

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

**Preliminary Environmental Assessment
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**ASH CANYON SAGEBRUSH RESTORATION AND FUELS
REDUCTION PROJECT**

Lincoln County, Nevada

Ely District Office
Office of Fire Management
Ely, Nevada
Phone: (775) 289-1800
Fax: (775) 289-1910



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1.0 BACKGROUND

1.1 Introduction

The project area analyzed in this environmental assessment (EA) is located approximately 5 miles southeast of Caliente, Nevada on the upland benches along Ash Canyon in the northern portion of the Clover Mountains in the Clover Creek South Watershed. The project area is located in Township 4 South, Range 67 East, Sections 25, 26, 35, and 36; Mt. Diablo Base and Meridian (MDM); Lincoln County, Nevada (Map 1). Ash Canyon is a major drainage that drains from the Clover Mountains into Clover Creek then into Caliente, Nevada. The flood hazard is rather high since Ash Canyon is a major drainage where much upstream flow converges, and flows toward the town of Caliente, Nevada.

The primary vegetation within the project area consists of black sagebrush (*Artemisia nova*), communities and established stands of single-leaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*). Elevations range from 5,480 to 5,660 feet and the terrain is rolling hills. The continued competition and establishment of single-leaf pinyon and Utah juniper on sagebrush ecological sites is a concern as it is decreasing sagebrush ecological conditions and increases the volume of hazardous fuels. All of the lands within the project area parameter are public lands administered by the Bureau of Land Management (BLM).

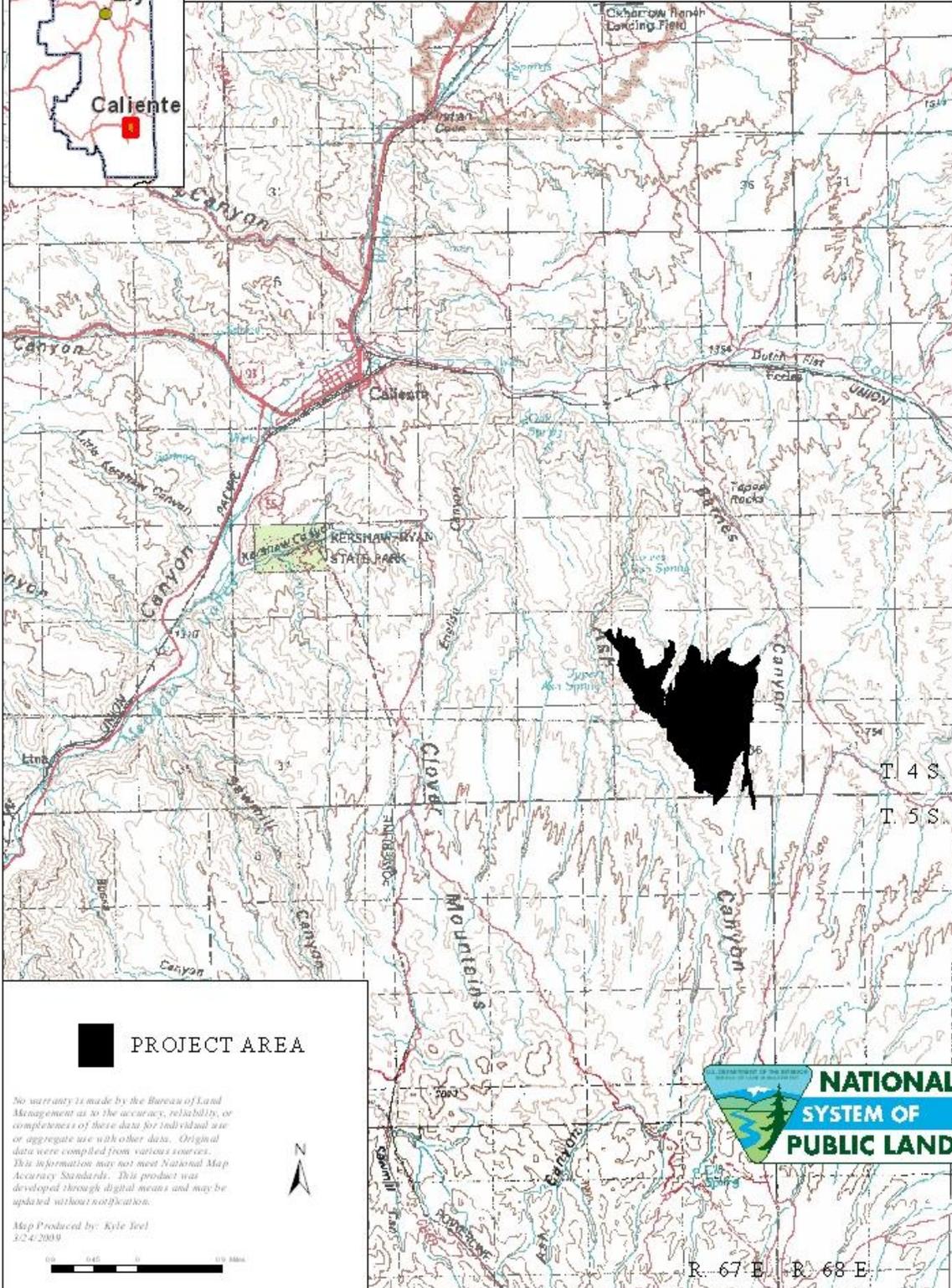
1.2 Purpose and Need for Action

The purpose of the Proposed Action is to reduce the pinyon and juniper communities on sagebrush ecological sites in order to reduce the Fire Regime Condition Class (FRCC) rating within the project area, reduce hazardous fuels, and improve wildlife habitat.

The need for the proposal results from monitoring data which indicates a highly departed FRCC within the project area.

Fire Regime Condition Class (FRCC) is an interagency, standardized tool for determining the degree of departure from reference condition vegetation, fuels and disturbance regimes (<http://www.frcc.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 fire regime. 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). The three classes are based on low (0-33% departure; FRCC1), moderate (34-66% departure; FRCC2) and high (67-100% departure; FRCC3) departure from central

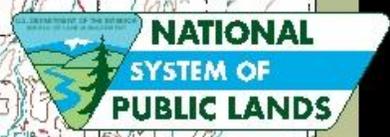
MAP 1: ASH CANYON SAGEBRUSH RESTORATION AND FUELS REDUCTION PROJECT



 PROJECT AREA

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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 a series of indicators of the potential risks that may result from the changes to the associated ecological components when disturbance is applied. Reference descriptions for a typical FRCC1 community have been developed for most major vegetation types. Reference conditions are compared to actual conditions for purposes of determining current FRCC classes.

