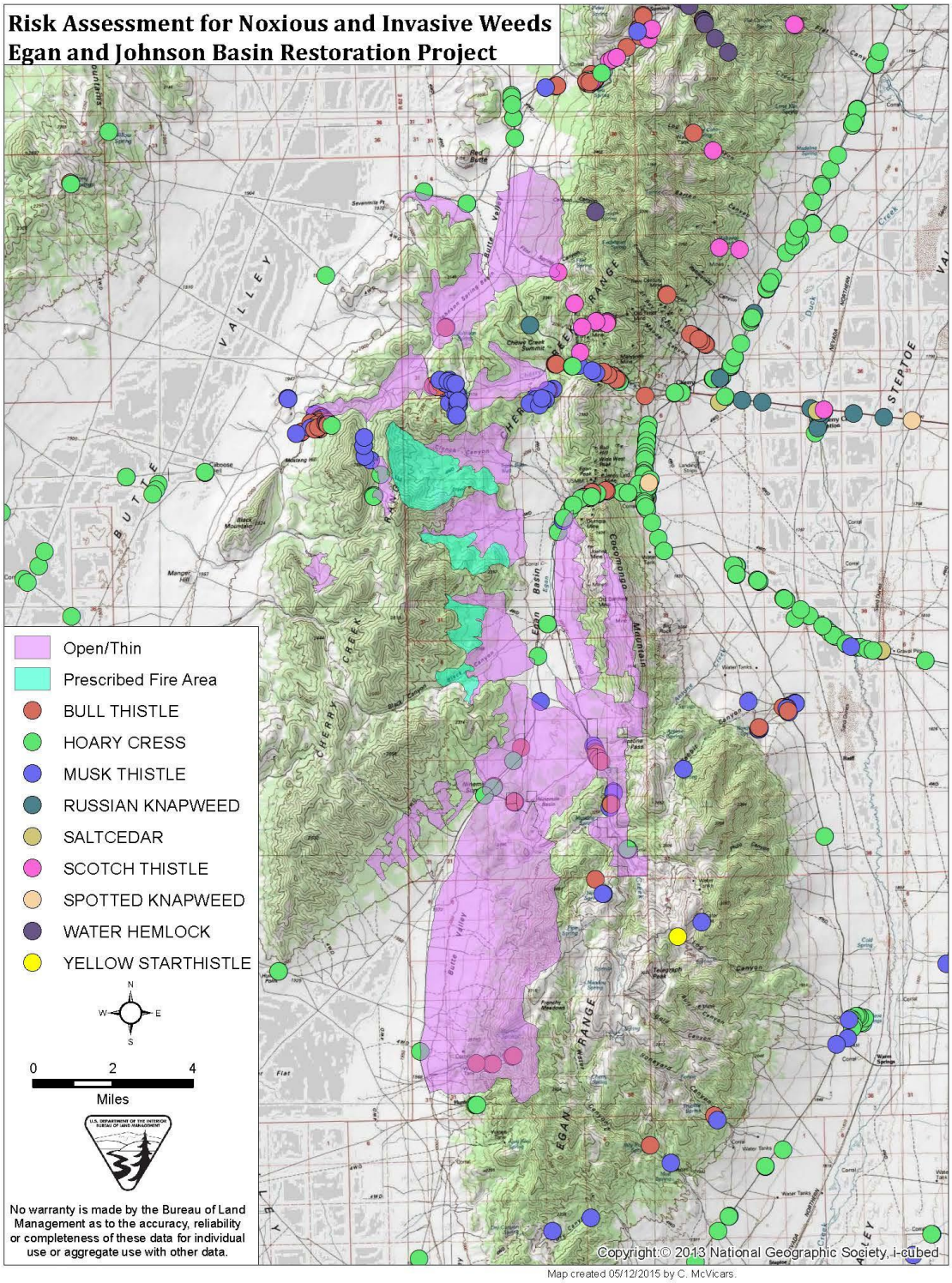
- Where appropriate, vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities, or for authorized off-road driving would be free of soil and debris capable of transporting weed propagules. Vehicles and equipment would be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts would concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis would be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out and refuse would be disposed of in waste receptacles.

  To minimize the transport of soil-borne noxious weed seeds, roots, or rhizomes, infested soils or materials would not be moved and redistributed on weed-free or relatively weed-free areas. In areas where infestations are identified or noted and infested soils, rock, or overburden must be moved, these materials would be salvaged and stockpiled adjacent to the area from which they were stripped. Appropriate measures would be taken to minimize wind and water erosion of these stockpiles. During reclamation, the materials would be returned to the area from which they were stripped.

- Before implementing any treatments near yellow starthistle infestations, map out current occurrences and avoid the areas by at least 50 meters, or treat the infestation at least a year prior to the treatment to reduce the occurrence and likelihood of spreading.

Attached map shows the known noxious species within and adjacent to the project area.

Reviewed by:	Chris McVicars	Date
	Ely District Noxious & Invasive Weeds Coordinator	5/12/2016


Risk Assessment for Noxious and Invasive Weeds
Egan and Johnson Basin Restoration Project
Open/Thin
Prescribed Fire Area
BULL THISTLE
HOARY CRESS
MUSK THISTLE
RUSSIAN KNAPWEED
SALTCEDAR
SCOTCH THISTLE
SPOTTED KNAPWEED
WATER HEMLOCK
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No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual use or aggregate use with other data.
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Map created 05/12/2015 by C. McVicars.

Appendix C. Migratory Bird List

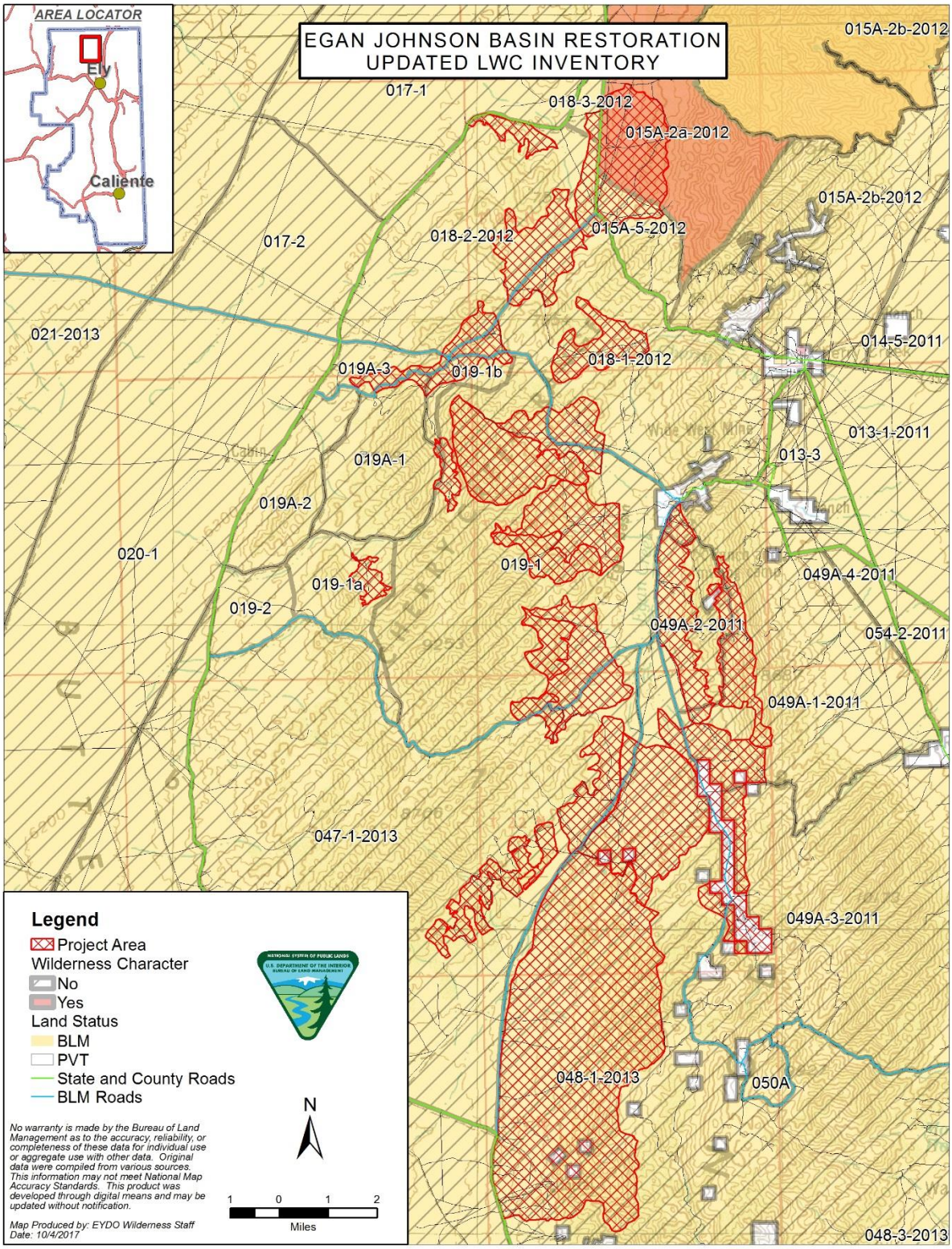
The following data reflect survey blocks and/or incidental sighting of bird species within or near the project boundaries from the Atlas of the Breeding Birds of Nevada (Floyd et al. 2007). These data represent birds that were confirmed, probably, or possibly breeding within or near the boundaries. These data are not comprehensive, and additional species not listed here may be present within the project boundary.

Table C.1. Migratory Bird List

Common Name	Species
American kestrel	(Falco sparverius)
American robin	(Turdus migratorius)
black-billed magpie	(Pica hudsonia)
brown-headed cowbird	(Molothrus ater)
black-headed grosbeak	(Pheucticus melanocephalus)
Brewer's blackbird	(Euphagus cyanocephalus)
*Brewer's sparrow	(Spizella breweri)
bushtit	(Psaltriparus minimus)
Cassin's finch	(Carpodacus cassinii)
common nighthawk	(Chordeiles minor)
common poorwill	(Phalaenoptilus nuttallii)
common raven	(Corvus corax)
dusky flycatcher	(Empidonax oberholseri)
European starling	(Sturnus vulgaris)
*greater sage-grouse	(Centrocercus urophasianus)
green-tailed towhee	(Pipilo chlorurus)
house wren	(Troglodytes aedon)
mourning dove	(Zenaida macroura)
northern flicker	(Colaptes auratus)
rock wren	(Salpinctes obsoletus)
sage thrasher	(Oreoscoptes montanus)
Savannah sparrow	(Passerculus sandwichensis)
spotted towhee	(Pipilo maculatus)
Virginia's warbler	(Vermivora virginiae)
warbling vireo	(Vireo gilvus)
white-crowned sparrow	(Zonotrichia leucophrys)
western scrub jay	(Aphelocoma californica)

* sensitive or species of concern

Appendix D. Lands with Wilderness Characteristics Map



Appendix E. Greater Sage-grouse Table 2–2*

Table 2-2
Habitat Objectives for GRSG

Attribute	Indicators	Desired Condition (Habitat Objectives)	Reference
GENERAL/LANDSCAPE-LEVEL[1]			
All life stages	Rangeland health assessments	Meeting all standards[2]	
Cover (nesting)	Seasonal habitat needed	>65% of the landscape in sagebrush cover	Aldridge and Boyce 2007
	Annual grasses	<%5	Blomberg et al. 2012
Security (nesting)	Conifer encroachment	<3% phase I (>0 to <25% cover) No phase II (25 to 50% cover) No phase III (>50% cover)	Casazza et al. 2011 USGS (in prep A)
Cover and food (winter)	Conifer encroachment	<5% phase I (>0 to <25% cover) No phase II (25 to 50% cover) No phase III (>50%)	USGS (in prep A) USGS (in prep B)
	Sagebrush extent	>85% sagebrush land cover	USGS (in prep A) Doherty et al. 2008
LEK (Seasonal Use Period: March 1 to May 15)[1]			
Cover	Availability of sagebrush cover	Has adjacent sagebrush cover	Blomberg et al. 2012 Connelly et al. 2000 Stiver et al. 2015 (in press) HAF
Security[3]	Pinyon or juniper cover	<3% landscape cover within .6 mile of leks	Connelly et al. 2000 (modified) Stiver et al. 2015 (in press) HAF Baruch-Mordo et al. 2013
	Proximity of tall structures[4]	Use Manier et al. 2014-Conservation Buffer Distance Estimates for GRSG-A Review; preference is 3 miles	Coates et al. 2013 Manier et al. 2014
NESTING (Seasonal Use Period: April 1 to June 30)[1]			
Cover	Sagebrush cover	≥20%	Kolada et al. 2009a, 2009b
	Residual and live perennial grass cover (such as native bunchgrasses)	≥10% if shrub cover is <25%[5]	Coates et al. 2013 Coates and Delehanty 2010 Kolada et al. 2009a, 2009b
	Annual grass cover	<5%	Lockyer et al. (in press)
	Total shrub cover	≥30%	Coates and Delehanty 2010 Kolada et al. 2009a Lockyer et al. (in press)
	Perennial grass height (includes residual grasses)	Provide overhead and lateral concealment from predators	Connelly et al. 2000, 2003 Hagen et al. 2007; Stiver et. al. 2015 (in press) HAF

Table 2-2
Habitat Objectives for GRSG

Attribute	Indicators	Desired Condition (Habitat Objectives)	Reference
Security[2]	Proximity of tall structures[4] (3 feet [1 meter] above shrub)	Use Manier et al. 2014, Conservation Buffer Distance Estimates for GRSG-A Review; preference is 3 miles	Coates et al. 2013 Gibson et al. 2013 Manier et al. 2014
BROOD-REARING/SUMMER (Seasonal Use Period: May 15 to September 15; Early: May 15 to June 15; Late: June 15 to September 15)[1]			
UPLAND HABITATS			
Cover	Sagebrush cover	10 to 25%	Connelly et al. 2000
	Perennial grass Cover and forbs	>15% combined perennial grass and forb cover	Connelly et al. 2000 Hagen et al. 2007
	Deep rooted perennial bunchgrass (within 522 ft [200 meters] of riparian areas and wet meadows)	7 inches[6, 7]	Hagen et al. 2007
Cover and food	Perennial forb cover	≥5% arid ≥15% mesic	Casazza et al. 2011 Lockyer et al. (in press)
RIPARIAN/MEADOW HABITATS			
Cover and food	Riparian areas/meadows	PFC	Dickard et al. 2014 Prichard et al. 1998, 1999 Stiver et al. 2015 (in press) HAF
Security	Upland and riparian perennial forb availability and understory species richness	• Preferred forbs are common with several species present[6] • High species richness (all plants)	Stiver et al. 2015 (in press) HAF
	Riparian area/meadow interspersion with adjacent sagebrush	Has adjacent sagebrush cover	Casazza et al. 2011 Stiver et al. 2015 (in press) HAF
WINTER (Seasonal Use Period: November 1 to February 28)[1]			
Cover and Food	Sagebrush cover	≥10% above snow depth	Connelly et al. 2000 USGS (in prep C)
	Sagebrush height	>9.8 inches above snow depth	Connelly et al. 2000 USGS (in prep C)

[1] Any one single habitat indicator does not define whether the habitat objectives is or is not met. Instead, the preponderance of evidence from all indicators within that seasonal habitat period must be considered when assessing sage-grouse habitat objectives.
[2]Upland standards are based on indicators for cover, including litter, live vegetation, and rock, appropriate to the ecological potential of the site.
[3] Applicable to Phase I and Phase II pinyon and/or juniper.
[4] Does not include fences.
[5]In addition, if upland rangeland health standards are being met.
[6]Relative to ecological site potential.
[7] In drought years, 4-inch perennial bunchgrass height with greater than 20 percent measurements exceeding 5 inches in dry years.
*This table is referenced from the Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA) and Final Environmental Impact Statement. (2015)

Appendix F. Cherry Creek Mowing and Prescribed Burn Project Post Monitoring

The Cherry Creek Project failed to meet important species composition objectives such as improving perennial grass cover and protecting the site from invasive species. The treatment included mechanical and prescribed fire aspects; however it is difficult to determine what effects, if any, the mechanical component may have had. The ecological sites included R028BY086NV, R028BY010NV, R028BY087NV, F028BY062NV, and F028BY060NV, which were either sagebrush and pinyon-juniper sites and typically included desired perennial species bluebunch wheatgrass and Indian ricegrass.

The basic site characteristics such as canopy cover and bare ground generally did not improve over the monitoring period, as indicated by data from Plots 1-3, 8, 9, and 11; see Figure 1 below. These sample plots were the only available monitoring data following treatment.

Tree and shrub cover was greatly reduced by the treatment and 2012 monitoring data indicated little tree and shrub species with no pinyon or juniper present. The 2012 monitoring data indicates tree cover was reduced well below the maximum objective, possibly beyond what would be advised; see Figure 2 below.

The 2012 monitoring data indicates partial success regarding perennial grass percent cover; Figure 2. The global average is only 8% cover with a minimum objective of 10% which were not statistically different; therefore, perennial grass cover could be meeting the objective minimum. However, this treatment type should be reconsidered prior to use on similar sites under similar conditions as success was minimal 7 years following treatment.

Regression analysis emphasized the importance of adequate perennial grass cover prior to this type of treatment; Figure 3 below. Perennial grass cover less than 7-10% prior to the burn resulted in poor recovery of perennial grass cover following the burn. Individually analyzing sample plots over all monitoring years reveals the ability of sites to rebound based on perennial grass cover prior to treatment; Figure 4 below. These results were further correlated to invasive species by comparing the relative invasive species cover as a percent of canopy cover. When invasive cover was divided by canopy cover, the confounding effect of site quality on results was reduced (i.e. high quality sites had greater canopy cover and greater levels of both invasive and perennial grass cover). Percent invasive canopy cover averaged over all post-treatment monitoring years ranged from 46-78% for sample plots. Linear regression indicated 10% pre-treatment perennial grass cover reduced percent invasive canopy cover from 80% to 48% as compared to having no perennial species cover prior to treatment. The advantage of perennial grass cover for reducing cheatgrass invasion following fire has been previously documented (Condon, 2011). Post-treatment photos of the baselines for Plots 1, 8, and 11 are displayed in Figures 5–7 below.

In summary, post-treatment monitoring indicates extreme mortality of tree and shrub species with little desired perennial species occupying the site. Species composition was negatively impacted by the treatment. The prescribed fire appears to have exceeded desired characteristics and has resulted in multiple invasive species exceeding the maximum objective for invasive

species percent cover. Plot level data was generally not statistically significant due to only two transects being implemented at each plot. Three transects are recommended for future monitoring protocol. Fewer sample points (e.g. 50 or 66 instead of 100) along the transect could offset the additional expense of including three transects without compromising data quality. The site does not appear to be in the Reference State as invasive species presence is abundant. In some cases these sites may be in the Annual State, as shrub and tree cover has been reduced and there was limited perennial grass species.

Literature Cited

Condon, Lea, Peter J. Weisberg, and Jeanne C. Chambers. 2011. Abiotic and biotic influences on Bromus tectorum invasion and Artemisia tridentata recovery after fire. International Journal of Wildland Fire 20(4):597-604.

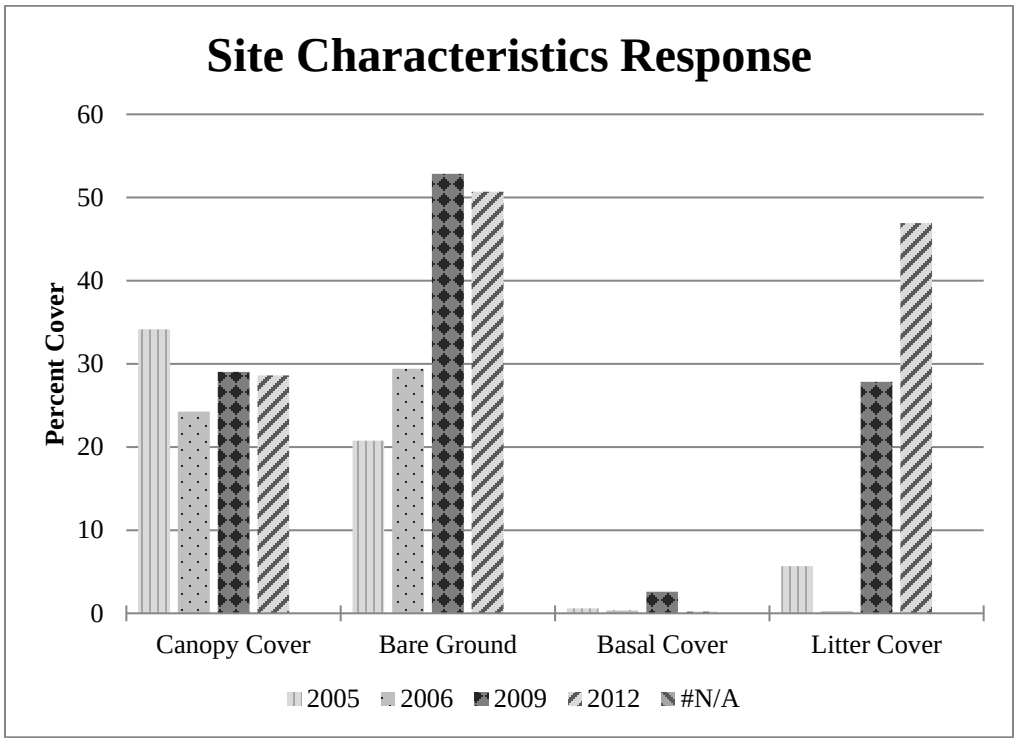


Figure 1. Cherry Creek site characteristics response to treatment. Only data from plots which were monitored pre- and post-treatment were included.

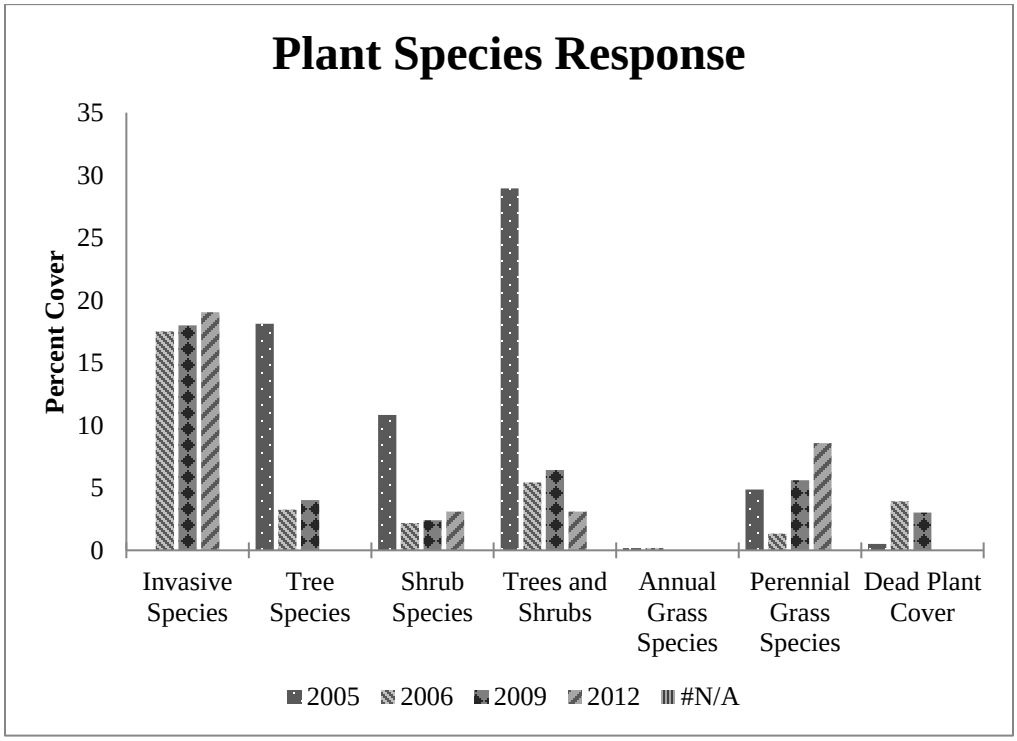


Figure 2. Cherry Creek species response to treatment. Only data from plots which were monitored pre- and post-treatment were included. Overall, the project failed to meet important objectives, with the exception of reducing target tree species. The absence of invasive species prior to treatment is surprising considering the extreme post-treatment levels.

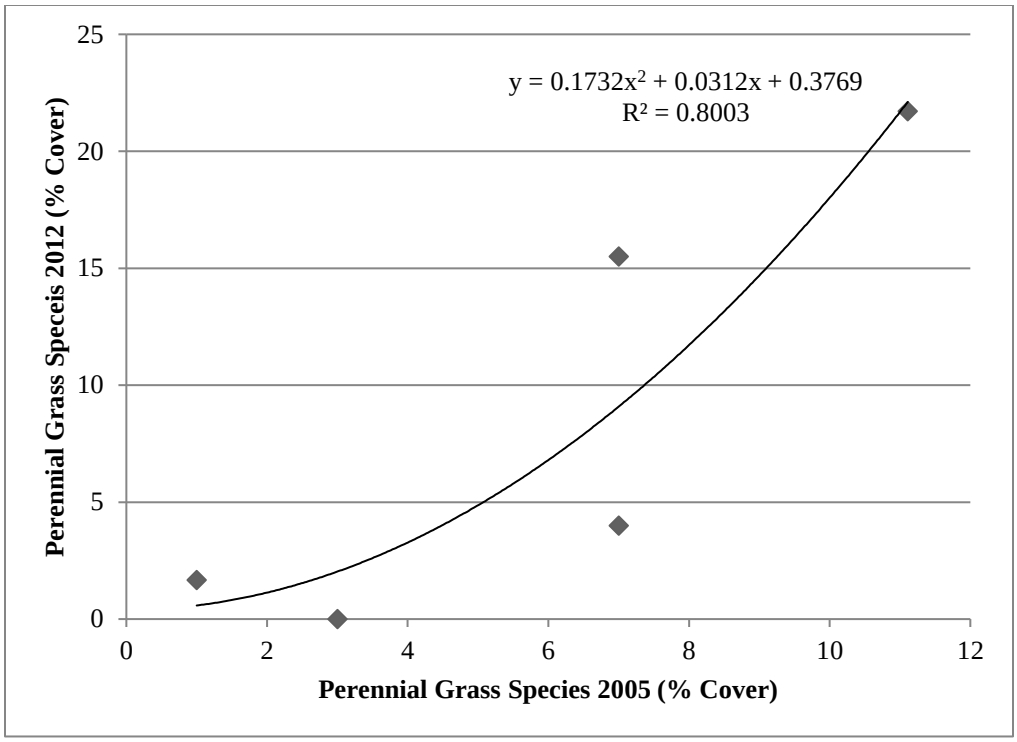


Figure 3. Effect of species composition prior to treatment on post-treatment results at Cherry Creek. Regression analysis indicates perennial grass cover after burning is highly dependent (75-80% explained variation) on pre-treatment perennial grass cover. The exponential relationship indicates much greater post-treatment cover with only slightly greater pre-treatment cover. Management should consider improving perennial grasses by other methods when existing perennial grasses are low.

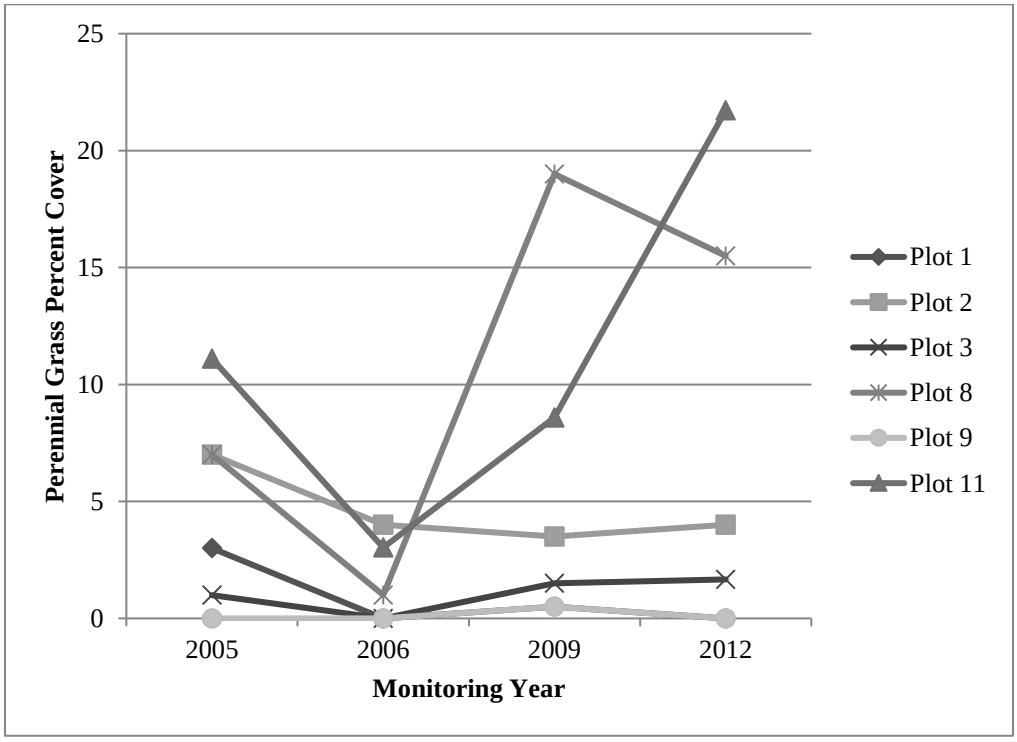


Figure 4. Perennial grass species cover by monitoring year for 6 Cherry Creek sample plots. This figure illustrates the ability of perennial grasses to recover and increase following fire when pre-treatment cover is adequate.

Figure 5. Plot 1 baseline during 2012 monitoring.

Figure 6. Plot 8 baseline during 2012 monitoring.

Figure 7. Plot 11 baseline during 2012 monitoring.

Appendix G. Assessment, Inventory, and Monitoring Plot Vegetation Summary

Within the proposed project treatment area there are four plots from 2011 data collection efforts and two plots from 2016 data collection efforts. From 2011, two plots are within ecological site R028BY006NV- Shallow Calcareous Loam 10-12"Precipitation Zone (P.Z.), one is within R028BY010NV- Loamy 8-10" P.Z., and one is within R028BY011NV- Shallow Calcareous Loam 8-10" P.Z. From 2016 data collection efforts, both plots are within ecological site R028BY094NV- Calcareous Loam 10-14" P.Z. Information on ecological site descriptions (ESDs) can be found at the Natural Resource Conservation Service (NRCS) website (https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/ecoscience/desc/).

Protocols for data collection and monitoring methods are found in the Monitoring Manual for Grasslands, Shrublands and Savanna Ecosystems (Herrick, 2016). These methods are standard and provide quantitative and qualitative measurements for assessing land management decisions.

Protocols followed would be AIM Core and Supplemental Methods.

- Line Point Intercept (with plot-level species inventory)
  - LPI on spoke system with three 25m transects 120° apart
  - Transect 1, would be magnetic north
  - Transects 2 & 3 would be 120° and 240° respectively
  - Collect points every .5m
- Vegetation Heights (AIM method)
  - Every 2.5m on all 3 LPI lines
- Canopy Gap (includes annual and perennial vegetation)
  - Supplemental Canopy Gap can include only perennial vegetation
- Soil stability. Collected from 18 points along the 3 LPI lines.
- Soil pit profile. Collected at plot center
- Photos. 1 taken of soil pit and 3 from center looking down each LPI line.
- HAF methods (for GRSG habitat): Sagebrush Shape & Forb Frequency
- Tree Density (AIM supplemental method modified to .1 acre subplots)
- Density sub-plots (supplemental fuels treatment information)
  - Meter squared sub-plots along North LPI transect- 5 total, every 5 meters (5, 10, 15, 20, 25).

Table 1.1 Summary of Plots, Ecological Site, Biophysical Setting (BpS) and Succession Class

Plot ID	Ecological Site Code	Ecological Site Name	BpS	Succession Class
Butte Valley 04	R028BY010NV	Loamy 8-10″ P.Z.	Great Basin Xeric Mixed Sagebrush Shrubland (1079)	B
Butte Valley 07	R028BY006NV	Shallow Calcareous Loam 10-12″ P.Z.	Inter-Mountain Basins Big Sagebrush Shrubland (1080)	UN
Butte Valley 08	R028BY006NV	Shallow Calcareous Loam 10-12″ P.Z.	Inter-Mountain Basins Big Sagebrush Shrubland (1080)	E
Butte Valley 23	R028BY011NV	Shallow Calcareous Loam 8-10″ P.Z.	Great Basin Xeric Mixed Sagebrush Shrubland (1079)	UN
EJB 02	R028BY094NV	Calcareous Loam 10-14″ P.Z.	Great Basin Xeric Mixed Sagebrush Shrubland (1079)	D
EJB 07	R028BY094NV	Calcareous Loam 10-14″ P.Z.	Inter-Mountain Basins Big Sagebrush Shrubland (1080)	UN

Biophysical Setting and Succession Class Description

Dominate vegetation type within the proposed project area are described using the Biophysical Setting (BpS) and succession class layers from LANDFIRE v.1.3.0 (LANDFIRE, 2013). BpS is vegetation that would have been dominate on the landscape prior to Euro-American settlement and is based on current biophysical environment and an estimation of the historical disturbance regime. BpS functions as a potential baseline to compare reference or historical conditions to current conditions (Barrett et al., 2010). Succession class is a characterization of the current vegetation conditions for successional stages within each BpS. Succession class also describes uncharacteristic stages, like exotic species, that would not occur within the variability of a BpS. Successional stage descriptions can be found in the FRCC handbook (Barrett et al., 2010) Further information about BpS community type descriptions can be found on the LANDFIRE website (http://www.landfire.gov/index.php). A description of the BpS and succession classes can be found in the Vegetation Resources section of Chapter 3 in this EA.

Soil Stability

The soil stability test provides information about soil structure and erosion resistance. Each sample is tested using a soil stability kit and given a rating from 1 to 6 based on their cohesion when dipped in water. A rating of "6" indicates the highest level of soil stability, and a rating of "1" indicates the lowest level of soil stability. Samples are collected under perennial plant coverage and no cover (this includes non-perennial plant cover). Higher stability has been directly correlated with reductions in erosion. It is more difficult for individual soil particles to become detached as the soil stability value increases. More stable soils are less likely to form physical crusts, which soak up water more slowly. Thus, hydrologic function tends to be better on soils with high stability values. However, there are some cases in which soil surfaces stabilized by microbiotic crusts (high stability values) actually have lower infiltration rates than similar soils without crusts (Herrick, 2009).

Table 2.2 Summary of Soil Stability Test Results

Plot Name	Ecological Site Code	Soil Stability -All Samples Average	Soil Stability- No Cover	Soil Stability- Under Cover
Butte Valley 04	R028BY010NV Loamy 8-10″ P.Z.	4.5	4.7	4.4
Butte Valley 07	R028BY006NV Shallow Calcareous Loam 10-12″ P.Z.	4.2	3.0	4.8
Butte Valley 08	R028BY006NV Shallow Calcareous Loam 10-12″ P.Z.	4.4	4.1	4.5
Butte Valley 23	R028BY011NV Shallow Calcareous Loam 8-10″ P.Z.	3.4	2	4.3
EJB 02	R028BY094NV Calcareous Loam 10-14″ P.Z.	3.4	2.4	4.2
EJB 07	R028BY094NV Calcareous Loam 10-14″ P.Z.	4.2	5.0	4.1

Species Richness

Plot Name	Ecological Site Code	Number of Species Recorded
Butte Valley 04	R028BY010NV Loamy 8-10″ P.Z.	23
Butte Valley 07	R028BY006NV Shallow Calcareous Loam 10-12″ P.Z.	42
Butte Valley 08	R028BY006NV Shallow Calcareous Loam 10-12″ P.Z.	37
Butte Valley 23	R028BY011NV Shallow Calcareous Loam 8-10″ P.Z.	44
EJB 02	R028BY094NV Calcareous Loam 10-14″ P.Z.	20
EJB 07	R028BY094NV Calcareous Loam 10-14″ P.Z.	24

Species found within plots that are greater sage-grouse preferred:

- Indian Ricegrass- *Achnatherum hymenoides*
- Douglas' dustymaiden- *Chaenactis douglasii*
- Squirreltail- *Elymus elymoidies*
- Fleabane- *Erigeron spp.*
- Spiny hopsage- *Grayia spinosa*
- Granite pickly phlox- *Linanthus pungens*
- Cryptantha- *Cryptantha pterocarya*
- Buckwheat- *Eriogonum microthecum, Eriogonum ovalifolium*
- Blazingstar- *Mentzelia albicaulis*
- Beardtongue- *Penstemon spp*
- Phlox- *Phlox hoodia, Phlox longifolia*
- Milkvetch- *Astragalus spp.*
- Sego Lily- *Calochortus nuttallii*

Species found within plots that are identified as noxious or invasive annuals:

- Cheatgrass- *Bromus tectorum*
- Russian Thistle- *Salsola*

Figure 1. Plot Photo EJB 07

Figure 2. Plot Photo EJB 02

References

Herrick, J.E., J.W. Van Zee, K.M. Havstad, L.M. Burket, and W.G. Whitford. 2009. Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems, Volume II: Design, supplementary methods and interpretation. 206 pp.