A majority of the proposed project area has been rated at FRCC 3 (highly departed). This indicates that fire regimes have been highly altered from their historical range. Fire frequencies are departed from historical frequencies by multiple return intervals. Risk of losing key ecosystem components is high. Vegetation attributes have been highly altered from their historical range. There is a need to assure each fuel type within the project area is within the natural regime. The goal is to meet FRCC 1 for each fuel type or biophysical setting within the project area.

The proposal is being considered in order to achieve the following resource management goals:

- Reduce pinyon and juniper establishment in order to achieve a desired herbaceous state or early shrub state where sagebrush is present along with a robust understory of perennial species.
- Reduce the risk of wild fires by reducing fuel loading and continuity within the Clover Creek South Watershed and meet FRCC 1.
- Restore the historic disturbance regime within the project area.
- Improve the available habitat for resident wildlife by creating a mosaic of habitat types within the Clover Creek South Watershed.

Resource management objectives include the following:

Short Term (immediately post treatment)

- Reduce the canopy cover of single-leaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) trees by at least 90 percent within the project area.

Long Term (5 to 10 years post treatment)

- Reduce the FRCC within the project area from FRCC 3 to FRCC 1.

1.3 Relationship to Planning

The Proposed Action is in conformance with, and tiers to the analysis completed for the *Ely District Record of Decision and Approved Resource Management Plan (August 2008)*. The proposed action also tiers to the effects disclosed for mechanical treatments as described in the *Final Programmatic Environmental Report) – Vegetation Treatments on Bureau of Land Management Lands in 17 Western States (2007)*.

The Proposed Action and Alternative Action are in conformance with the following resources goals, objectives, and management actions from the Ely District Resource Management Plan (RMP) and Record of Decision:

- **Vegetation Resources**

- Goal**

- 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**

- 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.

- General Vegetation Management**

- Management Actions**

- 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.

- VEG-4:** Design management strategies to achieve plant composition within the desired range of conditions for vegetation communities, and emphasize plant and animal community health at the mid scale (watershed level).

- VEG-5:** Focus restoration of undesirable conditions initially on those sites that have not crossed vegetation transitional thresholds.

- VEG-8:** Implement actions to attain the desired vegetation states.

- VEG-9:** Integrate treatment priorities to include:

- 1. Public safety and protection from catastrophic wildland fire above other considerations.

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

Management Actions

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.

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.

● **Fire Management**

Management Actions

FM-3: Implement and update the Ely Fire Management Plan, as needed. The following management actions will take place within those fire management units.

- 1) **Fuels treatments** – develop and implement prescribed fire and non-fire fuels treatments (mechanical, chemical, and biological) to create fire-safe communities, protect private property, achieve resource management objectives (Section 2.4.5, Vegetation Resources), and restore ecological system health;

FM-4: Incorporate and utilize Fire Regime Condition Class methodologies as a major component in fire and fuels management activities. Use Fire Regime Condition Class ratings in conjunction with vegetation objectives 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.

FM-5: In addition to fire, implement mechanical, biological, and chemical treatments along with other tools and techniques outlined in Appendix G of the RMP to achieve vegetation, fuels, and other resource objectives.

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

A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment, Ten-Year Comprehensive Strategy was a policy developed in 2001 that placed emphasis on reducing risk to communities and the environment by managing wildland fire, hazardous fuels and ecosystem restoration and rehabilitation on both forests

and rangelands. Three of the four goals outlined in this policy include: (1) Improve fire prevention and suppression; (2) Reduce hazardous fuels and (3) Restore fire adapted ecosystems.

The Healthy Forests Initiative for Wildfire Prevention and Stronger Communities implements core components of the Cohesive Strategy agreed to by Federal, State and local agencies as well as Tribal Governments and stakeholders. The purpose of the Cohesive Strategy is to ensure a coordinated effort to provide fire protection for communities while improving the health of watersheds and vegetative communities.

The hazardous fuels reduction portion of the strategy states, "Assign the highest priority for hazardous fuels reduction to communities at risk, readily accessible municipal watersheds, threatened and endangered species habitat and other important local features where conditions favor uncharacteristically intense fires." (Protecting People and Sustaining Resources in Fire-Adapted Ecosystems: A Cohesive Strategy, page 9).

The Ash Canyon Restoration and Fuels Reduction Project would fulfill the fuels reduction element of the Cohesive Strategy.

Meadow Valley/Clover Creek Watershed Plan was developed by the Meadow Valley/Clover Creek Technical Review Team and approved by the Lincoln County CRM Steering Committee. This document addresses the impacts and solutions to the periodic high water and sediment flows to the city of Caliente, Nevada.

The Lincoln County Elk Management Plan (2006 Revision) was developed by a Technical Review Team (TRT) that consisted of representatives from the Bureau of Land Management (BLM), the Natural Resources Conservation Service (NRCS), Nevada Department of Wildlife (NDOW), sportsmen, ranchers, general public, and conservationists. The plan identified vegetation conversion projects will focus on the eastern portion of Lincoln County within NDOW Management Units 22, 23, and 24 where there is high and moderate potential elk habitat. The project area lies within NDOW Management Units 24. Action Item 1 under Habitat Enhancement outlined in the plan indicates: Enhance habitat to create more diverse plant communities to meet multiple use objectives. A strategy under Action Item 1 indicates: Prioritize habitat enhancement projects first in those areas where there are livestock/elk conflicts and/or areas invaded by heavy pinyon-juniper.

1.4 Issues

Issues are consequences or potential consequences to the human environment. The identification of issues for this environmental assessment was accomplished by considering the resources that could be affected by implementation of the proposed action or any of the alternatives, as well as through involvement with the public and input from a BLM interdisciplinary team. Internal scoping with the BLM interdisciplinary team was held on September 9, 2009 with no issues being identified. The issues of migratory birds and bats were identified by the public during the project scoping period. Resources

analyzed in this EA include soils, vegetation, special status plant species, fire and fuels, and Invasive, Non-Native Species.

2.0 DESCRIPTION of PROPOSED ACTION and ALTERNATIVES

2.1 Proposed Action

The proposal is to conduct pinyon and juniper tree thinning throughout the entire project area of approximately 870 acres (Map 2). Tree thinning would be conducted mainly through mechanical methods such as two-way chaining or mastication. However, some manual (chainsaw) methods could be utilized in areas not suited for mechanical equipment. Slash/biomass from project implementation would remain on site. The type of slash/biomass created would depend on the type of implementation method utilized. Whole tree slash/biomass would remain from chaining or whole tree cutting equipment. Mastication equipment would leave shredded or chipped biomass and manual methods would result in scattered slash. The project area would be aerially seeded with a mixture of perennial grass and forb species adapted to the ecological site.

Project implementation would occur from mid-summer to late spring (July to May). To minimize effects to migratory birds, project implementation would occur outside of the breeding/nesting period.