Herrick, J.E., J.W. Van Zee, K.M. Havstad,S.E. McCord, E.M. Courtright, J.W. Karl, L.M. Burkett. 2016. Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems, Volume I: Core Methods. Second Edition. 76 pp.

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Appendix H. Visual Resource and KOP Observations

KOP 1- looking into VRM Class III to the west

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 11/14/13
District/ Field Office: EYDO/ Egan FO
Resource Area: Egan & Johnson Basins
Activity (program): Forestry

SECTION A. PROJECT INFORMATION

1. Project Name	4. Location	5. Location Sketch
Egan and Johnson Basin Habitat Restoration Project	Township (see map)	
2. Key Observation Point KOP 1 – looking into VRM Class III to the west	Range	
3. VRM Class II Pony XP NHT	Sections	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Bold	Rolling & Consistent	None
LINE	Irregular	Uniform & Flowing	None
COLOR	Light to dark tans and browns	Light to dark greens with brown and yellow tones	None
TEX-TURE	Continuous	Medium & Uniform	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Bold	Rolling & Curving	None
LINE	Irregular & Flowing	Curving & Broken	None
COLOR	Light to dark tans and browns	Light to dark greens with light browns and yellow tones	None
TEX-TURE	Continuous	Gradational & Smooth	None

SECTION D. CONTRAST RATING __SHORT TERM X_LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X			X					X
	LINE			X			X	X					X
	COLOR				X			X	X				X

2. Does project design meet visual resource management objectives? X Yes _No (Explain on reverses side)

3. Additional mitigating measures recommended __Yes X No (Explain on reverses side)

Evaluator's Names: Erin Rajala
Date: 11/14/13

TEXTURE			X			X						X

SECTION D. (Continued)

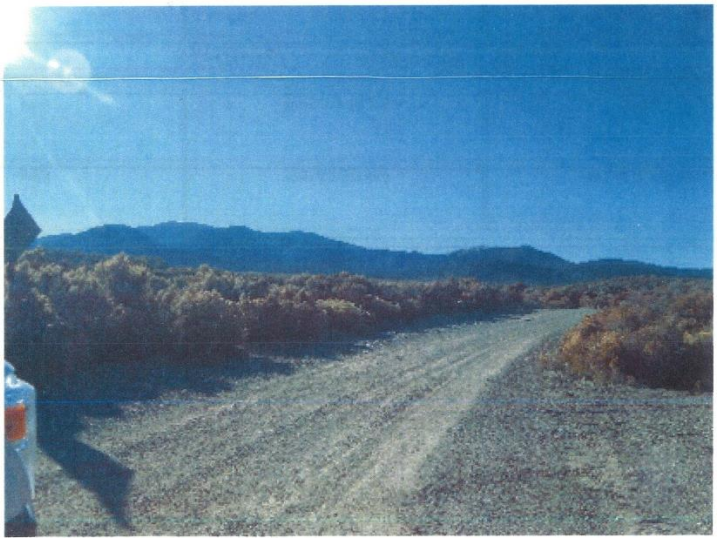
Comments from item 2.

The proposed project would result in temporary short-term and beneficial long-term visual impacts. The proposed restoration project introducing various vegetation treatments will primarily affect the elements of line and color. Short-term visual impacts would primarily be affected immediately after the treatments occurred until the existing vegetation started to blend into the surrounding area. The treatment processes would expose more of the lighter understory vegetation as the tree canopy coverage is removed within the treatment areas. Any minimal visual contrast would decrease over time and appear more natural. The proposed project would better mimic the characteristic landscape as it was prior to the tree canopy encroachment, the treatment process would create more natural patterns across the landscape and improve the visual quality overall.

Changes to the characteristic landscape would be moderate to weak from KOP 1, along the Pony Express NHT. From KOP 1 the proposed project will likely not dominate the view of the casual observer or affect the experience of those travelling along the NHT as the project will be located and visible from a distance. A break up in vegetation may be seen, but will likely not be largely noticeable as it will likely mimic the existing landscape patterns.

Additional Mitigating Measures (See item 3)

Design features mitigating visual impacts have already been considered by the project lead and integrated within the proposed action.



KOP 2- Treatment Unit 1 within the Pony Express National Historic Trail

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 11/14/13
District/ Field Office: EYDO/ Egan FO
Resource Area: Egan & Johnson Basins
Activity (program): Forestry

SECTION A. PROJECT INFORMATION

1. Project Name Egan and Johnson Basin Habitat Restoration Project	4. Location Township (see map)	5. Location Sketch
2. Key Observation Point KOP 2 – Treatment 1 within the Pony XP NHT Corridor	Range	
3. VRM Class II Pony XP NHT	Sections	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat to Rolling	Regular & High	None
LINE	Curving & Continuous	Irregular & Undulating	Pony XP NHT/Road
COLOR	Light to dark tans	Light to dark greens with browns and tans	None
TEX-TURE	Gradational	Continuous & Dense	None

~~SECTION C. PROPOSED ACTIVITY DESCRIPTION~~

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat to Rolling	Smooth & Low	None
LINE	Irregular & Flowing	Curving & Broken	None
COLOR	Light to dark tans	Light greens with browns and tans	None
TEX-TURE	Gradational	Uniform & Patchy	None

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X		X						X
	LINE		X	X			X						X
	COLOR				X		X	X					X

2. Does project design meet visual resource management objectives? Yes X No
(Explain on reverses side)

3. Additional mitigating measures recommended
__Yes __X No (Explain on reverses side)

Evaluator's Names
Erin Rajala

Date
11/14/13

TEXTURE				X		X						X

SECTION D. (Continued)

Comments from item 2.

The proposed project would result in temporary short-term and beneficial long-term visual impacts. The proposed restoration project introducing various vegetation treatments will affect all of the elements, form, line, color and texture. Short-term visual impacts would primarily be affected immediately after the treatments occurred until the existing vegetation started to blend into the surrounding area. The treatment processes would expose more of the lighter understory vegetation as the tree canopy coverage is removed within the treatment area. Any minimal visual contrast would decrease over time and appear more natural.

Changes to the characteristic landscape would be moderate to weak from KOP 2, within the Pony Express NHT corridor. The changes created by the tree thinning project will likely be seen and unavoidable due to the proximity of the treatment area as it surrounds the NHT, noted from KOP 2. The view of the casual observer will be dominated in the short-term due to most of the tree canopy being removed and especially to those that are familiar with what the area looked like prior to the treatment. However over time, the eye of the casual observer will naturally be brought across the landscape and less focused on the immediate surrounding area, as the removal of the tree canopy will allow for a more broad view of the natural landscape; which may be more pleasing to the eye of unknowing casual observer.

The experience of those travelling along the NHT will most likely be impacted by the project immediately after the treatments have commenced, due to the fresh appearance of the cut tree bases. However in the long term, the overall experience after the treatments may be improved as it may appear more consistent with the natural landscape that existed during the era of the Pony XP Trail.

The proposed project is expected to better mimic the characteristic landscape as it was prior to the tree canopy encroachment, the treatment process would create more natural patterns across the landscape and improve the visual quality overall.

Additional Mitigating Measures (See item 3)

Design features mitigating visual impacts have already been considered by the project lead and integrated within the proposed action to include repeating the basic elements of form, line, color, and texture; and coordinated with the assigned cultural specialist on the project to include any mitigation to preserve the heritage values within the Pony XP Trail and along its corridor.

KOP 3- Treatments within the Pony Express National Historic Trail Corridor and extend beyond the trail into VRM Class III; looking east and west.

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 11/14/13
District/ Field Office: EYDO/ Egan FO
Resource Area: Egan & Johnson Basins
Activity (program): Forestry

SECTION A. PROJECT INFORMATION

1. Project Name	4. Location	5. Location Sketch
Egan and Johnson Basin Habitat Restoration Project	Township (see map)	
2. Key Observation Point KOP 3 – Treatments within the Pony XP NHT Corridor and that extend beyond the Trail into VRM Class III; looking east and west	Range	
3. VRM Class II Pony XP NHT	Sections	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling	Irregular & Contrasting	None
LINE	Curving & Linear	Irregular & Hard	Powerline (in the distance can be seen)
COLOR	Light to dark tans	Light to dark greens with browns and tans and yellow hues	None
TEX-TURE	Gradational & Dense	Continuous & Dense	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling	Regular & Soft	None
LINE	Curving & Continuous	Undulating & Soft	None
COLOR	Light to dark tans	Light greens with browns and tans	None
TEX-TURE	Gradational	Uniform & Patchy	None

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X		X						X
	LINE		X	X			X	X					X

2. Does project design meet visual resource management objectives? X Yes __No (Explain on reverses side)

3. Additional mitigating measures recommended __Yes _X_ No (Explain on reverses side)

Evaluator's Names: Erin Rajala
Date: 11/14/13

COLOR				X		X	X					X
TEXTURE		X	X			X	X					X

SECTION D. (Continued)

Comments from item 2.

The proposed project would result in temporary short-term and beneficial long-term visual impacts. The proposed restoration project introducing various vegetation treatments will affect primarily the elements including, line, color and texture. Short-term visual impacts would primarily be affected immediately after the treatments occurred until the existing vegetation started to blend into the surrounding area. The treatment processes would expose more of the lighter understory vegetation as the tree canopy coverage is removed within the treatment area. Any minimal visual contrast would decrease over time and appear more natural.

Changes to the characteristic landscape would be moderate to weak from KOP 3, within the Pony Express NHT corridor including the VRM Class III portion of the treatment unit. The contrast will be beneficial from KOP 3 as the treatments proposed will break up the hard tree line that currently exists from where the natural fire boundary ends and the dense tree canopy begins, creating a more moderate contrast than that of the strong vegetation contrast which currently exists.

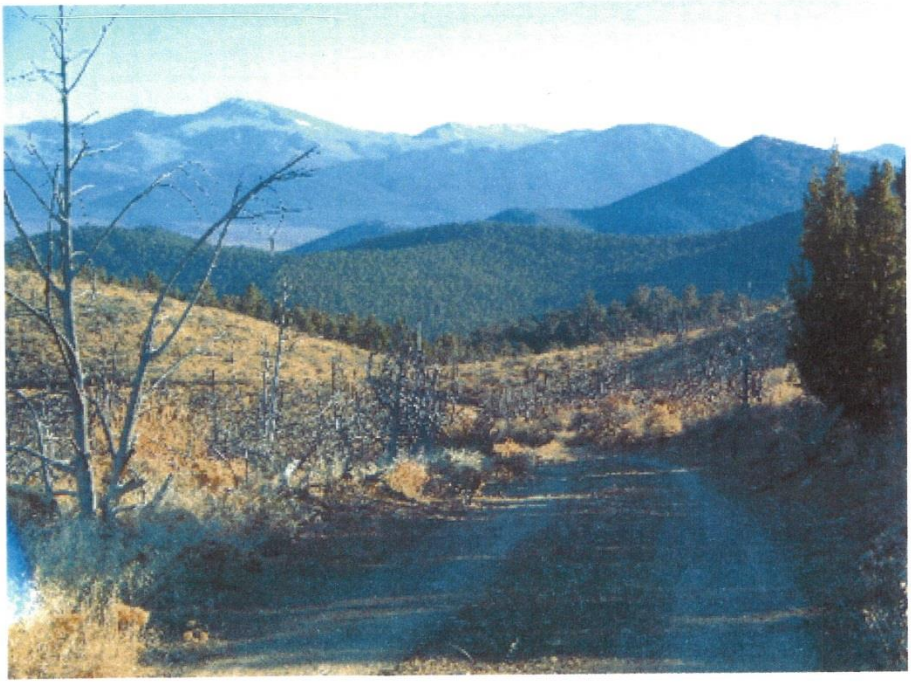
The changes created by the tree thinning project will likely be seen but would not dominate the view of the casual observer due to the proximity of the fire area, which naturally treated the vegetation adjacent to the treatment area. The treatment proposed and viewed from KOP 3 will mimic the natural patterns in the landscape, as seen through the fire area. Due to the proximity of the treatment area and the fire area, the visual impacts are expected to be minimal overall once the treatments are completed since the fire area provided a foundation for this treatment to mimic; which will allow both areas to naturally flow through the landscape.

The experience of those travelling along the NHT will most likely be impacted by the project immediately after the treatments have commenced, due to the fresh appearance of the cut tree bases. However in the long term, the overall experience after the treatments may be improved as it may appear more consistent with the natural landscape that existed during the era of the Pony XP Trail.

The proposed project is expected to better mimic the characteristic landscape as it was prior to the tree canopy encroachment, the treatment process would create more natural patterns across the landscape and improve the visual quality overall.

Additional Mitigating Measures (See item 3)

Design features mitigating visual impacts have already been considered by the project lead and integrated within the proposed action to include repeating the basic elements of form, line, color, and texture; and coordinated with the assigned cultural specialist on the project to include any mitigation to preserve the heritage values within the Pony XP Trail and along its corridor.



KOP 4- Looking at northern treatment units proposed on upward slopes

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 11/14/13
District/ Field Office: EYDO/ Egan FO
Resource Area: Egan & Johnson Basins
Activity (program): Forestry

SECTION A. PROJECT INFORMATION

1. Project Name Egan and Johnson Basin Habitat Restoration Project	4. Location Township (see map)	5. Location Sketch
2. Key Observation Point KOP 4– Looking at northern treatment units proposed on upward slopes	Range	
3. VRM Class III; looking from the Pony XP NHT	Sections	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling	Irregular & Contrasting	None
LINE	Curving & Flowing	Irregular & Hard	None
COLOR	Light to dark tans	Light to dark greens with browns and tans	None
TEX-TURE	Gradational & Dense	Continuous & Dense	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling	Regular & Soft	None
LINE	Curving & Continuous	Undulating & Soft	None
COLOR	Light to dark tans	Light greens with browns and tans	None
TEX-TURE	Gradational	Continuous & Patchy	None

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X		X	X					X
	LINE			X			X	X					X

2. Does project design meet visual resource management objectives? X Yes __No (Explain on reverses side)

3. Additional mitigating measures recommended __Yes _X_ No (Explain on reverses side)

Evaluator's Names: Erin Rajala
Date: 11/14/13

COLOR				X			X					X
TEXTURE		X	X			X	X					X

SECTION D. (Continued)

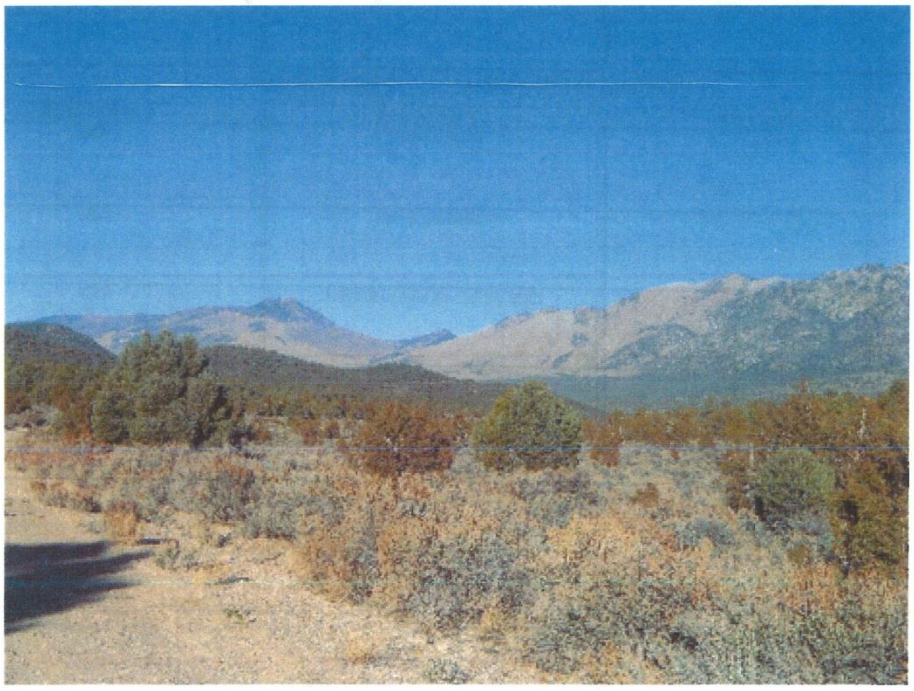
Comments from item 2.

The proposed project would result in temporary short-term and beneficial long-term visual impacts. The proposed restoration project introducing various vegetation treatments will primarily affect the elements of form, line and texture. Short-term visual impacts would primarily be affected immediately after the treatments occurred until the existing vegetation started to blend into the surrounding area. The treatment processes would expose more of the lighter understory vegetation as the tree canopy coverage is removed within the treatment areas. Any minimal visual contrast would decrease over time and appear more natural. The proposed project would better mimic the characteristic landscape as it was prior to the tree canopy encroachment, the treatment process would create more natural patterns across the landscape and improve the visual quality overall.

Changes to the characteristic landscape would be moderate to weak from KOP 4, along the Pony Express NHT. From KOP 4 the proposed project will likely not dominate the view of the casual observer or affect the experience of those travelling along the NHT as the project will be located and visible from a distance. A break up in vegetation may be seen, but will likely not be largely noticeable as it will likely mimic the existing landscape patterns.

Additional Mitigating Measures (See item 3)

Design features mitigating visual impacts have already been considered by the project lead and integrated within the proposed action to include repeating the basic elements of form, line, color, and texture.



KOP 5- Looking north from the end of the southern treatment units

Form 8400-4

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date: 11/14/13
District/ Field Office: EYDO/ Egan FO
Resource Area: Egan & Johnson Basins
Activity (program): Forestry

SECTION A. PROJECT INFORMATION

1. Project Name Egan and Johnson Basin Habitat Restoration Project	4. Location Township (see map)	5. Location Sketch
2. Key Observation Point KOP 5– Looking north from the end of the southern treatment units	Range	
3. VRM Class III	Sections	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling	Irregular & Contrasting	None
LINE	Curving & Flowing	Irregular & Hard	None
COLOR	Light to dark tans	Light to dark greens with browns and tans	None
TEX-TURE	Gradational & Dense	Continuous & Dense	None

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Rolling	Regular & Soft	None
LINE	Curving & Continuous	Undulating & Soft	None
COLOR	Light to dark tans	Light greens with browns and tans	None
TEX-TURE	Gradational	Continuous & Patchy	None

SECTION D. CONTRAST RATING __SHORT TERM X LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				X		X	X					X
	LINE			X			X	X					X

2. Does project design meet visual resource management objectives? X Yes __No (Explain on reverses side)

3. Additional mitigating measures recommended __Yes X No (Explain on reverses side)

Evaluator's Names: Erin Rajala
Date: 11/14/13

COLOR				X			X					X
TEXTURE		X	X			X	X					X

SECTION D. (Continued)

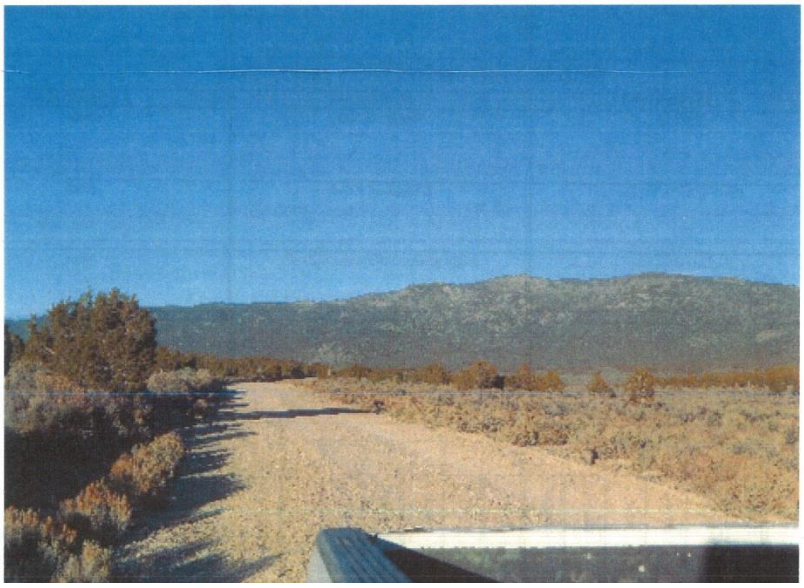
Comments from item 2.

The proposed project would result in temporary short-term and beneficial long-term visual impacts. The proposed restoration project introducing various vegetation treatments will primarily affect the elements of form, line and texture. Short-term visual impacts would primarily be affected immediately after the treatments occurred until the existing vegetation started to blend into the surrounding area. The treatment processes would expose more of the lighter understory vegetation as the tree canopy coverage is removed within the treatment areas. Any minimal visual contrast would decrease over time and appear more natural. The proposed project would better mimic the characteristic landscape as it was prior to the tree canopy encroachment, the treatment process would create more natural patterns across the landscape and improve the visual quality overall.

Changes to the characteristic landscape would be moderate to weak from KOP 5, along the Pony Express NHT. From KOP 5 the proposed project will likely not dominate the view of the casual observer or affect the experience of those travelling along the NHT as the project will be located and visible from a distance. A break up in vegetation may be seen, but will likely not be largely noticeable as it will likely mimic the existing landscape patterns.

Additional Mitigating Measures (See item 3)

Design features mitigating visual impacts have already been considered by the project lead and integrated within the proposed action to include repeating the basic elements of form, line, color, and texture.

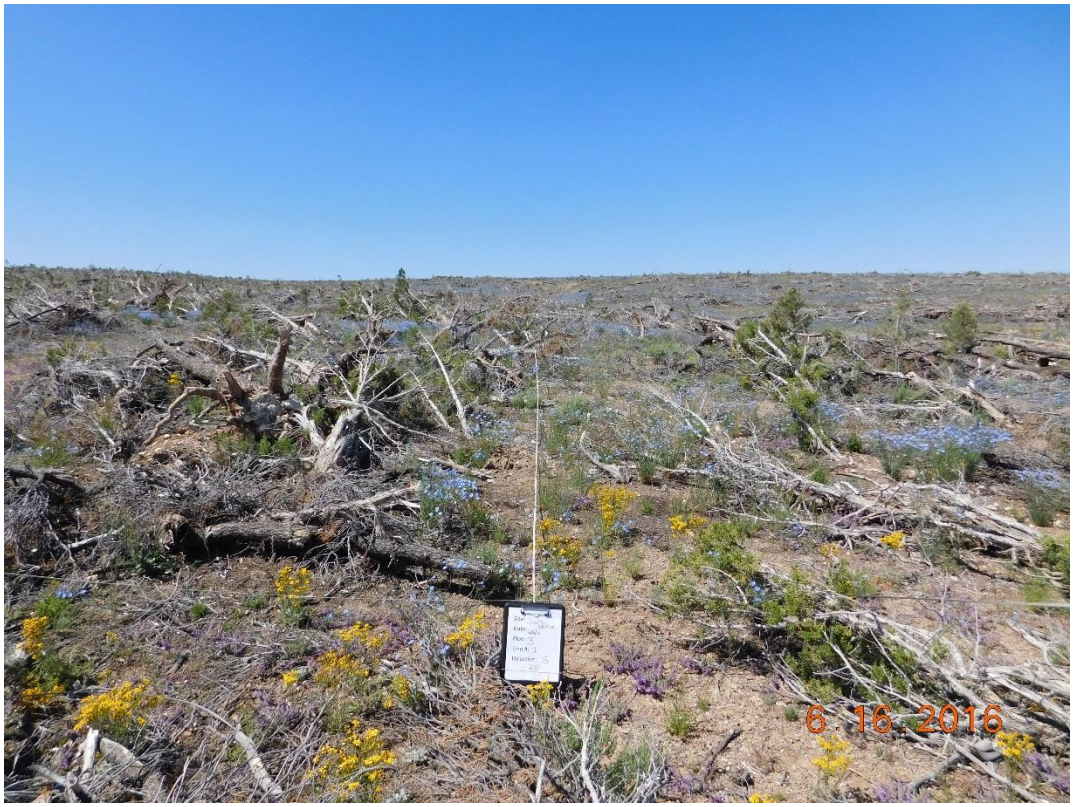


Appendix I. Pre and post treatment pictures from vegetation projects within similar ecological site descriptions and disturbance response groups.

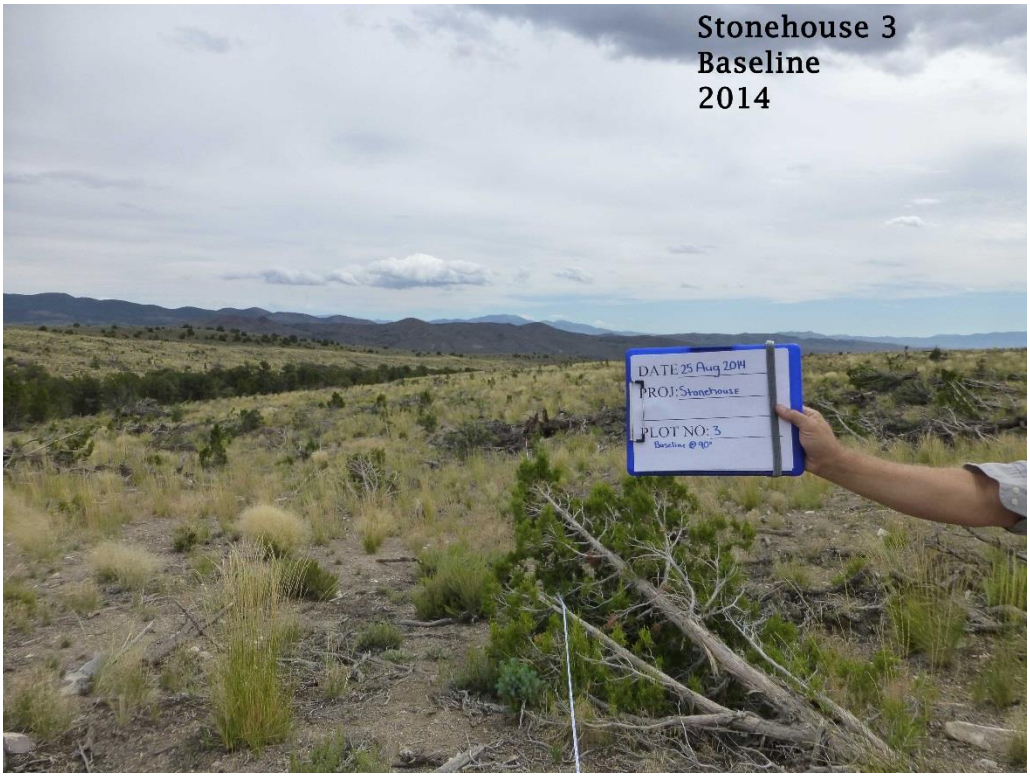
Combs Creek Project Pre and Post Treatment, 2012- 2016. Evidence of masitcated juniper tree in foreground of the 2016 photo.

Combs Creek Project Pre and Post Treatment, 2012- 2016. Evidence of masitcated trees in foreground of 2016 photo.

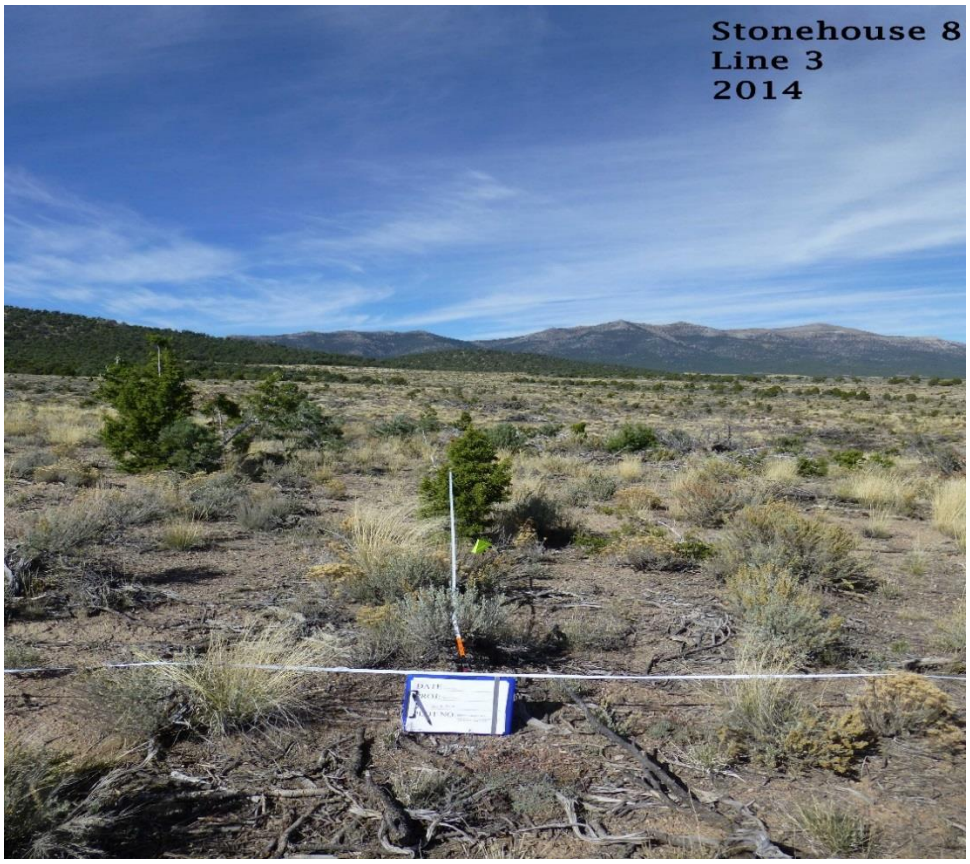
Post treatment photos of South Steptoe chaining. Photo taken in 2016, one year post treatment.



Stonehouse Project, pre and post treatment photos of chained area in ecological sites and habitat similar to those in the Egan and Johnson Basins Project area (black sagebrush).



Stonehouse Project, pre and post treatment photos of chained area in ecological sites and habitat similar to those in the Egan and Johnson Basins Project area (Wyoming big sagebrush).



Stonehouse Project post treatment (3 years after treatment) response to chaining and seeding similar to proposed treatment at Egan and Johnson Basins Project area

Overall landscape view of Stonehouse Project showing mosaic and areas of islands and stringers; similar to treatment design for Egan and Johnson Basins Project area.

Appendix J. Summary of Comments Received on the Preliminary EA

Commenter	Comment[1]	Response
Craig C. Downer-Wild Horse and Burro Fund	Concerns for climate change and the effects on the landscape within the project area.	The adaptive management approach would consider all conditions on the ground and trends in precipitation, drought conditions and other factors at the time of implementation. A diversity of plant communities and successional stages of vegetation creates an environment more resilient to changing climate. Effects of the proposed project on climate change are described in Table 3.1
Craig C. Downer Wild Horse and Burro Fund	Concern for continued collection of pine nuts in the area.	Pinyon pine nuts are currently harvested and would continue to be available in the treatment areas. Other pinyon-juniper fuel treatments (for example, areas around Sacramento Pass and Horse and Cattle Camp) have not seen a decrease in interest from commercial and personal use pickers.
Craig C. Downer Wild Horse and Burro Fund	Comment regarding ability of trees to stabilize soil with roots and the contribution of vegetation to water resources.	Effects to soils are addressed in Chapter 3.7 of the EA. Research shows that the amount of bare soil and absence of litter has more of an effect on erosion than other factors. Studies show that the amount of erosion may be more dependent on site characteristics like soil properties and hillslope angle (Pierson, F.B., Williams, J.C., Hardegree, S.P., Clark, P.E., Kormos, P.R., Al-Hamdan, O.Z.; Hydrologic and Erosion Responses of Sagebrush Steppe Following Juniper Encroachment, Wildfire, and Tree Cutting. Rangeland Ecology & Management 2013 66 (3), 274-289). Erosion would be minimized through treatment design that factors in soil type and hillslope, as well as existing understory and bare ground. Some pinyon and juniper trees that have established in sagebrush sites would be thinned, but remain onsite, leaving

[1] Comments are summarized by BLM or quoted directly. Repetitive comments/questions, comments unrelated to this proposed project, and non-substantive comments are not included.

Commenter	Comment[1]	Response
		sagebrush, other shrubs, grasses and forbs relatively undisturbed, thus protecting soils from erosion and maintaining or improving the herbaceous understory. See photos from similar treatments identified in Appendix I.
Craig C. Downer Wild Horse and Burro Fund	Concern for impacts to wildlife including small mammals, and birds (Pinyon Mouse and Pinyon Jay).	Effects of the project on wildlife can be found in Chapter 3.3 and 3.6 of the EA. Some species would benefit from the removal of pinyon and juniper from sagebrush sites and some species would not benefit. Studies show that conifer woodlands have expanded into sagebrush sites and are considered a major threat to sagebrush and grassland obligate species. (Bird Responses to Removal of Western Juniper in Sagebrush-Steppe. Holmes, A.L, Maestas, J.D., Naugle, D.E.; Rangeland Ecology & Management 2017 70 (1), 87-94).
Craig C. Downer Wild Horse and Burro Fund	Concerns for impacts to wildlife due to erosion, heat, exposure and wind after tree thinning.	Erosion would be minimized through treatment design that factors in soil type and hillslope, as well as existing understory and bare ground. The project does not propose wholesale vegetation removal. Treatments are designed to create mosaic habitat rather than complete removal of pinyon-juniper trees. Mosaic design would leave untreated stringers and areas within treatment units. Some pinyon-juniper would be thinned, but remain onsite, and currently established sagebrush and understory species would remain, which would provide protection from erosion.
Craig C. Downer Wild Horse and Burro Fund	Concern for use of non-native seeds in restoration efforts.	A mix of mostly native and some non-native grasses and forbs may be selected for sites that have little to no understory or seed bank available. Cost, availability, and germination quality would be considered when selecting a seed mix. Seeds are selected that provide good forage for wildlife, including sagebrush. Additionally, species are selected that can successfully compete with cheatgrass. See updated seeding section in EA Chapter 2.2 Seeding.

Commenter	Comment[1]	Response
Craig C. Downer Wild Horse and Burro Fund	Concerns for the impacts of treatment on wildhorses, particularly the Triple B HMA.	Up to 65% of the treatment areas would be treated, leaving at least 35% of the treatment areas without treatment. The treatment areas cover 37,500 acres within the Triple B HMA. Total that could be treated in the Triple B HMA is 24,375 acres (65% of 37,500). The Triple B HMA is 1, 232,624 acres. The treatment area affects 2% of the Triple B HMA. Treatment design leaves islands, stringers and areas that are not treated. Wild horses would be temporarily disturbed during vegetation treatments but there would be abundant pinyon-juniper woodland in the area for the wild horses. See updated Table 3.1 in EA. The Proposed Action would not change horse population numbers, but treatments could increase forage areas available for wild horses and reduce competition among forage users.
Craig C. Downer Wild Horse and Burro Fund	Suggestion to use wild horses for targeted grazing and cheatgrass control.	If horses consume cheatgrass early in the season they would reduce cheatgrass fine fuel loading. Targeted grazing requires intensive planning and management and requires a coordinated effort with the grazing animal or people controlling the animal. Domestic livestock can be controlled through various means while wild horses cannot. This alternative would not meet the Purpose and Need of the project.
Craig C. Downer Wild Horse and Burro Fund	Concerns that existing fences in the project area interfere with wildhorse migratory patterns.	Existing fencing within the project area is outside the scope of this proposed project. Existing fencing is considered in the current affected environment.
Craig C. Downer Wild Horse and Burro Fund	Support in favor of the No Action Alternative and need for EIS.	Comment noted. An EIS would be prepared if significant impacts are identified in the EA.

Commenter	Comment[1]	Response
Maggie Frazier	Agree with the comments on The Wild Horse Conspiracy Blog regarding the proposed project. Comment in disagreement to the removal of pinyon-juniper woodlands in order to plant more grass for grazing. Concerns for the impact to wildlife and the environment.	Comment noted. The proposed project would remove pinyon-juniper from some sagebrush sites within the project area, and restore the natural variability in vegetation succession stages. Providing forage for livestock is not an objective for the project (See Chapter 1.3)
Marybeth Devlin	Comment regarding the role pinyon-juniper have in Nevada Landscapes. Quote from paper by Peter Weisberg; “Weisberg (2009) describes how Nevada is dominated by the Singleleaf Pinyon — *Pinus monophylla* — and by the Utah juniper — *Juniperus osteosperma*. He discusses the value of these types of native vegetation-communities." Weisberg, Peter. (2009, October 28). "Pinyon-juniper Woodlands." Online Nevada Encyclopedia. Retrieved from http://www.onlinenevada.org/articles/pinyon-juniper-woodlands	Pinyon-Juniper woodland are one component of the Great Basin system. Thank you for information supporting the Purpose and Need for this project. As stated in your reference: "However, as vegetation progresses from an open sagebrush community with scattered trees to dense woodland, herbaceous plants and shrubs that grow under larger vegetation- the understory-decrease. Dense stands of pinyon-juniper contain very little understory. Typically, bleached skeletons of sagebrush remain as the only evidence of the former shrub- and grass- dominated community... The recent wave of woodland expansion into adjacent shrub-dominated vegetation, however, may threaten species that require a sagebrush habitat, such as Greater sage-grouse and pygmy rabbit. Since approximately 1860, the area and density of trees has increased from three- to ten-fold due to fire exclusion, over-grazing, favorable climate and recovery from settlement-era harvesting."