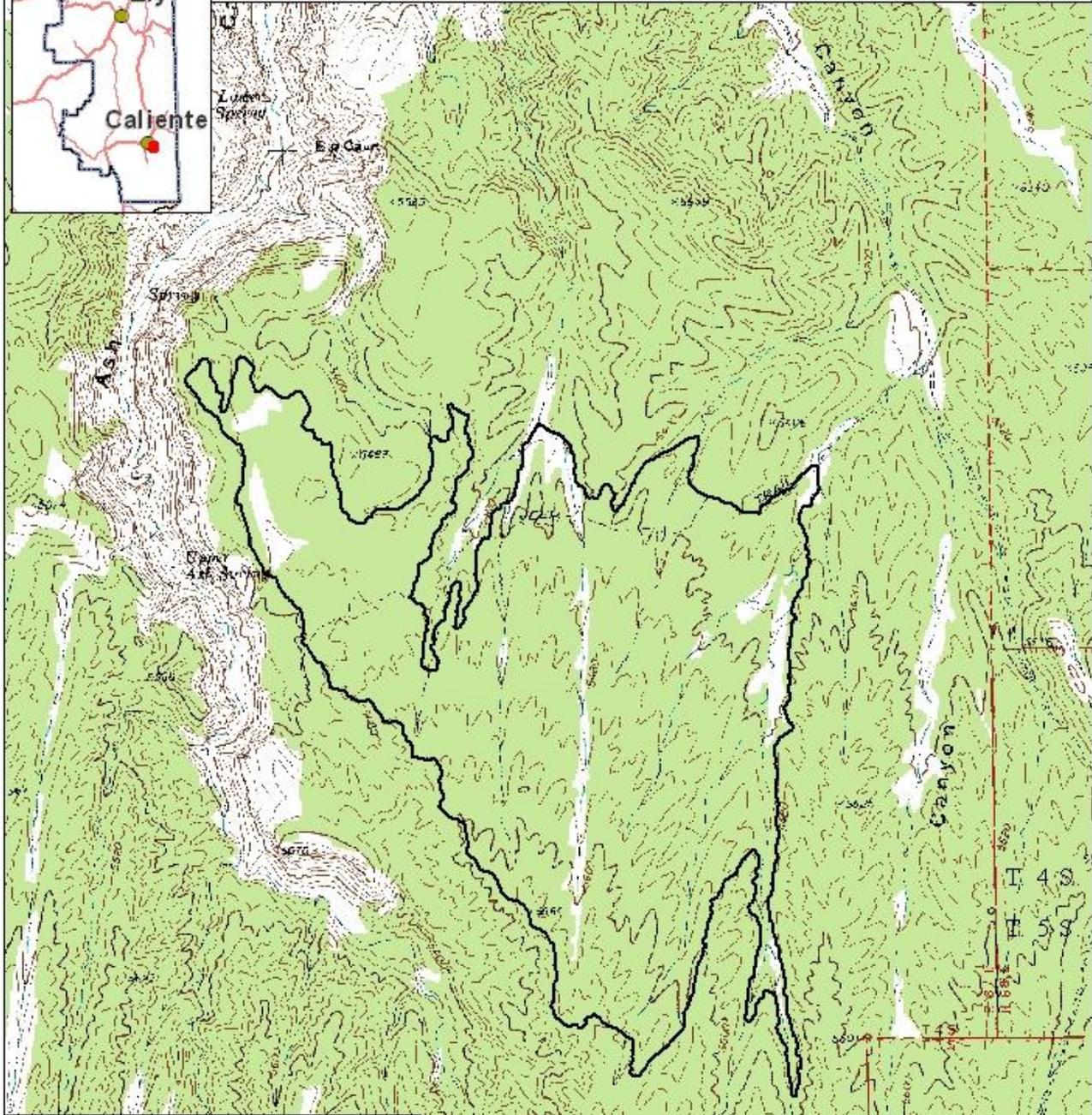
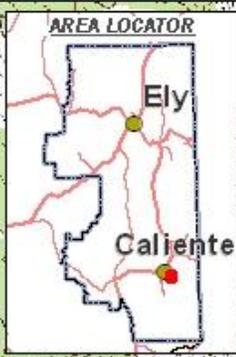
All treatment areas that create surface disturbance would be inventoried to identify cultural sites prior to implementing treatments. Identified cultural sites would be recorded and evaluated to determine eligibility for the National Register of Historic Places. Eligible cultural resources would be avoided or impacts mitigated as necessary before any surface disturbing treatments are initiated.

A survey for mining claim markers in documented active claim sites would be conducted prior to implementing treatments. All active mining claim marker locations and tag information would be recorded. Active mining claim marker or stakes would be avoided to the extent practical. Active mining claim markers that are destroyed by 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 assure accurate, legal staking procedures that would minimize damage to claims.

The Ely District Noxious Weed Prevention Schedule would be adhered to during all phases of project implementation. Mitigation measures identified in the Noxious and Invasive Weeds Risk Assessment (Appendix A) would be implemented as part of the proposed action.

If any mining sites or dumps are discovered within the project area, thinning operations would avoid these sites in order to minimize risk from hazardous materials.

MAP 2: ASH CANYON SAGEBRUSH RESTORATION AND FUELS REDUCTION PROJECT



 PROJECT AREA

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No new roads would be constructed or created during project implementation. Off-road travel with heavy equipment would occur during tree thinning activities. Loading and unloading any equipment would occur on existing roads to minimize off-road disturbances and impacts. If determined necessary, signs would be posted along roads within or adjacent to the treatment areas to restrict cross country travel within the project area.

When the ground is saturated to where ruts could be created, project implementation would cease until the ground dries out sufficiently.

Personnel implementing the project would be informed of big game hunting season that occurs from August 1 to November 2. The hunting public would be notified through the local newspaper when and where the project is occurring.

The treatment areas would be monitored following project implementation to determine success towards meeting vegetative resource management objectives. All monitoring techniques would follow BLM approved methods. The treatment areas would also be monitored to ensure any potential noxious weeds and undesirable species infestations are controlled. If noxious weeds are found, suppression measures would be taken. The noxious weed infestations would be reported to the Ely District Office Weed Coordinator in order to be included on the treatment schedule as soon as possible.

Future treatment actions similar to those listed above, including manual or mechanical thinning would occur on the site over the next twenty years to maintain vegetation treatment objectives. Maintenance treatments would not be allowed if causing more disturbance than the proposed treatment methods listed above.