Commenter	Comment[1]	Response
Marybeth Devlin	Comment regarding pinyon-juniper woodland as cover and the habitat it provides for wildlife.	This proposed project would remove pinyon-juniper from some sagebrush sites and restore natural variability in vegetation succession stages. Effects of pinyon-juniper thinning are analyzed in Chapter 3.3 of the EA for birds, mammals and other wildlife species.
Marybeth Devlin	Concern regarding historical disturbance in the proposed treatment area and the use of the word encroaching in regards to pinyon-juniper.	Comment noted. "Encroaching" appears in the EA document when referencing other publications, research papers, and the GRSG ARMPA. Past disturbances likely have contributed to the need for the Proposed Action.
Marybeth Devlin	Comment to consider using wild horses for targeted grazing to reduce dry fuel loading on the range to prevent wildfires.	Like cattle, wild horses would eat cheatgrass and other annual grass species, in the spring during green-up, and potentially in the fall when they no longer have seeds and the forage has softened. The effectiveness of wild horses on reducing fine fuel loading as a tactic for preventing wildfires has not been studied and is not feasible at this time. It is not feasible to sufficiently direct and control wild horses to target specific areas at specific times.
Marybeth Devlin	Comment regarding landscape character and the impact of the treatment on the viewshed in the proposed project area. Pinyon and juniper are a natural, true landscape character.	The project would use the design of a natural disturbance, like that from wildfire, to mimic natural landscape character. Lack of disturbance and fire suppression has resulted in an uncharacteristic landscape on some sagebrush sites. This proposed project would mimic natural disturbance through treatment design. Pinyon and juniper would still occur in the viewshed and be part of the landscape character. See Appendix I of the EA for examples of the viewshed after treatments.

Commenter	Comment[1]	Response
Marybeth Devlin	Comment about the negative long term impacts of the treatment on the viewshed and the Pony Express National Historic Trail (NHT) and the inadequacies of KOPs. Additional comment about benefit of shade from pinyon-juniper.	The proposed project goals are to restore a more natural landscape (as shown with natural disturbances). Research has shown that when the Pony Express Trail was active, the landscape was more open with less pinyon-juniper woodlands. "Although pinyon-juniper covers some 18 million acres of the Great Basin today, that was certainly not true 150 years ago. A wide variety of researchers, including botanists Richard Miller, Robin Tausch, and Neil West, have shown that prior to the year 1850 or so, these trees were far less widespread in the Great Basin than they are today. Then, they, along with western juniper, began to spread across the Great Basin landscape. The rate of expansion seems to have peaked between about 1870 and 1920, but the process continues today" (Grayson 2011). The travel corridor that contains the Pony Express Trail was utilized by the Shoshone with antelope drives over the Overland Summit near the headwaters of Cherry Creek (Steward 1938). The increase of pinyon-juniper communities is strongly correlated with the introduction of grazing. During the Pony Express' period of significance (1860-61), few if any cattle had been introduced to the Egan or Johnson Basins. This occurred soon after with the establishment of the mining towns of Egan and Cherry Creek in the 1870-80s. Archaeological surveys along the trail do not describe deforested corridors for the trails. The cut stumps in the area are in clover-leaf patters indicative of firewood cutting for the mine operations. The Overland Summit was no doubt chosen due to the open, treeless path allowing riders and wagons ease of travel. • Grayson, Donald K. 2011 The Great Basin: A Natural Prehistory. University of California Press. Berkeley, CA • Steward, Julian H. 1938 Basin-Plateau Aboriginal Sociopolitical Groups. United States Government Printing office, Washington D.C.
Marybeth Devlin	Comment regarding USFS study "Lower Moisture, Higher Temperature in Soil following Removal of Pinyon-Juniper	Thank you for the information about soil water availability and the information have been incorporated into Chapter 3.7 of the

Commenter	Comment[1]	Response
	Stands. The USFS sponsored a study of the moisture-content and temperature of soil of intact Pinyon-Juniper plots as contrasted with Pinyon-Juniper plots following deforestation. The research found that, initially, soil-moisture increased. However, the effect was not sustained. Tree harvesting increased soil water content, but the effect diminished over 4 years. The mean increase in soil water content was 2 to 4 percent the first year following harvest and 0 to 3 percent after 4 years. Although tree harvesting released soil water previously used by tree species, other biotic and abiotic demands increased… The researchers concluded: Tree harvesting increases soil water, but only temporarily. Transpiration from released understory and evaporation from the soil surface are speculated to rapidly reduce initial postharvest soil water levels. Soil temperature increased on cleared plots. Loss of shade was deemed the cause. Mean soil temperature at the 15 cm depth was always greater on harvested than non-harvested plots during the growing season." United States Department of Agriculture, Forest Service. Soil Water and Temperature in Harvested and Non-harvested Pinyon-Juniper Stands." (1985). Forestry. Paper 44. http://digitalcommons.usu.edu/govdocs_forest/44	EA. The cited USFS sponsored study shows that there was an increase, and although the increase diminished by year 4, there was still an increase in soil moisture the first 3 years of the study. A recent snow water study shows treatment of Phase I and Phase II sagebrush sites increased water available for shrubs and perennial plants. Phase III also increased available water but runs the risk of cheatgrass infestation. The article also discussed warmer soil temperature increases the number of days that water is available for plants to absorb and therefore increased "wet degree days" when moisture is available. Number of wet degree days increased on treated sites. Research also shows that the resource growth pool is usually up to 30 cm, not limited to 15 cm. Citation: Patrick, R.K., Marks, D., Pierson, F.B., Williams, J.C., Hardegree, S.P., Havens S., Hedrick A., Bates, J.D., Svejcar, T.J.; Ecosystem Water Availability in Juniper versus Sagebrush Snow-Dominated Rangelands. Rangeland Ecology & Management, 2017 70 (1), 116-128. A recent study from Rangeland Ecology Management "Tree removal by fire or mechanical means similarly increased the time of available water, which is associated with a longer period of nutrient diffusion to roots and growth of whichever residual growth forms are present." Roundy, B.A., Young, K., Cline, N., Hulet, A., Miller, R.F., Tausch R.J., Chambers, J.C., and Rau B.; Piñon–Juniper Reduction Increases Soil Water Availability of the Resource Growth Pool Rangeland Ecology & Management 2014 67 (5), 495-505
Marybeth Devlin	Comment that chukar should not be listed as a migratory bird in Appendix C of EA.	Thank you for your comment. Chukar was removed from the migratory bird list in Appendix C of EA.

Commenter	Comment[1]	Response
Basin and Range Watch	Concern about the extent of the treatment, stating that the BLM is proposing to remove trees over 85,000 acres, and the EA identifies pinyon and juniper as "invasive".	Not an accurate description of the project proposal. The Proposed Action is to treat up to 65% of the treatment units identified in the EA and possible hand thinning in-between, where appropriate, to connect wildlife corridors between treatment areas. Please refer to the Proposed Action in Chapter 2.2 of the EA. Pinyon and juniper are not listed as invasive species in the EA (See Appendix B—Weed Risk Assessment of the EA that discusses invasive species).
Basin and Range Watch	Comment that the EA has not included a brief discussion on the need for proposal as required by 40 CFR 1508.9(b), and does not provide enough supporting evidence that pinyon-juniper forests in these basins and ranges are un-natural and suffering from "an ecological departure from the natural range of variability". Comment requesting clarification on what the desired conditions would be.	The Need for Proposal is described in Section 1.3 of the EA. Desired ecological conditions are defined and referenced in the EA (e.g., Table 1.1). Fire Regime Condition Class (FRCC) was completed using Landfire data to compare the current state of vegetation conditions with the historical conditions. Factors such as fire return intervals and actual disturbance events are compared with historical conditions to determine how far vegetation has departed from an historical range of variation. See the Vegetative Resources section in Chapter 3 for a description of biophysical settings and models used.
Basin and Range Watch	Comment stating there is a lack of evidence that current pinyon-juniper density is above normal density.	See Section 1.3 of EA for Purpose and Need for the proposed project. Additional information about current and potential vegetation can be found in Section 3.8.1 and Table 3.4 in EA. The Purpose and Need statement is based on current vegetative conditions, objectives set in the Ely District RMP, peer reviewed scientific information from Landfire and other peer reviewed scientific literature. See Chapter 7 for list of references and research used for project planning. Pinyon-juniper density on some sagebrush sites do not meet the desired future condition or vegetation objectives established in the Ely RMP.
Basin and Range Watch	Comment that historical and reference conditions are open to debate and interpretation.	While there are diverging opinions, FRCC is an acceptable model for disturbance regimes, and the Ely RMP directs use of FRCC methodology. BpS reference condition models were

Commenter	Comment[1]	Response
		developed through an extensive peer review process. While models can be debated, the BpS models and FRCC coincide with the project area, and selecting an appropriate model is needed to move forward while the debate continues.
Basin and Range Watch	Question regarding the exact reference period used for modeling of historic vegetation.	This is described in FRCC guidebook Chapter 2 and referenced papers for BpS descriptions. FRCC recognizes ranges in variation and BpS models account for that variation. Generally, reference periods are prior to EuroAmerican settlement era (please refer to your own comment regarding page 23 of the FRCC guidebook where you describe the reference conditions used with the FRCC methodology).
Basin and Range Watch	Concerns that disturbance from machinery and treatment activities would increase the potential for cheatgrass invasion in an area with low (<10%) cheatgrass presence.	Impacts from the risk of cheatgrass are addressed in Sections 3.7 and 3.8 of the EA. Selecting sites for chaining, mastication and hand thinning would be dependent on the abundance and diversity of the existing understory. Phase I areas that already have sufficient forbs and grasses, would be targeted for hand thinning and seeding would not be necessary. Seeding would be planned to target Phase II and Phase III areas that are treated. Lack of cheatgrass should aid in restoration efforts and help with success of seeding efforts. Continued pinyon-juniper expansion would further reduce understory and could increase potential of cheatgrass invasion and potentially cross a threshold, thus limiting successful restoration.
Basin and Range Watch	FRCC metrics do not address natural spacial patterns, and observed fire scares in the proposed treatment area were of various ages and shape and typical of historic fire patterns in the Great Basin.	BpS models that were used for FRCC do describe natural spatial patterns for vegetation across the landscape. Distribution of s-classes, and a description of historic disturbances are described in most BpS models. Fire in the Great Basin sagebrush and pinyon-juniper ecosystems are typically wind driven if larger in size. Burn pattern varies depending on wind direction and topography. Treatments would mimic natural disturbance, leaving stringers and islands of pinyon-juniper, like those seen in the landscape area. See

Commenter	Comment[1]	Response
		Appendix I for examples of mosaic patterns created from treatments of this nature.
Basin and Range Watch	Request to add Basin and Range Watch assessment of reference conditions.	Comment noted. Reference conditions for each vegetation type was missing or lacked detail similar to those used with FRCC.
Basin and Range Watch	Comment concerning the "assumptions" of the FRCC model used in project planning.	While there are diverging opinions, FRCC is an acceptable model for disturbance regimes. BpS reference condition models were developed through an extensive peer reviewed process. Research used in the development of the BpS models took into account known fire history for each vegetation type. Risks are described in the FRCC Guidebook, and the method has been deemed acceptable.
Basin and Range Watch	Other models have been used for vegetation mapping and management decisions. Compared a study from Arendt and Baker (2013) on research in Dinosaur National Monument in Utah. Comments describing results of that research, including fire return intervals for sagebrush and woodlands, cheatgrass, and cheatgrass response to treatments, and recommending direct control of cheatgrass.	Dinosaur National Monument is located within the Colorado Plateau, which has different soil types, climate, and disturbance regimes. Landfire's Great Basin map zone was used to characterize vegetation condition and departure from reference conditions on this project. Some of the information from the Arendt and Baker (2013) study could apply to this area, but is better represented at the Colorado Plateau. One of the treatment types for this project would include direct control of cheatgrass (see Section 2.2 of the EA).
Basin and Range Watch	Expansion of pinyon-juniper is caused by animal dispersal and natural regeneration of pinyon-juniper due to fire.	Comment noted. The Purpose and Need recognizes that pinyon-juniper has expanded into sagebrush ecological sites.
Basin and Range Watch	Concerns for consideration of climate change as possible reason for woodland expansion.	Comment noted. See above comments regarding FRCC. Pinyon-juniper's adaptability to various habitat types is one reason for Purpose and Need. A goal of the project is to create a mosaic of vegetation types that would enhance vegetation community resistance and resilience (See Section 1.3.2 of EA).

Commenter	Comment[1]	Response
		This could allow for a favorable vegetative response to climate change. Climate change added to Table 3.1.
Basin and Range Watch	Comment that there is a need for more research about stand structure, spatial extent of woodlands, and hypotheses that test climate, grazing, fire, invasive grasses, and other variables before decisions are made.	Comment noted. See response above regarding FRCC. The Proposed Action is being considered in part, because of losses in historical pinyon-juniper, montane shrubland and sagebrush has occurred.
Basin and Range Watch	Concerns for use of FRCC guidebook and the referenced historic range of variability including aboriginal burning, and other forest types.	BpS descriptions are used in conjunction with the FRCC guidebook, and describe the reference condition. There is a different BpS description and calculation for pinyon-juniper woodland vs. lodgepole pine vs. sagebrush steppe. FRCC does not describe forest and woodlands but instructs the user how to calculate FRCC using BpS descriptions or local information on vegetation. BpS descriptions describe the reference condition, distribution of successional classes across the landscape, and were developed using literature review and subject experts and modeling workshops. See Vegetative Resources chapter in Chapter 3 of EA for BpS descriptions used in analysis for treatment targets. Aboriginal burning practices are considered in BpS descriptions.
Basin and Range Watch	Question about who the local experts are that wrote the BPS models and what literature was used as research.	See BpS Model descriptions for each specific vegetation type for a list of the experts and referenced peer reviewed scientific literature used when developing the models (see https://www.landfire.gov/national_veg_models_op2.php).
Basin and Range Watch	Comment regarding climate change and the need for a natural response to changes. FRCC does not address ecosystem complexities.	Comment noted. See Purpose and Need in Chapter 1 of EA for a description of the objectives. A goal of the project would create variation of vegetation within homogenous stands of pinyon-juniper. Creation of ecosystem diversity and restoration of the sagebrush ecosystem would create a more resilient landscape that could respond favorably to disturbance, including climate change. FRCC is a landscape tool

Commenter	Comment[1]	Response
		considering historical regimes at an ecosystem and landscape level. Climate change included in Table 3.1.
Basin and Range Watch	Comment about the influence of Native Americans on past landscapes and the need for research and consultation.	BpS model descriptions account for Native American influence on past landscapes. See page 17 of FRCC guidebook version 3.0. Under FRCC overview summary it states "A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human intervention but including the possible influence of aboriginal fire use." Additionally, Native American consultation has occurred as shown in Section 1.7 of the EA.
Basin and Range Watch	Request for a research strategy for the local Egan and Johnson Basins.	Request is outside the scope of this project. See Monitoring design feature Section 2.3 and Adaptive Management Section 2.1 in the EA document.
Basin and Range Watch	Comment that "the Purpose and Need paragraph must be rewritten to reflect a more ecologically accurate description of the region." Need to avoid chaining, mastication, and seeding.	Purpose and Need written using current research, and need based on RMP objectives. Purpose and Need is to restore sagebrush ecosystems and the proposed project would target those areas that do not meet objectives established in the Ely RMP.
Basin and Range Watch	Prescribed burns should not be used as an action. Concern for an increase in cheatgrass due to frequent disturbance. "Appendix F in the EA, monitoring of the prescribed burn project on Cherry Creek seems to support this."	Based on results from Cherry Creek Prescribed Burn, the areas targeted for broadcast prescribed fire would be the north slopes and Phase II areas that have been noted to respond well (areas with native understory). Treatment results from the Cherry Creek Prescribed Burn have been incorporated into our adaptive management strategy for managing landscapes. Based on results from Cherry Creek, this project was modified to only consider burning in areas that have potential for positive response.
Basin and Range Watch	Comment expressing disagreement for overland travel with heavy equipment and the use of ATV seeding.	Comment noted. Overland travel would be needed to meet Purpose and Need. ATV seeding and herbicide use would most likely include a one or two trip pass, and would be limited to the least amount of disturbance possible. All considerations

Commenter	Comment[1]	Response
		and design features listed in the Proposed Action would be followed to minimize impacts.
Basin and Range Watch	Question on what evidence was used to reconstruct the landscape appearance and plant communities in the period 1860-1861, in particular the time of the pony express trail. Comment requesting more research into historic reference conditions. Comment about the "wild feel" of the current vegetation and that potential vegetation in 1800 was similar to the state of vegetation found in the area today.	See comment response to Mary DeVelin above regarding the Pony Express Trail, historic use of the area and potential vegetation. "Treatments would be designed to meet the visual resource objectives (VRM II) within the Pony Express Trail corridor. The rate of pinyon-juniper expansion seems to have peaked between about 1870 and 1920, but the process continues today" (Grayson 2011). The travel corridor that contains the Pony Express Trail was utilized by the Shoshone with antelope drives over the Overland Summit near the headwaters of Cherry Creek (Steward 1938). The Overland Summit was no doubt chosen due to the open, treeless path allowing riders and wagons ease of travel. • Grayson, Donald K. 2011 The Great Basin: A Natural Prehistory. University of California Press. Berkeley, CA • Steward, Julian H. 1938 Basin-Plateau Aboriginal Sociopolitical Groups. Untitled States Printing office, Washington D.C.
Basin and Range Watch	The major goal of the project is grazing management, and should be stated up-front. No need for using heavy machinery, herbicide, and introduced perennial grass seed plantings in the project.	Comment noted. Goals and objectives for the project are listed in Section 1.3.2 of the EA.
Basin and Range Watch	Concern that the project is a crested wheatgrass seeding project that would favor livestock grazing rather than greater sage-grouse habitat. Question about how seeding with crested wheatgrass would affect greater sage-grouse.	The project does not propose a crested wheatgrass seeding. See Section 2.2 for proposed treatment regarding seed and possible seed mix. See Reference photos of the Stonehouse Project, Appendix I, which show results from a project similar to this proposed project.
Basin and Range Watch	Comment regarding concerns about the level of vegetation removal and the impact on pygmy rabbits. Question regarding how pygmy rabbit habitat would be identified and avoided.	Pygmy rabbit habitat is identified by wildlife biologist observation, coordination with NDOW and site surveys. Pygmy rabbits do not typically occupy the areas targeted for

Commenter	Comment[1]	Response
		mechanical treatment which would be Phase II and Phase III pinyon-juniper with shallow soils. Treatment designs would incorporate leave areas that would avoid pygmy rabbit habitat areas. See design features in Chapter 2.3 of the EA.
Basin and Range Watch	Question about how removal of nesting habitat would impact birds that use pinyon-juniper as nesting habitat.	See design features under Chapter 2 for migratory bird and raptor nesting season of avoidance. The proposed project is not wholesale vegetation removal. Treatments would be designed to create mosaic habitat, not complete removal of pinyon-juniper trees. Mosaic design would leave untreated stringers and areas within treatment units.
Basin and Range Watch	Expectation of impacts to water resources, the possibility of high erosion, sediment deposition into valleys and creeks after chaining and loss of biological coil crusts. Request for these impacts to be analyzed.	Section 3.7 of the EA has been updated to include more research regarding runoff, particularly in chained and treated areas. Section 4.3.7 discussed cumulative impacts to soil resources and incorporates more research regarding the short and longer term impacts to soil and runoff. Studies show that infiltration rates at given points on the debris-in-placed treatment have been only slightly affected by the chaining activities. Apparently, in these instances, the debris left scattered on the soil surface acts as both retention and detention storage, the magnitude of which is large enough to minimize or nearly eliminate all runoff. The soil under the debris-in-place treatment is not able to absorb water any faster than is the soil under the woodland; it is held on the landscape until the soil has the time to absorb it. (Gifford, G. Runoff and Sediment Yields from Runoff Plots on Chained Pinyon-Juniper Sites in Utah. 1973.). A study by Farmer et al (1999), showed that “during five years of data collection, unchained plots produced 5.8 times more runoff and 9.2 times more sediment than chained plots. Results indicate that anchor chaining significantly reduced runoff and soil erosion by providing more protective ground cover.”

Commenter	Comment[1]	Response
Basin and Range Watch	Comment that there are no alternatives listed in the EA other than the No Action Alternative. Suggested alternative: "Conservation Alternative – This would allow no chaining, mastication, or large vehicle use in the habitat. Only hand-cutting and thinning would be allowed. The alternative would allow no non-native seeding in the habitat. The alternative would require more science-based, targeted studies of the region. The alternative would allow no treatments within the visual landscape of the Pony Express Trail or near Wilderness Areas. The alternative would adopt a let-burn policy where safe." Request for an Environmental Impact Statement.	This alternative was considered, but eliminated from detailed analysis as it did not meet the Purpose and Need for the project. Specifically, this would not improve or increase vegetation diversity of understory grasses and forbs, or enhance vegetative resistance and resilience (see Section 2.5 of the Final EA). A let burn policy could jeopardize a large portion of the area from a single catastrophic wildfire event. Letting wildfires burn seems to contradict your comment regarding prescribed burning listed previously. An Environmental Impact Statement would be prepared if significant impacts are expected from the project.
Basin and Range Watch	Tribal consultation and conversations with Tribes should be included in the EA, and it appears there has not been compliances with the National Historic Preservation Act. Request for a Cultural Resource Study to be publicly available for review.	See Chapter 5 of EA for a list of tribes consulted for this project. Nevada BLM has an established protocol with the Nevada State Historic Preservation Office (see Section 2.3 Design Features) that would be followed. Cultural resource studies would not be released to the public, because sensitive cultural resources could be compromised. A cultural inventory of planned treatments would be conducted, and any sites eligible for listing on the National Register of Historical Places would be avoided.

Commenter	Comment[1]	Response
Basin and Range Watch	Concern for the visual impacts of the treatments. Concerns about the impacts to the Pony Express Trail and the visitor's experience. Concern for impacts from heavy machinery and the creation of new roads. Request for an alternative that would avoid the Pony Express Trail.	No new roads would be created. Temporary access would be allowed to move equipment into the project area but existing roads would be used when available. Impacts to visual resources are analyzed in EA, Chapter 4.3.6. See Appendix I of EA document for pictures from similar treatment types within similar ecological site descriptions to that proposed. Effects to visual resources are addressed in Chapter 3.9 of the EA. VRM objectives can be found in this chapter and additional information can be found in BLM Manual H-8410-1. Treatment along the Pony Express auto route would take into account historic descriptions and would be coordinated with archeological surveys and information. Treatments would meet VRM II objectives for the Pony Express Corridor.
Basin and Range Watch	Request that the BLM evaluate the VRM classes and the treatment. Comment that KOPs are inadequate. Request that the BLM simulate what the area would look like post-treatment.	Effects to VRM are analyzed in EA based on BLM VRM guidance (KOPs established as a casual observer would view the area). KOP photos and descriptions and a standard BLM Visual Contrasting Rating Worksheet and were completed according to protocols. Treatments would be designed to meet VRM objectives. The request to evaluate VRM classes is outside the scope of the project, and were evaluated when the Ely RMP was completed. See Appendix I of EA for pictures from similar treatments in similar ecological sites from the BLM Ely District.
Basin and Range Watch	Comment that more details need to be included in the cumulative impact section of EA. Specific concerns include: **1.** Soil Erosion, **2.** Ecological changes from seeding large swaths of non-native crested wheatgrasses, and impacts to wildlife. **3.** Long term visual Impacts, **4.** Herbicides **5.** Increase in weeds (how many non-native, weedy species would be brought in by disturbance), and **6.** Livestock grazing.	**1.** See Section 3.7 of EA document for effects of the proposed project on soil resources. This chapter (Section 3.7) of the EA has been updated to include more research regarding runoff, particularly in chained and treated areas. Section 4.3.7 discussed cumulative impacts to soil resources and incorporates more research regarding the short and longer term impacts to soil and runoff. **2.** The proposed project does not include seeding large swaths with crested wheatgrass (see seeding section of Section 2.2). Effects of the proposed project

Commenter	Comment[1]	Response
		on wildlife are addressed in Section 3.3, 3.6., and 4.2.2 for cumulative impacts to wildlife. Large swaths of non-native crested wheatgrass is not a component of the proposed project. **3.** Impacts to visual resources addressed in Visual Resource Management, Section 3.9 in EA. Also, Appendix I has been added to the EA as a reference from similar treatments in similar ecological sites. **4.** Comment about herbicides noted. Please see EA Section 1.6 for tiered EISs that provide impacts related to herbicide application as proposed in this project, and references cited in Chapter 7. **5.** BLM would follow design features of the project and weed risk assessment to work to keep non-native weedy species to a minimum. New noxious infestations would be addressed. See Weed Risk Assessment, Appendix B, of EA document. **6.** The area outside of the crested wheatgrass seeding is largely undisturbed by cattle, as you have stated in your comment letter.
Basin and Range Watch	Comment recommending the No Action Alternative to allow lightning-ignited wildfires, and no seeding of introduced grasses.	Comment noted. The No Action Alternative is continuation of current management without the Proposed Action. Some of the Fire Management Units within the project area would allow lightning ignited fires, but would be limited to specific size in some areas. Allowing lightning ignited fires to burn contradicts your comment regarding prescribed burning, and would not meet the Purpose and Need.
Bill Helmer	A detailed discussion of Section 106 consultation with Native American tribes of the Great Basin is needed in the EA. Concern for lack of consultation with Native American tribes and request for documentation of consultation.	Consultation with local tribes has been occurring. See Chapter 5 of the EA for a list of tribes consulted regarding this project. Cultural resources are addressed in Design Features, Section 2.3. Copies of the letter or phone conversations with the tribes regarding this project are part of the administrative record, but not included in the EA.

Commenter	Comment[1]	Response
Bill Helmer	There is no specific citations for the referenced Nevada State Protocol Agreement between BLM and the Nevada State Historic Preservation Office. The agreement should not be a substitution for a cultural and historic resource values and Native American religious concerns analysis.	Comment noted. EA was updated to include the complete title of the document "Guidelines and Standards for Archaeological Inventory", and clarified that all properties eligible for listing in the National Register of Historic Places would be avoided. The most recent version of the protocol agreement and guidelines can be found at the following link: https://www.blm.gov/programs/cultural-heritage-and-paleontology/archaeology/what-we-manage/nevada. The protocol agreement does provide for protection of cultural resources, and is in compliance with the National Historic Preservation Act.
Bill Helmer	Consultation with tribes is necessary to plan the proposed project and protect traditional cultural landscape of the Great Basin.	Comment noted. Cultural resources would be avoided during treatments (See Section 2.3). Consultation with local tribes regarding this project is ongoing.
Howard Wilshire	Comment requesting an Environmental Impact Statement. Request for No-Action Alternative.	Comment noted. Please see Purpose and Need Section 1.3. There is a No Action Alternative in the Preliminary and Final EA documents.
Habitat Works-Kim Clark	Comment that there is insufficient research showing Greater sage-grouse populations increasing with pinyon-juniper treatments Concerns for treatment effectiveness.	There is current research regarding Greater sage-grouse response to conifer removal: John P. Severson, Christian A. Hagen, Jeremy D. Maestas, David E. Naugle, J. Todd Forbes, Kerry P. Reese, Short-Term Response of Sage-Grouse Nesting to Conifer Removal in the Northern Great Basin, In Rangeland Ecology & Management, Volume 70, Issue 1, 2017, Pages 50-58.
Habitat Works-Kim Clark	Comment that BLM should consider a "let-it-burn" policy.	Removing vegetation with hand thinning, mastication and chaining allows for disturbance to occur on the landscape in a controlled setting and is effective in limiting cheatgrass. Letting fires burn could destroy more habitat and potential life and property.

Commenter	Comment[1]	Response
Habitat Works-Kim Clark	Comments regarding opposition to chaining, mastication and fossil fuel use for implementation, including concern for increased carbon footprint.	Comment noted. Effects to wildlife analyzed in EA. Effects to air quality described in Table 3.1 as negligible.
Habitat Works-Kim Clark	Opposed to pinyon-juniper removal and non-native grasses. Pinyon-juniper is not an invasive species.	Comment noted. Please see Section 1.3 of EA for Purpose and Need for the proposed project. See Proposed Action for accurate description of what would be completed and seeded. Pinyon-juniper is not listed as an invasive species.
Shaun Gonzales	Comment proposing an action alternative to defer any removal of pinyon-juniper until further research on greater sage-grouse habitat needs.	Please see the No Action Alternative, as this would be similar. Current research on sage-grouse identify conifer establishment as a threat to their habitat.
Shaun Gonzales	Concerned with lack of research in the proposed project area. Pinyon-juniper are part of the natural community and should not be considered invasive or encroaching on sage-grouse historic range.	The EA does not it refer to pinyon-juniper as invasive or encroaching. "Encroaching" appears in the EA document when referencing other publications, research papers, and the GRSG ARMPA. Pinyon-juniper is recognized as a component of the Great Basin ecosystem, but it has been determined to be outside the natural range of variability in the area. Most treatments are proposed in sagebrush ecosystem types.
Shaun Gonzales	Recovery of sage-grouse depends on sage and grass species that would be destroyed by chaining and mastication. Opposed to chaining, mastication and the use of non-native species for seeding.	Refer to Appendix I of the EA where photos of chaining and mastication show recovery of sagebrush and grass species after treatment (compared to destruction of sagebrush and grass). See seeding section of Proposed Action (Section 2.2) of the EA. Non-native species can compete more effectively with cheatgrass, and would not dominate the seed mix. A mix of natives with some non-natives may be used, but preference would be to use native species.
Shaun Gonzales	Request for more research.	Chapter 7 of the EA provides various research and literature supporting restoration of sagebrush communities similar to those in the Egan Basin area. Many of the proposed treatments have been implemented extensively in a research setting.
Max Wilbert	Pinyon-juniper are recovering from close to 150 years of being clear-cut for mining and ranching interests.	The proposed project removes pinyon-juniper from some sagebrush ecological sites, improving resilience and resistance to cheatgrass invasion and prevents crossing an ecological

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		threshold to a less resilient vegetation type. While pinyon-juniper may be establishing after other cutting, the Purpose and Need remain the same.
Max Wilbert	Concern for soil, biological crusts, disturbance and carbon sequestration in light of global warming.	The Soil Resources section (Section 3.7) of the EA document has been updated to include more research regarding runoff, particularly in chained and treated areas. Section 4.3.7 discussed cumulative impacts to soil resources and incorporates more research regarding the short and longer term impacts to soil and runoff. Establishing a diverse vegetative community would help respond to global warming effects. Effects on climate change are described in Table 3.1.
Max Wilbert	Comment about the impact of proposed project on indigenous people and the need to consult with them before the project.	BLM has consulted with local tribes for this project (See Chapter 5).
Maureen Doll, Jamaka Petzak, Dennis Morrison, Kim Floyd, Pam Nelson, Harvey Bernstein, Sheila Bowers, Norma Wallace	"I would like to ask BLM to consider a more ecologically favorable alternative to removing and thinning over 84,000 acres of native pinyon pine and juniper forest in the Egan and Johnson Basins. The Pinyon-juniper woodland is recognized by vegetation scientists as a natural alliance of plant species. The pinyon/juniper community in this region has been well established for thousands of years and supports a diverse natural ecosystem. Single-leaf pinyon is an indicator of this widespread natural plant community across the Great Basin that has successfully adapted to the aridity of mountain ranges and basins in the region."	Up to 65% of 37,500 acres would be treated and manual thinning is possible in select areas within the 84,675 project area. Manual thinning would occur in Phase I pinyon-juniper expansion areas. Estimated acres of Phase I pinyon-juniper that occurs outside the treatment areas is 2,250. Acres estimated by using Landfire Canopy Cover 10-20% for woodland areas and imagery. Proposed project targets sagebrush ecological sites for restoration. Pinyon-juniper is a natural occurring community. Treatments are mostly proposed in sagebrush ecological sites that are diminishing due to pinyon-juniper establishment.

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Max Wilbert, Sheila Bowers, Harvey Bernstein, Pam Nelson, Kim Floyd, Dennis Morrison, Norma Wallace, Jamaka Petzak, Maureen Doll	"Specifically, we would like the BLM to: - Prohibit all chaining on this habitat, chaining causes great ecological damage. - Allow no mastication (shredding of trees). - Adopt a No Action Alternative and conduct more scientific research to provide evidence that these treatments are successful before moving on future plans. - Never re-vegetate with non-native species. - Review all future proposals with a full Environmental Impact Statement. - Stop referring to native ecosystems as "invasive" and recognize natural succession patterns."	Chaining and mastication have been successful tools used in the Eastern Great Basin. Effects of the action are described in Chapter 3 and 4 of the EA. See Seeding section in Section 2.2 of the EA for a correct description of seeding and example of species that may be used. Non-native species have been used successfully to compete more effectively with cheatgrass, and when used in a mostly native mix, do not dominate the landscape. Pinyon-juniper woodland is not the target of most treatments within the proposed project area. Areas targeted for treatment are sagebrush ecological sites that are in an uncharteristic native state, due to pinyon-juniper establishment and density. Could not find any reference in the EA where native ecosystems were referred to as invasive. An EIS would be prepared if significant impacts are projected to occur.
Center for Biological Diversity	Concerned about the proposed project and the way it is reviewed in the EA. Request that the BLM make substantial revisions and additions to the EA particularly on the use of herbicides and non-native seed.	Examples of seed used in projects similar to this have been included in Chapter 2 of the EA. Herbicides most likely to be used have also been included in the EA.
Center for Biological Diversity	The proposed project would not accomplish the goals and objectives.	Proposed project is based on numerous scientific articles and evidence from other similar treatments completed within the BLM Ely District and Great Basin. Some of the supporting scientific literature is included in Chapter 7 of the EA. Adaptive management is included in the project to help achieve goals and objectives.

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Center for Biological Diversity	It is unclear if chaining is an effective tool for sagebrush restoration or if maintenance would be needed as chained sites can be recolonized by trees.	Ely District has found chaining to be a successful technique for treating sagebrush ecological sites that have crossed an ecological threshold to a Phase III state dominated by pinyon-juniper. See Appendix I of EA document, which includes pictures of previous treatments. Maintenance of chained or other treated areas would be necessary and the proposed project and objectives allows for project maintenance. The adaptive management strategy also allows for maintenance and retreatment of areas to meet project objectives.
Center for Biological Diversity	There is minimal research showing that pinyon-juniper removal actually improves habitat conditions for sage-grouse. Citation of various literature stating sage-grouse prefer intact sagebrush stands, forb and grass cover was less in treatment areas compared to non-treated areas.	Current accepted research shows that Greater sage-grouse habitat is dependent on percent cover of grasses and forbs. This project is designed to improve percentage of grass and forb cover by removing trees that have established on sagebrush sites. The targeted treatment areas currently are void of many grasses, forbs and shrubs. Chaining and mastication typically leave many shrubs intact after treatment (see Appendix I). Furthermore, sage-grouse have been found occupying chained, thinned, and masticated areas in the Ely District within 1-3 years post treatment. The Purpose and Need for the project includes improving sage-grouse habitat, but that is not the only goal (see Section 1.3).
Center for Biological Diversity	Research shows wildfire is not an effective tool to use in sagebrush restoration or for sage-grouse. Citation to various research claiming fire is beneficial, then counter-claims that it is not.	Wildfire is a natural part of the Great Basin ecosystem. Prescribed fires allow managers to balance ecosystem processes in a more controlled setting. Prescribed fires can reduce the risk of large-scale wildfires that would be more difficult to control and have the potential to burn with higher severity. Careful consideration was given to determine where prescribed fire would be implemented in the project area. Areas that have potential to recover naturally would be targeted.