2.2 No Action Alternative

The No Action Alternative is the current management situation. Under the No Action Alternative, there would be no treatments implemented within the proposed project areas.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

Prescribed fire and the use of chemical treatments (Tebuthiuron) were considered as methods to thin pinyon and juniper within the project area. These alternatives were eliminated from detailed analysis because these methods would not provide additional biomass (downed pinyon and juniper) on the ground to aid in increasing water infiltration and reduce sediment movement, which would not meet the identified need for the proposal. Fire or herbicide treatment would also remove sagebrush, which would not meet wildlife habitat needs or move ecological site conditions toward site potential.

3.0 DESCRIPTION of the AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES and CUMULATIVE IMPACTS

3.1 Introduction

This chapter presents the existing environment (i.e., the physical, biological, social, and economic values and resources) and the potential consequences from project implementation to the affected existing environment within the project area.

While many issues may arise during scoping, not all of the issues raised warrant analysis. Issues raised through scoping are analyzed if:

- Analysis of the issue is necessary to make a reasoned choice between alternatives.
- The issue is potentially significant (an issue associated with a significant direct, indirect, or cumulative impact or where analysis is necessary to determine the significance of impacts).
- If there is a disagreement about the best way to use a resource, or resolve an unwanted resource condition, or potentially significant effects of a proposed action or alternative.

The geographic scope for the cumulative impacts analysis for each resource is the Clover Creek South Watershed (147,876 acres). Resources or concerns either identified during scoping or required to be considered by BLM policy are summarized in the following table. If analyzed in detail, a description of the affected environment, followed by the environmental consequences for the resource will be described in detail following the table.

Resource/Concern	Analyzed	Rationale for Analysis or Dismissal from Analysis
Air Quality	No	Short-term dust during implementation is all that is anticipated.
Water Quality, Drinking/Ground	No	Proposed action would have no affect to water quality whether from surface or subsurface sources.
Water Rights	No	The proposed action would not affect water rights in the project area.
Farmlands, Prime and Unique	No	None present.
Soils	Yes	Effects include potential to cause soil compaction in areas proposed for chaining and increased risk of soil movement until adequate vegetation is established to stabilize soils.
Forest Health	No	The project would implement the intent of the Healthy Forest Restoration Act.
Rangeland Standards and Guidelines	No	The Mojave/Southern Great Basin Resource Advisory Council set the standards and guidelines for this resource. The proposed action is in conformance with these guidelines, and is developed to assist in meeting rangeland health standards.
Wetlands/Riparian	No	None present in the project area
Vegetation	Yes	Short-term impacts until understory vegetative establishment.

Fish and Wildlife	No	Short-term displacement but sufficient habitat nearby. The bat species of concern are more associated with pinyon and juniper woodlands.
Migratory Birds	No	Treatments would occur outside the migratory bird season
FWS listed or proposed threatened (T) or endangered (E) species or critical habitat	No	None Present in the project area
Special Status Animals	No	None present in the project area
Special Status Plants	Yes	The Needle Mountains milkvetch (<i>Astragalus eurylobus</i>) may be found in the project area
Wild Horses	No	Not within a herd management area
Livestock Grazing	No	The allotment is not being actively grazed and is not anticipated to be actively grazed
Native American Religious Concerns	No	None identified
Cultural Resources	No	Eligible cultural sites would be avoided
Paleontological Resources	No	None present
Visual Resource Management (VRM)	No	Within VRM Class II area, the proposed action is not visible from major roads, would avoid hard edges and unnatural patterns to conform with the goals and objectives for VRM Class II.
Land Uses	No	No range improvements or other ROWs are present
Recreation	No	Closures are not necessary, no affects on recreation in the area
Commercial Products	No	Numerous other areas available nearby for commercial products, and potential use of thinned trees for commercial wood products
Mineral Resources	No	No active mining claims present
Fire and Hazardous Fuels	Yes	Project area in FRCC 2; needs to meet FRCC 1
Invasive, Non-Native Species	Yes	Potential for establishment of non-native or invasive species
Special Designations other than Wilderness	No	None present
Environmental Justice	No	No minority or low income populations identified near or within project vicinity

3.2 Soils

Affected Environment

The soil mapping units within the project area are mainly the Minu-Shroe-Acoma Association with the Brier-Acoma-Bellehelen Association along the northern edge. The Minu-Shroe-Acoma Association occurs from 5,000 to 6,500 feet elevation and within the 12 inch precipitation zone. These soils occur on slopes from 2 to 30 percent. This soil association is comprised primarily of gravelly sandy loam and gravelly loams that are well drained. The Brier-Acoma-Bellehelen Association occurs from 5,000 to 7,500 feet elevation and within the 12 to 14 inch precipitation zone. These soils occur on slopes from 2 to 75 percent. The soil association is comprised of very sandy loam, gravelly sandy loam, and very stony and are well drained (NRCS, 2000).

Potential Environmental Consequences

Proposed Action

There may be minimal soil erosion expected from implementation of the treatments in the short term. In the long term studies have shown that reduction in pinyon-juniper does increase soil stabilizing groundcover, improves infiltration rates and increases soil moisture (Pierson et al. 2007, Miller et al. 2005, Bates et al. 2000, Everett and Sharrow 1985). Potential consequences to soils could result in some soil scarification and furrowing to depths up to approximately 4 to 6 inches through the chaining methods, soil scarification by the equipment in the mastication method, and limited soil disturbance through the manual methods. Some soil compaction could occur from the equipment used in the chaining and mastication methods. Chaining would uproot the targeted trees creating holes or impressions where the root mass occurred, but should eventually fill in or level out over approximately three to five years. Utilizing the treatment methods outlined in the proposed action, the grasses, forbs, and younger, more vigorous shrubs would remain and continue to provide for soil protection and stability while trees and larger shrubs which are chained or thinned from manual methods would be left on the landscape in a scattered fashion. The scattered tree material and/or biomass from mastication treatments should provide a protective layer for soils from erosion. The recruitment and establishment of perennial grasses and native shrubs following the treatments should further promote soil health over the long term. A diverse vegetative understory of grasses, forbs and shrubs assists in preventing soil erosion by minimizing bare spots, and holding soil in place with shallow roots. Over the long term, standing plant density is expected to increase and plant biomass or litter is expected to increase which should stabilize and protect the soil resource. No new roads would be constructed or created during the treatments so future soil disturbance from vehicular travel should be limited.

No Action Alternative

Current erosion rates should remain the same in the short term, but could increase over the long term as tree densities increase and out-compete understory grasses and shrubs leaving unoccupied spaces of bare ground. Competition from trees could reduce the amount of vegetation available to stabilize and protect soils. Understory species occupy more spaces, and provide better soil stability from their shallow fibrous roots. As the grass and shrub component continue to reduce over time and a high intensity wildfire event occurs in the area removing a majority of the vegetation on site, the soils could be more exposed and vulnerable to water events. With less resilient understory species, regeneration could be minimal after a fire and the likelihood of cheatgrass establishment becomes much greater. Soils could be more vulnerable to erosion due to the absence of desirable, perennial grasses and native shrubs which provide much greater protection to soils than undesirable annuals due to root depth and longevity. Higher erosion rates could occur and increased potential for gully formation. Sedimentation in lower drainage areas is expected to occur under such a situation.

Cumulative Impacts

Cumulative effects are the effects on the environment which result from the incremental impacts of actions in this EA when added to other past, present and reasonably foreseeable actions. Past actions, effecting soil resources in the watershed include approximately 4,900 acres of wildfire, approximately 1,100 acres of wildfire rehabilitation, and 13,800 acres of habitat improvements and other land use activities. Implementing the Proposed Action, could aid in reducing soil erosion through the improvement of the overall condition of vegetative communities, their resiliency to future disturbance and provide a mosaic of differing ecological conditions which would reduce and minimize cumulative impacts. The potential exists for future wildfire events and wildland fire use for resource benefits to occur, although it cannot be determined at this time how many could occur and acres that could be effected. With foreseeable wildfires, rehabilitation of these areas could also occur, although it cannot be determined at this time how many could occur and acres that could be effected. Presently, there is an additional 2,000 acres of fuels treatments/habitat improvement activities being considered that would affect vegetation within the watershed. Cumulative impacts from implementing the Proposed Action combined with present and future actions should result in soil and their resistance to erosion. Improving soil cover and stability by improving vegetative conditions through the implementation of various treatments should result in overall watershed stability which should indirectly reduce cumulative impacts.

3.3 Vegetation

Affected Environment

The primary vegetation within the project area consists of pinyon and juniper and black sagebrush communities. Perennial grasses include muttongrass (*Poa fendleriana*), bluegrass (*Poa spp.*), Indian ricegrass (*Achnatherum hymenoides*), and bottlebrush squirreltail (*Elymus elymoides*), and occur at levels below ecological site potential. Some undesirable, non-native, annuals such as cheatgrass (*Bromus tectorum*) do occur within the proposed project area. Native shrubs include black sagebrush some Wyoming big sagebrush (*Artemisia tridentata wyomingensis*), rabbitbrush (*Chrysothamnus sp.*), green ephedra (*Ephedra viridis*) and antelope bitterbrush (*Purshia tridentata*). The primary tree species, single-leaf pinyon pine and Utah juniper, are increasing in density resulting in the overall reduction in production and vigor of perennial grasses within the proposed treatment areas. In some areas, sagebrush communities have become even-aged, mature; decadent stands with minimal to no understory.

The Clover Creek North and South Watershed Draft Evaluation Report identified that the existing tree component within the black and Wyoming sagebrush ecological communities was well above recommended standards and the shrub, forb and grass component was well below standards (BLM, 2009). Vegetative data collected at 2 sites within the proposed project area boundary follows that trend and is summarized below:

MONITORING SITE		Potential Vegetative Composition*			Existing Vegetative Composition			
Plot	Ecological Site	Grasses	Forbs	Shrubs**	Grasses	Forbs	Shrubs	Trees
1	029XY008NV	50%	5%	45%	0%	0.6%	73%	56%
2	029XY008NV	50%	5%	45%	3%	2%	20%	43%

* Potential Vegetative Composition as described in the Ecological Site Descriptions

**No more than 3% can be of juniper

Potential Environmental Consequences

Proposed Action

Vegetative conditions are expected to move toward site potential with a diverse mix of grasses, forbs, and shrubs following implementation of the proposed vegetation treatment. The removal of pinyon and juniper trees on sagebrush ecological sites should reduce the competition to existing or seeded herbaceous and shrub species and assist in improving ecological conditions within the project area. The expansion of pinyon and juniper woodlands and drought-related impacts have reduced the overall health, vigor, recruitment and production of a variety of grass and shrub species and disrupted the desired plant succession. Landres (1999), indicated that the diversity of plant species within pinyon and juniper woodlands is limited compared to adjacent shrub dominated areas, and this reduced variability and reduced species diversity has an overall reduction in the ecological health and function across a landscape. The removal of pinyon and juniper trees should reduce the competition to existing or seeded herbaceous and shrub species, resulting in healthy, vigorous, recruitment and production of these understory species. Reducing the establishment of pinyon and juniper should assist in improving ecological conditions within the project area by protecting the soil resource and other associated watershed values. The removal of pinyon and juniper trees should also help move the watershed toward FRCC 1 by reducing fuel loading and continuity and thus reducing the fire hazard. The slash/biomass residual woody vegetation being left on the ground should provide protection to regenerating grasses, forbs and shrubs. The decomposition of woody plant material should also increase soil nutrient content which could enhance the recruitment, establishment and long-term viability of the grass and shrub community.

No Action Alternative

Vegetative conditions are expected to remain the same for the short-term and decline in condition over the long-term. The health, vigor, recruitment and production of native and non-native, perennial grasses and native shrubs could decline in the long-term due to a competition for nutrients, sunlight and water with older, decadent shrubs and increasing densities of pinyon and juniper. Future drought related factors could also contribute to the decline in condition of upland vegetative communities. The increasing densities of pinyon and juniper could continue and the older, decadent even-aged shrub communities could further decline in health and vigor affecting the recruitment and establishment of

new grasses, forbs and shrubs which are important for soil stability and other watershed values.

Cumulative Impacts

Past actions effecting vegetation resources include approximately 4,900 acres of wildfire, approximately 13,800 acres of habitat improvements, approximately 1,100 acres of wildfire rehabilitation, along with livestock, wild horse, wildlife use, land actions, and recreation activities. Implementing the Proposed Action, combined with past actions, could result in ecological conditions that meet site potential and mimic the natural disturbance regime. This would provide a mosaic of differing ecological conditions which would increase the vegetative communities' resiliency to future disturbances while reducing and minimizing cumulative effects associated with disturbances. The potential exists for future wildfire events and wildland fire use for resource benefits to occur, although it cannot be determined at this time how many could occur and acres that could be effected. With foreseeable wildfires, rehabilitation of these areas could also occur, although it cannot be determined at this time how many could occur and acres that could be effected. Presently, there is an additional 2,000 acres of fuels treatments/habitat improvement activities being considered that would affect vegetation within the watershed. Implementing the Proposed Action, combined with present and future actions, should increase the overall diversity and production of vegetative communities, their resiliency to future disturbance and provide a mosaic of differing ecological conditions which should reduce and minimize cumulative impacts. After implementation of the proposed action or alternative action, future wildfires should be less intense and should resemble the natural severity. The present actions should mitigate impacts of future natural disturbances by improving vegetation.