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		The Purpose and Need for the project includes improving sage-grouse habitat, but that is not the only goal (see Section 1.3).
Center for Biological Diversity	Adjacent projects similar to the Cherry Creek Mowing and Prescribed Burn Project, can only be described as a complete and abject failure at achieving its aims, as reported on in Appendix F of the EA	Other projects are reviewed to determine what was successful and what was not. Changes are made to treatment types, timing, and design to account for past undesirable results. Areas targeted for prescribed burning in this project reflect areas that were successful in the Cherry Creek Project, and avoiding areas similar to those that were not successful. The results of the Cherry Creek Project were included in this EA to show how changes were made to account for unsuccessful results.
Center for Biological Diversity	Comment citing research on negative response from wildlife to historic chaining.	Treatments would occur in some areas of the project area compared to the entire project area. As disclosed in the EA, some species would benefit and some species would not. The intent is to create a diversity of habitat and successional stages a vegetation that are also resilient to other disturbances (e.g., wildfire, climate change, etc.). There is adjacent habitat that wildlife species could use during, and immediate post treatment. Article by McIver et al (2014) titled "A Synopsis of Short-Term Response to Alternative Restoration Treatments in Sagebrush-Steppe: The Sage STEP Project states:" "Trade-offs are inevitable when managing complex natural systems, and they underline the importance of asking questions about the whole system when developing management objectives. Substantial spatial and temporal heterogeneity in sagebrush steppe ecosystems emphasizes the point that there would rarely be a ''recipe'' for choosing management actions on any specific area. Use of a consistent evaluation process linked to monitoring may be the best chance managers have for arresting

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		woodland expansion and cheatgrass invasion that may accelerate in a future warming climate."
Center for Biological Diversity	Comment citing research regarding the effects of treatments on bird population and use of the effected habitat. Research shows minimal impact of treatments on big game use of the area. Comment asking for more analysis on how the proposed project would impact wildlife- particularly in regards to pinyon-juniper removal and herbicide use.	Studies show an increase in sagebrush obligate birds in treatment areas (Holmes, A. L., J. D. Maestas and D. E. Naugle. 2017. Bird Responses to Removal of Western Juniper in Sagebrush-Steppe. Journal Rangeland Ecology and Management 70(1):87-94). Analysis of herbicide and pinyon-juniper removal has been completed in the EA and the EISs that this project tiers to.
Center for Biological Diversity	Potential issues related to the loss of biological soil crusts and increased soil erosion. Comments citing research on chaining, infiltration, loss of biological crusts and impacts to soil from fuels treatments. Lack of information regarding biological crust in the soil impacts analysis in Section 3.7.	Studies also show that erosion in areas with high pinyon-juniper density on sagebrush sites can lead to excessive erosion. As forbs, grasses and shrubs and displaced by woodland species like pinyon-juniper, the soil also erodes. See Section 3.7 of EA document for effects of the proposed project on soil resources. The Soil Resources section (Section 3.7) of the EA document has been updated to include more research regarding runoff, particularly in chained and treated areas. Section 4.3.7 discusses cumulative impacts to soil resources and incorporates more research regarding the short and longer term impacts to soil and runoff. Studies show that infiltration rates at given points on the debris-in-placed treatment have been only slightly affected by the chaining activities. Apparently, in these instances, the debris left scattered on the soil surface acts as both retention and detention storage, the magnitude of which is large enough to minimize or nearly eliminate all runoff. The soil under the debris-in-place treatment is not able to absorb water any faster than is the soil under the woodland; it's just held on the landscape until the soil has the time to absorb it. (Gifford, G. Runoff and Sediment Yields from Runoff Plots on Chained Pinyon-Juniper Sites in

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		Utah. 1973.). A study by Farmer et al (1999), showed that "during five years of data collection, unchained plots produced 5.8 times more runoff and 9.2 times more sediment than chained plots. Results indicate that anchor chaining significantly reduced runoff and soil erosion by providing more protective ground cover."
Center for Biological Diversity	"Among the treatments proposed in the Project is the use of herbicides. Unfortunately, BLM has provided the public essentially zero information about the type, quantities, and delivery mechanisms of herbicides proposed for use, of measures to reduce non-target impacts, or of monitoring measures to determine efficacy of the practice."	See Section 2.2 for information about invasive species and weed control. Additional information was added to include the herbicides that would most likely be used for treatment of invasive and weed species. The EISs that the EA is tiered to provides more information on impacts from herbicides.
Center for Biological Diversity	Comment expressing concern with the widespread application of herbicides to public lands. Additional comment about the concern for use of tebuthiuron and toxicity exposure for wildlife.	Possible herbicides used to treat noxious and invasive weeds before, during or after proposed treatments have been included in the EA. Tebuthiuron is not proposed for this project. "Widespread application" of herbicide is not proposed.
Center for Biological Diversity	Concern with widespread seeding of non-native grass seed. Comments and questions requesting more information on impacts of using non-native grass seed on proposed project area. Specific concern for forage or cover for sage-grouse and impacts to native grasses.	Non-native species are sometimes used when native species are not available or cost prohibitive. Non-native seed is also used to compete with cheatgrass. A diversity of species (mostly native) are used for seeding, including forbs. The seeding section (Section 2.2) of the EA has been updated to include a potential seed list. Most seed mixes consist of native seed, which prevents spreading of non-native seed into adjacent habitats. See Appendix I for photos of a similar project in a

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		similar vegetation type with similar seed mix listed in the EA. Seeding monoculture of non-native seed is not proposed. Sage-grouse have been found using areas that were treated and seeded in similar fashion. Effects to sage-grouse can be found in Chapters 3 and 4 of the EA.
Center for Biological Diversity	Comment regarding Native Seed Only Alternative (Alternative Considered but Eliminated) and request to eliminate the project if species other than native seed is not used.	Abundance and availability of native seeds varies year to year and can be dependent on may factors including other restoration projects and wildfires. Efforts are made to use all native seed, but non-native seed could be needed depending on site characteristics and availability. Many native forbs are not available, so non-native forbs are used for sage-grouse and other wildlife. A native seed only alternative was analyzed in the Ely Proposed RMP/Final EIS. The preference would be to use native seed (See Section 2.2).
Center for Biological Diversity	Concern for treating Phase III areas and the historic vegetation in these areas. Phase III areas were historically pinyon-juniper woodlands.	This proposed project targets pinyon-juniper that are overabundant in sagebrush sites, and have caused, or may cause a decline of understory species. The Purpose and Need is to improve sagebrush ecological sites. Soil surveys and ecological site descriptions suggests that the targeted areas were historically sagebrush ecological sites with some pinyon-juniper present, not pinyon-juniper woodlands. The project goals are to create a mosaic of vegetation types, which would not eliminate all pinyon-juniper.
Center for Biological Diversity	Question about use of adaptive management, ongoing maintenance, monitoring, and parameters for meeting objectives.	The outcome target for treatments is described in Objectives, Section 1.3. See updated Adaptive Management in Section 2.1 for triggers and monitoring plan (short term objectives not met in 5 years then retreat, reseed, seed, and treat cheatgrass). Reference monitoring plan, Appendix G for trends on how project would be monitored.

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Center for Biological Diversity	Comment supporting the Wilderness Society, Basin and Range Watch and Western Watersheds Project Land with Wilderness Characteristics.	Comment noted. See The Wilderness Society comments in this document for a response in regards to Lands with Wilderness Characteristics.
Nevada Department of Wildlife	Comment requesting that the BLM closely monitor vegetation utilization within these areas and employ adaptive management to ensure continued improvement of the area.	Comment noted. Please see Section 2.1 for Adaptive Management and triggers for meeting objectives.
Nevada State Clearing-house	Comment of support from Nevada State Clearinghouse State Land Use Planning Agency	Comment noted.
US Fish and Wildlife Service	"This project is located entirely in the Triple B Herd Management Area. Please describe any measures that would be taken to protect restoration project areas (i.e. seedings and prescribed fire treatments) from damage by wild horses."	Up to 65% of the treatment areas would be treated, leaving at least 35% of the treatment areas without treatment. The treatment areas cover 37,500 acres within the Triple B HMA; 65% of 37,500 is 4,375 acres. The Triple B HMA is 1, 232,624 acres. The treatment area affects 2% of the Triple B HMA. Treatment design leaves islands, stringer and areas that are not treated. Wild horses would be temporarily disturbed during vegetation treatments but there would be abundant pinyon-juniper woodland in the area for the wild horses. See updated Table 3.1 in EA. The Proposed Action does not propose managing or changing horse population numbers, but treatments would increase forage areas for wild horses and reduce competition for forage resources by increasing available forage areas. See Rangeland Health Section 3.5 in EA. No specific actions to remove horses from the treatments are being proposed.
US Fish and Wildlife Service	Update Table 2-2 to USDI 2015- Appendix E	Table 2-2 Updated in EA document to current reference, USDI 2015.
US Fish and Wildlife Service	Habitat objectives of less than 3 percent pinyon-juniper cover within 0.6 miles of lek and within nesting habitat.	Changed short term objectives to <3 % pinyon-juniper cover within 0.6 miles of lek.

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The Wilderness Society	"BLM must rely on up-to-date wilderness resource information in evaluating this project, in accordance with both FLPMA and NEPA. Lands with wilderness characteristics (LWC) are one of the resources of the public lands that must be inventoried under the Federal Land Policy and Management Act (FLPMA). 43 U.S.C. § 1711(a); see also Ore. Natural Desert Ass'n v. BLM, 625 F.3d 1092, 1122 (9th Cir. 2008) (holding that "wilderness characteristics are among the 'resource and other values' of the public lands to be inventoried under § 1711"). Accordingly, Instruction Memorandum 2011-154 directs BLM to consider lands with wilderness characteristics when analyzing projects under the National Environmental Policy Act (NEPA)."	The Ely District (EYDO) BLM started updating the lands with wilderness characteristics (LWC) in 2011. These inventory updates have been occurring on a project-by-project basis. The inventory units involved in this project were updated 2011-2014. The updated inventory determinations for each inventory unit in the project area are now presented in the Chapter 3 of the Environmental Assessment.
The Wilderness Society	"It is not clear to us whether BLM has updated LWC inventory information for the full project area that complies with current agency policy."	This is outside the scope of the project. However, the BLM is working towards making our complete updated LWC inventory files available to the public electronically. Currently the BLM is working on a website to make files available electronically. Hard copy files are available on written request.
The Wilderness Society	"We are submitting new wilderness inventory information that BLM must consider in this NEPA process. We are including with these comments a citizens' lands with wilderness characteristics inventory for Ray Peak."	The proposal is outside the scope of this project. Your Citizens' proposed lands with wilderness character inventory for Ray Peak has been received. Thank you for your submission, we would it keep on file and review it when the EYDO RMP is amended.
The Wilderness Society	"BLM must avoid, minimize and mitigate impacts to wilderness resources."	There is no designated wilderness within the project area. There has not been a land use plan amendment to determine if these LWC meet the wilderness criteria, or if they should be preserved to protect the wilderness characteristics.

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The Wilderness Society	"The treatment methods proposed in the Preliminary EA, which include chaining, mastication, whole tree thinning, mulching/chipping, prescribed fire and fuelwood harvest, can have both short-term and long-term impacts on the resources present, including wilderness characteristics." BLM should comply with CEQ and other NEPA regulations.	The BLM is following all law, policy and regulations established for lands related to wilderness resources. There has not been a land use plan amendment to determine if LWC should be managed as wilderness.
The Wilderness Society	"Therefore, BLM must ensure that any vegetation treatments do not preclude the agency from deciding to protectively manage the wilderness characteristics of these areas in a future land use planning process. Additionally, the Ely RMP (2008) directs BLM to Manage lands identified as having wilderness characteristics to protect those characteristics through a variety of other land use plan decisions such as establishing visual resource management class objectives to preserve the existing landscape."	There has not been a land use plan amendment to determine if or how these LWC units would be preserved to protect the wilderness characteristics. This reference in The ELY RMP is under the Parameter of Wilderness Study Areas. The Ely RMP does not have a specific parameter for lands with wilderness character.
The Wilderness Society	"We recommend the following specific measures for all inventoried LWC in the final EA: 1. No chaining in LWC The Preliminary EA states that "Chaining would be the primary treatment method in areas identified as Phase II and Phase III woodland succession (Miller et al., 2008) and areas of higher pinyon- juniper densities." Preliminary EA, p. 20. Indeed, several of the project units that overlap with our inventoried and potential LWC would include chaining as a preferred treatment method."	These recommendations would be considered once a decision has been made regarding LWC lands.
The Wilderness Society	Comment regarding support of no new roads constructed or maintained during project implementation. Request commitment to not allow creation of any new roads during project implementation.	Comment of support noted.
WildLands Defense	Request to carry forward all issues and concerns raised previously in WildLands Defense scoping comments.	BLM reviewed your scoping comments during scoping period, and have designed treatments and analysis based on substantive comments.

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WildLands Defense	Comment regarding recent Triple B Horse Gather EA. Horse gather comments submitted for Egan and Johnson Basins Restoration Project Preliminary EA.	Triple B horse gather is outside the scope of this project. Clearing horses in advance of the proposed project treatments is not an objective, Proposed Action, or Purpose and Need for the project.
WildLands Defense	Comment regarding livestock grazing degradation across this landscape. BLM is using sage-grouse as an excuse for massively expensive deforestation projects to provide forage grass for livestock interests.	Sage-grouse habitat management is one of the objectives for the project. Providing forage for livestock is not an objective for the project (See Section 1.3). Livestock grazing management is addressed in Section 2.3 of the EA.
WildLands Defense	Concerns about size and cost of project, drought and its effects on the project, and pollution from prescribed burning. The project has high risk of failure.	The most cost effective treatments would be used. See Chapter 3 regarding effects of the treatments on air quality. Adaptive management as described in Section 2.1 would be used to address failure and reduce risk of failure.
WildLands Defense	Models used for mapping vegetation and calculating FRCC. Models used are "flawed" and are based on flawed assumptions.	FRCC is a peer-reviewed accepted model for vegetation. All models are based on certain assumptions and parameters. See BpS Model descriptions for each specific vegetation type for a list of the experts and reference peer reviewed scientific literature used when developing the models. BpS description can be found on the Landfire website (www.landfire.gov).
WildLands Defense	The project would cause destructive and significant impacts on deer and elk habitat.	The proposed project would affect deer and elk habitat. The project is designed to leave cover and habitat for wildlife while enhancing wildlife habitat. Effects to wildlife are discussed in Chapters 3 and 4 of the EA, and in the associated tiered EISs.
WildLands Defense	Comment requesting EIS be completed for project.	Comment noted. Level of significance would determine need for EIS.
WildLands Defense	Concerns for previous disturbances in the treatment area.	Comment noted. See cumulative effects section of the EA document for previous, current and anticipated future impacts to the project area.

Commenter	Comment[1]	Response
WildLands Defense	Request that BLM assess what is conifer expansion and encroachment and consider the historical record.	Current research shows the expansion of pinyon-juniper into sagebrush sites and the increased density of pinyon-juniper in woodland sites has created an overabundance of vegetation in a late succession state. This creates a landscape area more susceptible to large scale wildfires, increased risk to cheatgrass invasion, and loss of diversity of understory plant species. Please see the EA document for an analysis of the prosed project and the no action alternative.
WildLands Defense	BLM is ignoring the historical record of extensive past deforestation, and incorrect ecological assumptions. The Egan Range is undergoing rapid expansion of cheatgrass, medusahead and other damaging connected livestock grazing projects.	For this project, BLM used FRCC and BpS descriptions for vegetation. Those vegetation models are based on pre-European historical vegetation. Please see FRCC guidebook and associated BpS descriptions for more information about vegetation types found in the Egan Basin. Water developments, recreation, roads and livestock grazing are outside the scope of the proposed project.
WildLands Defense	Questions about past treatments in the project area and what action was taken by the BLM regarding previous rehab/restoration actions and failures? Concerns for cheatgrass and previous treatments in the area, particularly Cherry Creek.	BLM continues to monitor the current and past projects in the Cherry Creek Area. Please see Appendix F for details of the monitoring completed for the Cherry creek Mowing and prescribed fire project. Direct, Indirect and Cumulative effects are analyzed in EA. Treatment types were changed or revised based on results from Cherry Creek and other projects.
WildLands Defense	BLM must conduct a valid, science-based risk assessment to understand the magnitude of stresses on these lands, the full impacts of the disturbances that it seeks to impose. This can serve as basis for BLM charting a protection-based path forward.	Please see Purpose and Need and Project Objectives in Chapter 1 of the EA document. Effects of the proposed project analyzed in the EA.
WildLands Defense	Question about the basis for Fire Regime Classes? What are the assumptions regarding fire return intervals and likelihood of vegetation to burn?	Basis for FRCC is described in the EA and FRCC guidebook is referenced in the EA. More information can be found on the Landfire website (www.landfire.gov).

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WildLands Defense	Questions about active leks, number of birds at active leks, past and current lek population data, lek trends, leks in the southern most extent of greater sage-grouse habitat and the PMU impacted by the proposed project.	Number of active leks in the project area are listed in the EA, see Section 3.6. The BLM does not manage wildlife species populations, but does manage the habitat they occupy The BLM's focus is to ensure habitats "provide suitable feed, water, cover and living space for animal species and maintain ecological processes." From Standard 3: Habitat, in the Standards and Guidelines for Rangeland Health for Northeast Nevada. Section 3.6.1 Affected Environment for greater sage-grouse updated to include recent and ten year average male bird numbers for leks within the proposed project area. Please contact the Nevada Department of Wildlife for additional data or visit the NDOW website for data requests http://gis.ndow.nv.gov/ndowdata/.
WildLands Defense	Questions regarding livestock grazing actual use, what lands are grazed, range improvements, range health assessments, grazing impacts to PMUs.	See Section 3.5 for Rangeland Resources, Health and Livestock Grazing. Effects from this project are discussed in the EA. Grazing effects to PMUs and associated livestock grazing facilities are outside the scope of this project.
WildLands Defense	Comment to consider a broad range of important habitat characteristics, including greater sage-grouse requirements of dense sage, nesting cover and tall residual grasses and forbs. Request for assessment of how grazing and/or treatment alters and impacts their habitat needs.	Improving greater sage-grouse habitat is listed as an objective for the proposed project. Project objectives are directly tied to Table 2-2 (sage-grouse habitat objectives in the land use plan amendment, see Appendix E of the EA document). Effects of the project disclosed in the EA and the Nevada and Northeastern California Greater Sage-Grouse Proposed Land Use Plan Amendment (ARMPA) and Final Environmental Impact Statement completed in 2015.
WildLands Defense	Question about effect of the RMP amendment on greater sage-grouse and habitat. Additional comment regarding mining development and RMP amendment for greater sage-grouse habitat protection.	Comment noted. The effect of the RMP amendment on greater sage-grouse was disclosed in the Final EIS for that plan in 2015. Request for mining development is outside scope of the proposed project. Improving habitat for Greater sage-grouse use during all seasons of use is an objective to this proposed project.