3.4 Special Status Plants

Affected Environment

There is potential that the Needle Mountains milkvetch (*Astragalus eurylobus*) may be found in the project area. The Needle Mountains milkvetch which flowers in May-June is a perennial herb found in generally deep, barren, sandy, gravelly, or clay soils derived from sandstone or siliceous volcanics, frequently in or along drainages (Nevada Natural Heritage Program, 2001).

Potential Environmental Consequences

Proposed Action

There should be minimal consequences to the Needle Mountains milkvetch from implementation of the treatments, because the treatment would occur after the Needle Mountains milkvetch has dropped its seed. Slash/biomass left onsite should provide protection for seedling establishment, removal of pinyon and juniper trees should reduce competition for mineral and moisture, and reduce the potential for a catastrophic wildfire.

In addition, chaining and mastication equipment usually do not disturb smaller grass and forb species as the equipment generally roll over the smaller plants without uprooting them.

No Action Alternative,

Conditions are expected to remain the same for the short-term and could decline over the long-term due to a competition for nutrients, sunlight and water as increasing densities of pinyon and juniper would reduce amount of resources available for the milkvetch.

Cumulative Impacts

Past actions within the watershed include approximately 4,900 acres of wildfire, approximately 13,800 acres of habitat improvements, approximately 1,100 acres of wildfire rehabilitation, along with livestock, wild horse, wildlife use, land actions, and recreation activities. Implementing the Proposed Action, combined with past actions, could result in ecological conditions that meet site potential and mimic the natural disturbance regime. This would provide a mosaic of differing ecological conditions which would increase the vegetative communities' resiliency to future disturbances while reducing and minimizing cumulative effects associated with disturbances. The potential exists for future wildfire events and wildland fire use for resource benefits to occur, although it cannot be determined at this time how many could occur and acres that could be effected. With foreseeable wildfires, rehabilitation of these areas could also occur, although it cannot be determined at this time how many could occur and acres that could be effected. Presently, there is an additional 2,000 acres of fuels treatments/habitat improvement activities being considered that would affect vegetation within the watershed. The goals of the future treatments are to move the ecological conditions more toward potential and natural range of variability. The overall cumulative impacts from all past, present and future actions are expected to be minimal.

3.5 Fire and Hazardous Fuels

Affected Environment

The proposed project area is within the Caliente Watershed and Wildland Urban Interface Fire Management Units (FMUs).

Historically, the Clover Mountain area and adjacent mountains were fire adapted. Fire played a regular disturbance role in the ecosystem. Fire exclusion has occurred throughout the west since Europeans arrived, which is thought to have affected the natural role of fire. Vegetation volume has increased, and vegetative composition has changed as a result of this natural disturbance alteration resulting in mature sagebrush with increasing dead to live woody material and decreasing understory grasses and forbs. Fires prior to European settlement once carried through fine fuels and created structural and age class diversity in sagebrush sites. According to Miller and Tausch (2001), infrequent fires in the past 130 years have allowed pinyon and juniper to establish on

sagebrush sites. This fuel type presents a unique fire hazard as the potential for crown fire is higher. Crown fires typically burn at higher wind speeds and are more difficult to control. When this occurs, fires are usually stand replacing. When fires occur with little wind, as when a high pressure system is in place over the area, fires will typically burn minimal trees. Fire history and fire effects in the Great Basin are a vital component of resource health. There is evidence to support the existence of repeated wildland fires in eastern Nevada. It is not uncommon to find thin lines of charcoal exposed in arroyo cuts, marking episodes of prehistoric burning.

Potential Environmental Consequences

Proposed Action

Fire behavior would be decreased as a result of reduced fuel loading and continuity. Future natural fires would be less extensive and smaller in size. Smaller wildfires would be easier to manage, reducing the risk to multiple natural resources, private lands, private withholdings, physical structures associated with Right-of-Ways and aesthetic values. The danger of large, uncontrolled wildfires would be reduced under this alternative. This would reduce the potential for large runoff and sediment movement events should a wildfire occur in the future. Implementation of the proposed project should bring the FRCC in the project area within the natural (historic) range.

No Action Alternative,

Fuel conditions could continue to increase and accumulate beyond levels representative of the natural (historic) fire regime which could increase the burn intensity potential. The risk of a large, uncontrolled wildfire could remain much greater. This would increase the potential for a large runoff and sediment movement event should a wildfire occur in the future. If a wildfire does occur in the area, fuel loading and the associated fire intensity should be reduced. The No Action Alternative could result in high fuel loading and fire intensity potential in the long-term.

Cumulative Impacts

Past actions include approximately 4,900 acres of wildfire, approximately 13,800 acres of habitat improvements, and approximately 1,100 acres of wildfire rehabilitation have assisted in moving the FRCC rating within the watershed towards FRCC 1. Implementation of the Proposed Action along with, wildland fire use for resource benefits, and fire rehabilitation would aid in achieving FRCC 1 within the watershed. Although, future wildfire events, wildland fire use for resource benefits, and fire rehabilitation are foreseeable it cannot be determined at this time how many could occur and acres that could be effected. Presently, there is an additional 2,000 acres of fuels treatments/habitat improvement activities being considered within the watershed. Overall, cumulative impacts from all past, present and future actions should be minimal and FRCC 1 should be achieved over the long term, considering successful implementation of all actions.

3.6 Invasive, Non-Native Species (Including Noxious Weeds)

Affected Environment

There are no noxious weed infestations documented within and adjacent to the project area boundary. The following noxious weed species are documented along roads and drainages leading to the project area: poison hemlock (*Conium maculatum*), bull thistle (*Cirsium vulgare*), hoary cress (*Lepidium draba*), tall whitetop (*L. latifolium*), and salt cedar (*Tamarix spp.*)

Potential Environmental Consequences

A Risk Assessment for Noxious and Invasive Weeds (Appendix A) was completed for the Proposed Action and the risk rating for each area has currently been identified as Moderate which means that preventative management measures should be developed for the proposed project to reduce the risk of introduction or spread of noxious and invasive weeds into the area.

Proposed Action

Noxious and non-native, invasive weeds which have been identified outside the proposed project area could become established or increase within the area. In areas with reduced levels of existing perennial grasses and forbs, cheatgrass or non-native, invasive species could establish or increase prior to the increase in desirable, perennial grasses, forbs and shrubs. New species could be introduced to the area as a result of vehicles, heavy equipment and activities associated with the use of the vehicles and equipment, even with the SOP which requires machinery is washed down prior to entering the site. However, conformance with the Ely District Noxious Weed Prevention Schedule and measures identified in the Risk Assessment for Noxious and Invasive Weeds would greatly reduce the risk of noxious weeds and non-native, invasive species establishment.

No Action Alternative

Noxious weeds may eventually increase within the targeted treatment area, particularly along traveled roads. Declining understory species in sagebrush and woodland sites would increase the risk of noxious weeds and invasive species establishment following a natural disturbance (e.g., wildfire) due to the lack of competition from desirable, perennial grasses and forbs. Increasing the density of woodlands would also increase the size and effect of a potential wildfire, which indirectly would provide large areas for noxious weeds and undesirable species to establish following a wildfire event.

Cumulative Effects

Past actions include approximately 4,900 acres of wildfire, approximately 13,800 acres of habitat improvements, approximately 1,100 acres of wildfire rehabilitation, livestock and

wild horse use; road construction and maintenance; recreation activities including off-highway travel, camping and hunting; fence construction; and rights-of-way construction. These activities have possibly resulted in unforeseen, yet undetected stands of noxious weeds. However, most past and all present and future actions within the cumulative effects area have and would have noxious and invasive weed prevention measures associated with them. In addition, these projects also have monitoring and weed treatment requirements. Once weed infestations are discovered, control actions have been initiated. Implementation of the proposed action along with the past activities which are expected to continue to some degree in the future could result in new stands of noxious weeds establishing. Once discovered control actions would be initiated on the stand. Implementing the Proposed Action would also improve the ability of the natural vegetation community to compete with and prevent noxious weed and invasive species establishment through the development of a more vigorous, diverse and productive perennial vegetative community. Monitoring activities associated with the proposed action could allow for early detection of weed species, which would improve treatment ability. Presently, there is an additional 2,000 acres of fuels treatments/habitat improvement activities being considered that would affect vegetation within the watershed. The overall cumulative impacts from all past, present and future actions are expected to be minimal.

4.0 PROPOSED MITIGATION MEASURES

Design features have been incorporated into the Proposed Action; therefore no mitigation measures are necessary. Design features include considerations for migratory birds, cultural resources; noxious weeds and invasive species; and mining claims.

5.0 CONSULTATION and COORDINATION

A. Public Interest

On September 22, 2009, a letter indicating the BLM's intent on initiating the planning process was mailed to individuals/groups who have expressed interest in participating in hazardous fuels reduction projects as well as state, county and federal agencies. The Ely District Native American Coordinator discussed the proposed action and alternatives with Native American Tribes on November 7, 2008 and no concerns were identified.

Comments in the form of a letter and call were received from two individual/groups. One individual was soliciting further information about the project and supported efforts as described in the proposed action, and would like to see more of these types of project. The other commenter supported the project goals benefiting wildlife and expressed minimizing impacts to migratory birds and bats. Project implementation would occur outside on the breeding and nesting season and the bat species of concern are more associated with pinyon and juniper woodlands sites. Treatments are occurring in sagebrush ecological sites.

B. Internal District Review Still needs UPDATE

<u>Name</u>	<u>Title</u>	<u>Resources</u>
Cameron Boyce	Rangeland Management Spec. & Outdoor Recreation Planner	Livestock Grazing Recreation, VRM
Kyle Teel Alicia Styles	Fire Ecologist Wildlife Biologist	Fire, Fuels, Vegetation Wildlife, T&E/Sensitive Species, Migratory Birds
Mark D'Aversa	Hydrologist	Soil, Water, Air, Riparian Floodplains
Kurt Braun	Archeologist	Cultural/Paleontological /Historical Res.
Mindy Seal	Natural Resource Specialist	Noxious Weeds, Invasive Species
Zach Peterson	Forester	Forest Resources,
Dave Jacobson	Wilderness Planner	Wilderness, Special Designations
Cody Coombs	NEPA	Air Quality, Environmental Coordination
Elvis Wall	Native American Coordinator	Native American Religious Concerns & Tribal Coordination
Alan Kunze	Geologist	Minerals

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7.0 Appendices

Appendix A

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

Ash Canyon Restoration Project Lincoln County, Nevada

On January 4, 2010 a Noxious & Invasive Weed Risk Assessment was completed for the Ash Canyon vegetation thinning project. See attached map for project location. The proposal is to conduct piñon and juniper tree removal throughout the entire approximate 2,100 acre project area (Map 2). The targeted areas for treatment are where piñon and juniper trees have become established on sagebrush ecological sites, which is estimated to be 60 to 75 percent (approximately 1,260 to 1,575 acres) of the treatment area.

Tree removal would be conducted by manual (chainsaw) and/or mechanical methods such as chaining or mastication. Slash/biomass removal would depend on the type of method used. A portion of the slash/biomass created from manual methods or equipment which provides whole tree cutting methods would be used to cover trails created by tree removal equipment and place in gullies where possible. The remaining slash could be scattered or consolidated into piles and disposed of later through prescribed burning or chipping, left whole on site to degrade by natural means or hauled off site for use as biomass. Biomass could take the form of firewood, posts, chips, and various other products. It is anticipated that fuel wood would be the main biomass taken from the project area. Slash/biomass created from mastication equipment would be left on site to decompose by natural means.

Chaining

The process involves using two bulldozers traveling in parallel with a large anchor chain weighing approximately 30,000 pounds stretched in between. The chain pulls over trees exposing root mass. The weight, ripping effects and soil disturbance can be increased by welding short (~12") sections of railroad track to the individual links known as an Ely Chain. Chaining can either be one-way or two-way. Two-way chaining involves making two passes over the same area in different directions and has proven more effective (higher tree mortality) than one-way where a single pass is made (Ansley et al 2006, Skousen et al. 1989). Some trees survive with a great deal of damage to roots and trunk attesting to their hardiness. Any existing grass and herbaceous cover may be impacted, but respond with increased vigor after treatment (Ansley et al. 2006, Miller and Wigand 2004, Skousen et al. 1989).

Chaining treatments are often followed by hand cutting or fire since most saplings are merely bent over and often survive (Ansley et al. 2006). The remnants of trees left by chaining are sometimes windrowed and provide habitat for wildlife (Gifford 1973). Soil erosion in chained areas differs depending on methods. Chaining followed by windrowing of trees produces more runoff and sediment than untreated sites, while

chaining with litter left in place results in equal and most often less runoff and sediment (Pierson et al. 2007, Gifford 1973).

Mastication

There are various kinds of machinery used for mastication usually based on modified logging platforms such as feller/bunchers, skidders, and excavators. Different versions offer tracked crawlers or rubber wheels, and different sizes from small skid/steer units to large articulating loaders. Mastication has an advantage not only being able to select exact boundaries but also of being able to select individual plants. It is typical for woody debris to remain intact for relatively long periods of time in the arid climates associated with P/J. However, decomposition may be accelerated by increased soil moisture from over story removal, which is compounded by litter depth in mastication treatments. Incorporating litter into the soil may also facilitate decomposition.