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WildLands Defense	Comment regarding risk of habitat loss and fragmentation and lack of habitat resiliency. Question on BLM definition of resiliency. BLM plans to kill everything in sight and ignore plant successional processes.	Resiliency, as used by BLM's Fire and Invasive Assessment Tool is: Resilience is the ability of a species and/or its habitat to recover from stresses and disturbances. Resilient ecosystems regain their fundamental structure, processes, and functioning when altered by stresses like increased CO2 , nitrogen deposition, and drought and to disturbances like land development and fire (Allen et al. 2005; Holling 1973). Reference for this definition used in a document- Chambers, J.C.; Pyke, D.A.; Maestas, J.D.; Pellant, M.; Boyd, C.S.; Campbell, S.B.; Espinosa, S; Havlina, D.W.; Mayer, K.E.; Wuenschel, A. 2014. Using resistance and resilience concepts to reduce impacts of invasive annual grasses and altered fire regimes on the sagebrush ecosystem and greater sage-grouse: A strategic multi-scale approach. Gen. Tech. Rep. RMRS-GTR-326. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 73 p. See Chapters 1 and 2 that describe the project objectives and treatments, which does not include killing everything in sight. The BLM used Landfire data and BpS descriptions, which includes natural plant successional processes.
WildLands Defense	Concern for use of non-native plants in seeding.	Please see seeding section in Chapter 2 of EA document for more information on seeding species. Non-native species would be a minor component in a seed mix with native species.
WildLands Defense	Request to permanently remove livestock grazing from the area.	Grazing closures are discussed in Section 2.3 of the EA. Long term removal of livestock from associated allotments in the project area is outside the scope of this proposed project.
WildLands Defense	Concern about cumulative impacts of grazing, previous treatments, fire rehab, and other management actions. Request for assessment of the fire return intervals in pinyon-juniper communities, and impacts from fire on vegetation.	FRCC and BpS descriptions consider fire return interval and fire regime for vegetation types found in Egan Basin. See Chapter 1 and 2 of EA document. Cumulative effects are addressed in Chapter 4, and in the tiered EISs.

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WildLands Defense	The EA lacks data on native biota inhabiting the project area and surroundings. Full and detailed site-specific surveys and inventories must be conducted for all sensitive species, and other important species such as migratory birds, for two years prior to draft analysis to comply with NEPA, FLPMA and the Land Use Plan.	Request for this extent of monitoring data is outside the scope of this project. Monitoring data is included in Appendix G of EA. Description of the affected environment is included in Chapter 3 of the EA and tiered EISs. BLM would continue to monitoring project post treatment to assess if project is meeting objectives found in Chapter 1 of EA.
WildLands Defense	Concern about effects of treatments on native shrubs. Concern for spread of wildfire and increase in fire potential in treatment area. Concern for loss of thermal cover for deer. Concern for increased poaching and human disturbance in treatment area.	Native shrubs are not the target of the proposed project, but some may be killed during treatments. Implementation design features should minimize damage to native shrub and understory grass and forb species. The proposed treatments and treatment design would leave islands and stringers, and continue to provide valuable shelter for deer and other wildlife species. See Appendix I of the EA that shows similar treatments with shrub understory.
WildLands Defense	Request for designation of Area of Critical Concern in proposed project area.	This request is outside the scope of the project.
WildLands Defense	Request that BLM should have requested mineral withdrawal for the area in sage-grouse RMP amendment.	Comment noted, outside scope of this project.
WildLands Defense	Concern for large scale high severity wildfires and impacts of this treatment on fuel loading. Comment stating project goals derived from flawed models. How do goals relate to protection of life, property, wildlife habitat and historic vegetation? Several questions regarding fire return interval and historic density of woodlands.	Please see Purpose and Need and project objectives in Chapter 1 of the EA. According to effects analysis, fire potential would be reduced by the treatments compared to the No Action Alternative. Fire return interval and historic density addressed in EA. Area of historical pinyon-juniper woodlands is found using Landfire BpS descriptions and mapping (referenced in the EA).
WildLands Defense	Concern that there is no baseline provided for the characteristics of the existing vegetation cover and age class, existing on-the-ground vegetation communities, the condition of these communities, bare soil areas, health of microbiotic crusts, areas and levels of livestock degradation.	Baseline data is discussed in Appendix G and under monitoring plan in Design Features of Section 2.3. Past treatments and wildland fires addressed in Chapter 4 of EA. Current vegetation and future desired vegetated state addressed under vegetation section of Chapter 2 of the EA. Baseline

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		vegetation classification found under vegetative resources, Section 3.8.
WildLands Defense	Concerns regarding livestock grazing and adequate "rest" period for treatment areas.	Addressed under Rangeland Resources, Health and Livestock Grazing Section 3.5. Design Features Section 2.3 discusses plan for grazing management during and after treatments.
WildLands Defense	Concern for invasive species and sage-grouse habitat needs that would take place following treatments. Question about herbicide use and what policy would be followed when using herbicide.	Effects addressed in EA. See monitoring section of Design Features Chapter 2 for measurable objectives and timeline for the proposed project. See Invasive Species and Weed Control, Chapter 2, for herbicide information. See Section 1.6 for tiered EIS herbicide use on BLM lands.
WildLands Defense	Question about data and information used in project planning, like slope and terrain. Complaints about scoping information. Question about scoping and incorporation of public scoping comments.	Treatment types and units addressed in EA document. Slope, terrain, access and visual all considered and addressed in EA. Comments regarding scoping period and NEPA process are noted.
WildLands Defense	Concerns regarding vegetation modeling in regards to climate change and drought. Complaints about BLM and USFS "Scorched Earth Pinyon Juniper Deforestation Campaign".	FRCC and BpS data were used for vegetation types and succession class information. When developing BpS description, fire history information is incorporated. See Landfire website (www.landfire.gov) for more information regarding these peer reviewed model descriptions. We are unfamiliar with the campaign mentioned.
WildLands Defense	Concern for "chips" from mastication treatment and concerns for heavy equipment impacts to project site. Questions if roads and skid trails would be created and why road closures are not issued.	Mastication discussed under treatment methods in EA, Chapter 2. Effects from mastication or heavy equipment on resources discussed in resource sections where appropriate. BLM is not planning anything that is not in the proposed project description. Road closures outside scope of project.
WildLands Defense	Concern regarding fuel reduction objectives for the project and previous fuel reduction treatments in the area.	Previous wildfires and fuels treatments addressed in EA Section 4.1. Past Cherry Creek treatments addressed in Appendix F.

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WildLands Defense	Concern for increase in cheatgrass density post treatment. Concern for impacts from mowing and impacts to sagebrush vegetation.	Noxious weeds and cheatgrass addressed in the EA, see Chapter 2, section titled- Invasive Species and Weed Control. Mowing sagebrush is not a component of the proposed project. Treating existing sagebrush plants is not part of the Proposed Action.
WildLands Defense	Concern for identification of leks location and other elements of sage-grouse habitat. Concern and questions about treatment of slopes and greater sage-grouse use of steep areas. Question about treatment of rocky areas and quantity of trees removed from such sites.	Lek location and Greater sage-grouse habitat identified in EA. See Special Status Animal Species Section 3.6 in EA document for more information about greater sage-grouse. Rocky, steep slopes that are pinyon-juniper woodlands would not be a target for treatment.
WildLands Defense	Concerns for the use of "Phase" for describing pinyon-juniper. Phases lump all age classes together based on canopy closure and would result in clear cutting and destruction of old growth trees. BLM must first determine where forested vegetation naturally occurs on the landscape.	See references for more information about the use of Phase as a description of pinyon-juniper woodlands (i.e., Miller et al. 2008). Areas targeted for treatment are sagebrush communities where pinyon-juniper trees have become established (See Chapter 2 of EA).
WildLands Defense	Request for a defined percentage of forested and other vegetation that would remain following treatments. Request for number, age class and location of trees that would remain in and surrounding the project area and mountain range. Concern for climate change, arid site treatment, and production of site. Question about pine nut production areas within treatment. Question about BLM's definition of old growth, or mature forested vegetation.	See Vegetative Resources Section 3.8 for a detailed description of the affected environment in relation to the proposed project. Detailed questions are answered in the EA or in above comment responses. Questions about vegetation can be found in the BpS references and in the great basin ecology reference found in the References Section of the EA. Old growth forests are not targeted for treatment (See Chapter 2 of EA).
WildLands Defense	Concern for treatment effects on greater sage-grouse habitat needs.	Greater sage-grouse habitat and habitat needs addressed in EA and have been incorporated into treatment design. Effects of the project on greater sage-grouse are included in Sections 3.6.2 and 4.3.5 of the EA.
WildLands Defense	Concern with models using FRCC, "Phase", NRCS, and state and transition models, s and BLM intention of project.	Comment on models and FRCC noted. See Purpose and Need Section 1.3 in EA for intent of project.
WildLands Defense	Question if any of the projects are claimed to be ESR projects and how would projects affect livestock forage and stocking.	The projects are not proposed ESR projects. Livestock addressed in Chapter 2 of EA. Treatment areas may be closed to livestock during project implementation.

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WildLands Defense	Request for BLM to provide studies and mapping of crust cover and impacts of treatments to microbial crust.	Soil crusts and stability are incorporated in Appendix G of the EA. Impacts to soils are included in Section 3.7.
WildLands Defense	Question about quantity and location of woody vegetation present in treatment areas. Several questions regarding use of herbicide and effect on vegetation. Question of effects of treatments on vegetation.	Native vegetation is described in FRCC, BpS and vegetative resources section, Chapter 3. Treatment effects analyzed in Chapters 3 and 4 of the EA.
WildLands Defense	Questions asking for clarification if standing dead trees would be treated, and comment describing the shade or wind blocking value of burned trees.	Standing dead trees would be targeted for treatment along with standing live trees in the proposed treatment areas. Previously burned areas would most likely be left alone as they do not fall within the targeted areas for treatment.
WildLands Defense	Questions about cost of treatments and value of trees removed. Concern for funding source.	Funding and cost of treatments may vary year to year, and is outside the scope of the project. Funding would come from regular appropriations from congress. Value of trees removed depends on the size, but is rather minimal.
WildLands Defense	Concern for BLM compliance with RMP as the Ely RMP is out dated.	The proposed project is in compliance with the Ely District RMP and described in Section 1.4. The Ely RMP is approximately 10 years old, and is within the approved lifespan.
WildLands Defense	Question about the condition and type of watersheds, springs, seeps, and drainages. Request to possibly removing livestock water developments in order to restore water flow processes?	Springs addressed in Section 3.11 of the EA. Removal of livestock developments is outside scope of this project.
WildLands Defense	Concern for rapid snow melt and rapid evaporation of water from sites post treatment. Request for impacts to springs from mining, irrigation and other human disturbances.	Comment considered. Effects for past, present and reasonably foreseeable future disturbances on springs addressed in Chapter 4 of the EA. Also, see current research by Patrick R. Kormos, Danny Marks, Frederick B. Pierson, C. Jason Williams, Stuart P. Hardegree, Scott Havens, Andrew Hedrick, Jonathan D. Bates, Tony J. Svejcar, Ecosystem Water Availability in Juniper versus Sagebrush Snow-Dominated Rangelands, In Rangeland Ecology & Management, Volume 70, Issue 1, 2017, Pages 116-128, ISSN 1550-7424

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WildLands Defense	Concern for impacts on steep, rocky slopes, and asking if sage-grouse use those areas. Concern for erosion on steep areas. Concerns for impacts to vegetation from treatments.	Steep rocky slopes are characteristic of pinyon-juniper woodland areas. Targeted areas are sagebrush ecological sites where pinyon-juniper have established. Most steep rocky areas would not be treated with heavy equipment. Impacts to soils and vegetation are addressed in Chapter 3 of the EA. A description of equipment and treatments is included in Chapter 2.
WildLands Defense	Consider impacts to small mammals and soils.	Effects to wildlife addressed in Section 3.3 and 3.6, and effects to soils addressed in Section 3.7.
WildLands Defense	Question about number and age of trees that would be left in all area targeted for treatment after disturbance. What is the purpose of the pile burning?	BpS and successional stages identified in the EA describe typical tree densities and ages. (See Section 3.8). After treatment, very few trees would be present in the actual treated areas. The untreated islands and stringers would still contain trees of varying ages and size depending on the phase or successional class. Also, Miller et al. 2008, describes typical tree density and ages of various phases of pinyon-juniper density. Pile burning is intended to reduce fuel loading, and meet project objectives by reducing tree canopy cover.
WildLands Defense	Request to assess the impacts of herbicide use. Questions about what herbicide would be used and manner of use.	See Invasive Species and Weed Control Section 2.2 for more of a description of herbicides and use. All regulations for herbicide use would be followed during application. Impacts of herbicide are addressed in Chapters 3 and 4 and the tiered EIS documents described in Section 1.6 of the EA.
WildLands Defense	Request for analysis of project effects on local climate change and the loss of forested vegetation to absorb carbon dioxide.	Climate change addressed and added to Table 3.1.
WildLands Defense	Concern that the project may disturb paleontological resources and cultural materials. Request for EIS. Complaint that information was lacking on the relative extent and significance of the vegetation communities – such as mature trees, or any forested vegetation.	Percentage of succession class for each BpS shown in Table 3.4. Trees of historical or cultural significance would be avoided. See Section 2.3 Design Features, Cultural Resources. Cultural inventory would be completed on surface disturbance activities, like mastication and chaining, and sites eligible for listing in the National Historic Register would be avoided.

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WildLands Defense	Concern for impacts to macrobiotic crusts. Suggest proactive cheatgrass treatments with native competitors and restoration of livestock-degraded areas.	Impacts to soil analyzed for in the EA. Cheatgrass is proposed to be suppressed depending on treatment results. Restoration of sagebrush sites are the major goals of the project. See Section 3.7 for effects to soils and references to soil erosion.
WildLands Defense	How would sagebrush and non-target vegetation be impacted?	Sagebrush and understory species are not the target of the treatments. While there would be some impacts to non-target vegetation, design features would minimize impacts. See photos showing examples of similar projects in Appendix I.
WildLands Defense	Define biomass. Request for information of the direct and indirect effects of biomass usage. How would biomass use be funded?	Biomass can be defined as organic matter used as fuel. Most biomass in the project area would be used as fuelwood. Fuelwood would be available both for personal and commercial use through the Ely District permitting system. No funding is expected for biomass use. Fuelwood permits would be sold to the public as they currently are.
WildLands Defense	Request for number of old growth trees impacted by treatment.	Extensive mapping of all the old growth trees is not possible nor necessary. Old growth pinyon-juniper woodland are not targeted for treatments, but some older trees may be treated. See Purpose and Need that explains why some older trees may be treated.
WildLands Defense	Request BLM to: • Reduce AUMs in pastures/allotments • Adequately consider adverse impacts of climate change, desertification, erosion, loss of sustainable perennial water flows, drought • Adequately consider other vegetation treatments and/or developments that the agency has undertaken. • Define a proper cumulative effects area.	• Resting an area after treatment is addressed in Section 2.3 of the EA (see design features for grazing management considerations during project implementation). Permanent removal of and reducing livestock grazing is outside the scope of this project. • See Chapter 3 of EA for effects analysis on resources. • Known past, present and future vegetation treatment projects addressed in Chapter 4 of the EA. • Cumulative effects area described in Chapter 4 of EA.
WildLands Defense	Concern for increased OHV use in treatment area.	Road creation and expansion are not part of proposed project. BLM would continue to monitor OHV use on administered lands, and implement the design feature as described in the

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		EA: "If determined necessary, signs would be posted along roads within or adjacent to treatment units in regards to travel restrictions to assist in mitigating impacts from future cross country travel".
WildLands Defense	Concern for role of livestock facilities on habitats.	Livestock facilities are outside the scope of this project.
WildLands Defense	Analyze for sensitive and important species and their habitats and populations.	Sensitive species addressed in Section 3.6 of the EA.
WildLands Defense	Request for information on sage-grouse habitat conditions across the PMUs and effects of managements on population recovery.	Greater sage-grouse habitat in the proposed project area addressed in Section 3.6 of the EA. Analyzing the effects across all sage-grouse habitat is outside the scope of this project.
WildLands Defense	How is the agency defining restoration? What would the effect of the projects be on actually restoring the vegetation communities that are naturally occurring on/native to the site? Also, what are the cumulative effects of multiple projects in the same landscape and/or watershed, as well as across the region?"	Definition of success for restoration for this proposed project in listed under Purpose and Need and Goals, Chapter 1, section 1.3 and in monitoring design features in Chapter 2. See Chapter 3, Affected Environment and Chapter 4, Cumulative Effects for analysis of proposed project.
WildLands Defense	BLM must adequately examine impacts and cumulative impacts of treatments, grazing and other habitat disturbance on native vegetation communities, sustainable perennial water flows, trends including aquifer declines, forage production including loss of perennial forage as cheatgrass and other weeds expand, soil degradation, loss and erosion rates in wind and water, microbiotic crust extent and condition, current extent and potential expansion of cheatgrass and other invasive flammable weeds, past and foreseeable declines and irreversible losses in sage-grouse and other rare species habitats.	See Chapter 3 and 4 for direct and cumulative effects on resources. Appendix B describes weed risks. Soil stability, soil crust and percent cover of native and non-native plants would be monitored pre and post treatment (see monitoring data and methods in Appendix G). Perennial water flows and aquifer monitoring is outside the scope of this project.
WildLands Defense	"BLM must lay out a clear and effective environmental analysis and mitigation strategy to protect habitats and population viability, as well as conserve, restore and enhance	Comment noted. Impacts to sensitive species and wildlife are addressed in EA (see Chapter 3, section 3.3 and section 3.6). Habitat maps are shown in the EA. Mitigation is required

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	species in decline. It must identify areas of unoccupied habitat, and determine what the problem is/threats really are. See USFWS WBP Finding, Dobkin and Sauder 2004, Manier et al. 2013, Knick and Connelly 2009/2011 Studies in Avian Biology, for example."	where measurable impacts are determined, and would be applied if impacts are expected.
WildLands Defense	What data was used for planning and what is the extent of planning data collected. How was native vegetation delineated?	See monitoring data in Appendix G. See References section of EA, Chapter 7 for research used for EA document. See above comments regarding vegetation mapping techniques (i.e., Landfire and FRCC).
George Early-	The size of this project is appalling and must be stopped.	Proposed project states up to 65% of 37,500 acres would be treated and manual thinning is possible in select areas within the 84,675 project area. Manual thinning would occur in Phase I pinyon-juniper expansion areas. Estimated acres of Phase I pinyon-juniper that occurs outside the treatment areas is 2,250. Acres estimated by using Landfire Canopy Cover 10-20% for woodland areas and imagery. Proposed project targets sagebrush ecological sites for restoration. Please see Purpose and Need Section 1.3.
Rick Spilsbury and Delaine Spilsbury-.	"I would like to ask BLM to consider a more ecologically favorable alternative to removing and thinning over 84,000 acres of native pinyon pine and juniper forest in the Egan and Johnson Basins."… "Specifically, we would like the BLM to: -Prohibit all chaining on this habitat, chaining causes great ecological damage. -Allow no mastication (shredding of trees).- Adopt a No Action Alternative and conduct more scientific research to provide evidence that these treatments are successful before moving on future plans.- Never re-vegetate with non-native species.- Review all future proposals with a full Environmental Impact Statements.- Stop referring to native ecosystems as "invasive" and recognize natural succession patterns."	Chaining, mastication, and seeding allow BLM to meet project objectives. "Invasive" is used in the EA when referencing documents like the Ely Resource Management Plan or when discussing invasive weeds (Appendix B of EA). Pinyon-Juniper or native plants are not referred to as invasive. An EIS would be prepared if impacts are significant.