Project Implementation

Timing of project implementation would vary depending on the method employed. When manual (chainsaw) methods are utilized implementation could take place year-round. Utilization of mechanical methods would take place outside of the nesting season (May 15 to July 15). Snags located within the project area would also be avoided. When the ground is saturated to where ruts could be created, project implementation would cease until the ground dries out sufficiently.

No new roads would be constructed during project implementation. Off-road travel consisting of pickups with trailers, and/or heavy equipment would occur during tree removal activities. Loading and unloading any equipment would occur on existing roads to minimize off-road disturbances and impacts. If determined necessary, signs would be posted along roads within or adjacent to the treatment areas in regards to travel restrictions in order to assist in mitigating impacts from future cross country travel. Some of the slash would be used to cover any routes created by manual tree cutting operations to reduce their visibility. Slash from mastication equipment would be left on site to cover routes taken during tree removal operations.

The treatment areas would be monitored before and following project implementation to determine success towards meeting resource management objectives. All monitoring techniques would follow BLM approved methods. Common methods which may be used include, but are not limited to, line and point intercept for cover, belt transect with a macroplot for density, and photographs. The treatment areas would be monitored to ensure any potential noxious weeds and undesirable species infestations are controlled. If noxious weeds are found, suppression measures would be taken. The noxious weed infestations would be reported to the Ely District Office Weed Coordinator in order to be included on the treatment schedule as soon as possible.

No field weed surveys were completed for this project. Instead the Ely District weed inventory data was consulted. No weed species are found within the project area:

The following weed species are found along roads and drainages leading to the project area:

<i>Conium maculatum</i>	Poison hemlock
<i>Cirsium vulgare</i>	Bull thistle
<i>Lepidium draba</i>	Hoary cress
<i>Tamarix spp.</i>	Salt cedar
<i>Lepidium latifolium</i>	Tall whitetop

There is also probably cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomerus*), bur buttercup (*Ceratocephala testiculatus*), and Russian thistle (*Salsola kali*) scattered along roads in the area. The area was last inventoried for noxious weeds in 2007.

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.

For this project, the factor rates as Moderate (5) at the present time. Due to the heavy machinery use associated with this project, it is likely that the project activities will result in new weed infestations to the area, especially of non-native, invasive weeds such as cheatgrass.

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.

This project rates as High (8) at the present time. If new infestations establish within the project area this could adversely impact those native plant communities since the proposed treatment areas are currently considered to be mostly weed-free. Also, an increase of cheatgrass could alter the fire regime in the area.

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.
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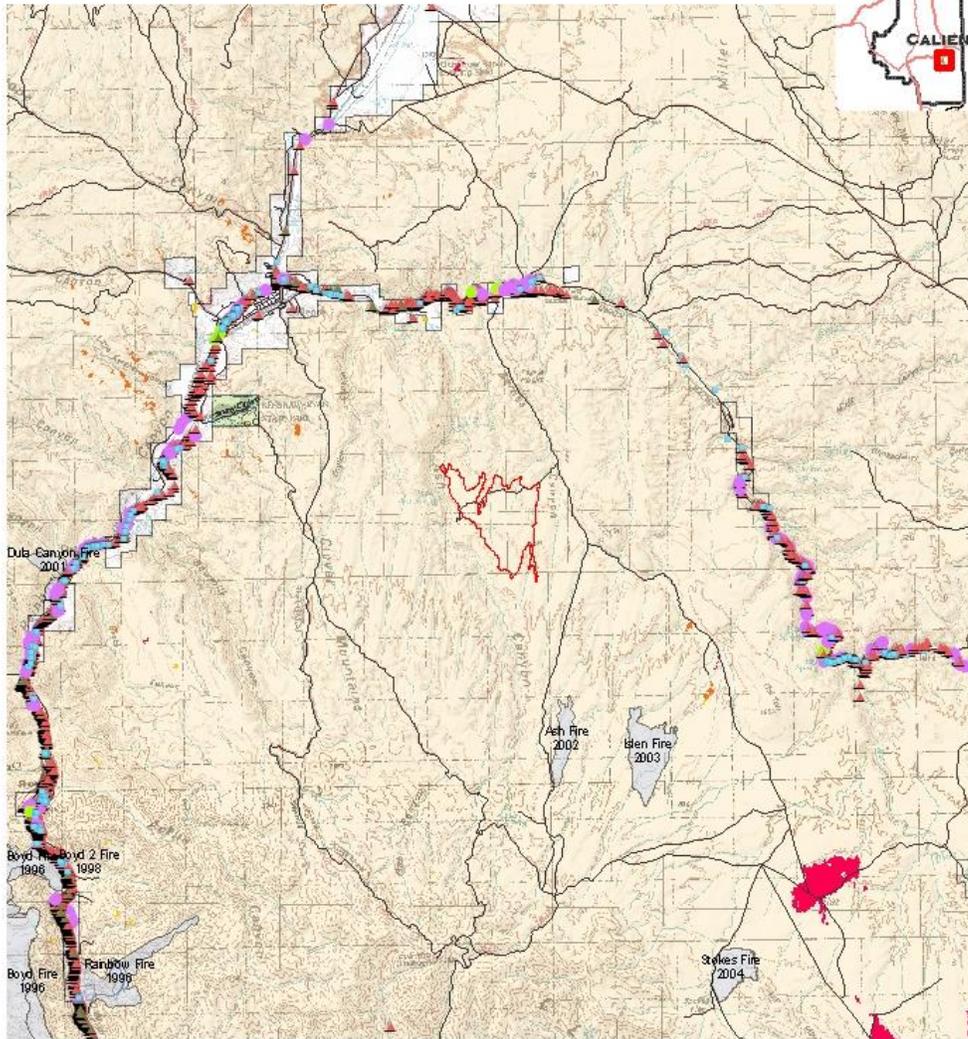
For this project, the Risk Rating is Moderate (40). This indicates that the project can proceed as planned as long as the following measures are followed:

- Monitoring will be conducted for a period no shorter than three years and the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations.
- To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the Ely District Weed Coordinator or designated contact person.
- Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)

Reviewed by: /s/Mindy Seal
Mindy Seal
Natural Resource Specialist

01/04/2010
Date

ASH CANYON RESTORATION PROJECT
DOCUMENTED NOXIOUS & INVASIVE WEED INFESTATIONS



Legend

- | | | |
|------------------|---|--|
| Project Area | Ely Dist. Noxious Weed Inventory | Southwest Regional Gap Analysis |
| Past Large Fires | Commonname | Invasive Annual and Biennial Forbland |
| BLM | BULL THISTLE | Invasive Annual Grassland |
| Private | POISON HEMLOCK | Invasive Perennial Grassland |
| | SALT CEDAR | |
| | TALL WHITETOP | |
| | WHITETOP/HOARY CRESS | |

0 0.5 1 2 Miles



No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data.



BLM

Ely District Office