

Environmental Assessment

EA-NV-030-07-025

Mill Canyon Vegetation Treatment Project

July 16, 2007

U.S. Department of Interior
Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Road
Carson City, NV 89701

I. INTRODUCTION/PURPOSE AND NEED

INTRODUCTION:

The Proposed Mill Canyon Vegetation Treatment Project is a 2,550 acre multi-year phased vegetation treatment proposal in the Pine Nut Mountains of western Nevada.

Two major issues confronting the Carson City Field Office are wildland fire management and sage grouse habitat management. Both issues are intimately related to vegetation community dynamics and the ways these dynamics have changed over time. Both issues are also driven by national level policies and strategies.

The National Fire Plan, Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001) – states in part:

1. Safety - Firefighter and Public Safety is the first priority. All Fire Management Plans and activities must reflect this commitment.
2. Fire Management and Ecosystem Sustainability - The full range of fire management activities will be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components.

In a similar fashion, the Bureau of Land Management's (BLM) National Sage Grouse Habitat Conservation Strategy, November 2004, establishes a clear objective for management of sage grouse habitat on BLM managed public lands. "Implementation of BLM's National Sage-grouse Strategy and the state-level Sage-grouse Habitat Conservation Strategies will complement and expand the ongoing efforts to conserve sagebrush ecosystems on public lands administered by the BLM for the benefit of sage-grouse and other wildlife species."

Historic vegetation community dynamics are believed to have been influenced by a fire regime characterized by fairly frequent low and mixed intensity fires that created a mix of sagebrush, grass and woodland habitat across the landscape. This historic dynamic provided an ample supply of high quality habitat for sage grouse and many other species common in the great basin. Changes in vegetation dynamics engendered by historic land uses, alteration of the historic fire regime and perhaps climate change are believed to have caused a shift in the distribution and quality of habitat. The outcome can be characterized by reduced high quality habitat for sage grouse and wildfires that are larger as well as more intense, erratic and difficult to control. Firefighter safety, ecosystem sustainability and sage grouse populations are all compromised by these developments.

PURPOSE:

The purposes of the proposed project are to: 1) reduce fuel loads and break up the horizontal continuity of the fuel supply to encourage smaller lower intensity fires, 2) maintain tree crown cover under 20 percent to enhance post fire native vegetation recovery, 3) promote creation of a mosaic of early, mid and late seral stage habitats on the landscape, 4) reduce the threat of wildfire damage to known sage grouse habitat, and 5) enhance existing sage grouse habitat.

NEED:

The proposed project is located in a north-south trending valley between two mountainous and heavily forested areas of the Pine Nut Mountains. Singleleaf pinyon pine and Utah juniper trees dominate the mountain slopes as well as the majority of the project area. Fuels in these areas are heavy and would support an intense wildfire under the hot windy conditions common during the summer months.

The potential plant community in the project area is mainly sagebrush, bitterbrush and perennial grasses (Soil Survey of Lyon County Area, Nevada, 1984). Pinyon and juniper trees, in the proposed project area, are in the process of forming a horizontally continuous bed of heavy fuels between the mountainous forested areas. If this situation is not addressed fuel loads would increase, understory vegetation would be stressed and depleted, and the stage would be set for a widespread destructive high intensity wildfire. Such a wildfire would be difficult and dangerous to control and could destroy near-by sage grouse habitat including a lek and seasonal habitat.

One of the few known active sage grouse leks in the Northern Pine Nut Mountains is located less than 2 miles from the northeastern edge of the project. The majority of the project area ranges from 2 to 6 miles from the lek. Areas this distance from a lek often are utilized by sage grouse for a variety of purposes such as nesting, brooding, migration corridors and other seasonal uses. High quality habitat adjacent to leks is needed to support viable sage grouse populations. Encroachment of pinyon and juniper trees into the shrub community, have degraded sage grouse habitat quality in the project area. Thinning and/or removal of the trees combined with restoration of the understory vegetation community would improve habitat quality.

LAND USE PLAN CONFORMANCE STATEMENT:

Carson City Field Office Fire Management Plan, 2004. The Proposed Mill Canyon Fuels Treatment is located in the Como Fire Management Unit (NV-030-07). Management direction applicable to this proposal includes the following:

FMU Fire Management Objectives Priority Statement (pg 127)

- Maintain or improve the condition of the public rangelands to enhance productivity for all rangeland and watershed values. *Citation: Carson City Field Office Consolidated Resource Management Plan, 2001. (CCFO CRMP 2001 pg. LSG-1.1)*
- Maintain a sufficient quality and diversity of habitat and forage for livestock, wildlife, and wild horses through natural regeneration and/or vegetation manipulation. *(CCFO CRMP 2001 pg. LSG-2A)*
- Restore fire as an integral part of the ecosystem; improve the diversity of the vegetation, and to reduce fire hazard fuels. *(CCFO CRMP 2001 pg. FIR-2.1)*

Non-Fire Fuels Treatment Strategies: (pg 131)

- Hazardous fuels treatment would be considered in combination with resource driven vegetation modification projects to achieve mutually beneficial vegetation, habitat, watershed, cultural resource, and fuels objectives. Hazardous fuels loads would be treated in order to reduce rates of fire spread, and the threat of escaped fires.

- Projects would be considered that protect and/or restore sage grouse habitat, Mountain quail habitat, or deer winter range.

Non-Fire Fuel Treatment Monitoring Strategy: (pg 132)

A representative sample of non-fire fuel treatments would be monitored to evaluate the attainment of short and long-term project treatment objectives. Non-Fire fuels monitoring strategies would include a variety of quantitative and qualitative monitoring methods designed to measure the success of achieving objectives identified in the approved project plan.

During implementation of the proposed action, the treatment area would be monitored for the presence of cultural resources.

- If cultural resources are detected during implementation, the sites would be avoided until they are evaluated and an appropriate treatment strategy is developed.

BLM National Sage Grouse Habitat Conservation Strategy, November 2004. (pg 4)

Implementation of BLM's National Sage-grouse Strategy and the state-level Sage-grouse Habitat Conservation Strategies will complement and expand the ongoing efforts to conserve sagebrush ecosystems on public lands administered by the BLM for the benefit of sage-grouse and other wildlife species.

Greater Sage Grouse Conservation Plan for Nevada and Eastern California, June 2004. (pg 9-10)

Wildfire pre-suppression treatments and fire control in limited seasonal sagebrush habitats and existing high quality habitats that support healthy sage-grouse populations are high priority conservation actions. This includes protecting important seasonal habitats from catastrophic wildfires through fuels and fire management. In addition, large contiguous blocks of habitat that are at risk of being lost in a single fire due to fuel loading will also be protected by appropriate fuels management projects.

Vegetation management in areas of habitat that are at risk of permanent conversion to a vegetative seral stage unsuitable to sage-grouse is considered a medium priority. Such areas include habitat where pinyon-juniper has encroached, but adequate perennial understory and shrubs still exist and sagebrush habitats where stress on the perennial herbaceous plants is causing a downward trend. If left untreated, habitat will be lost. Furthermore, treatment options diminish and expense increases without treatment.

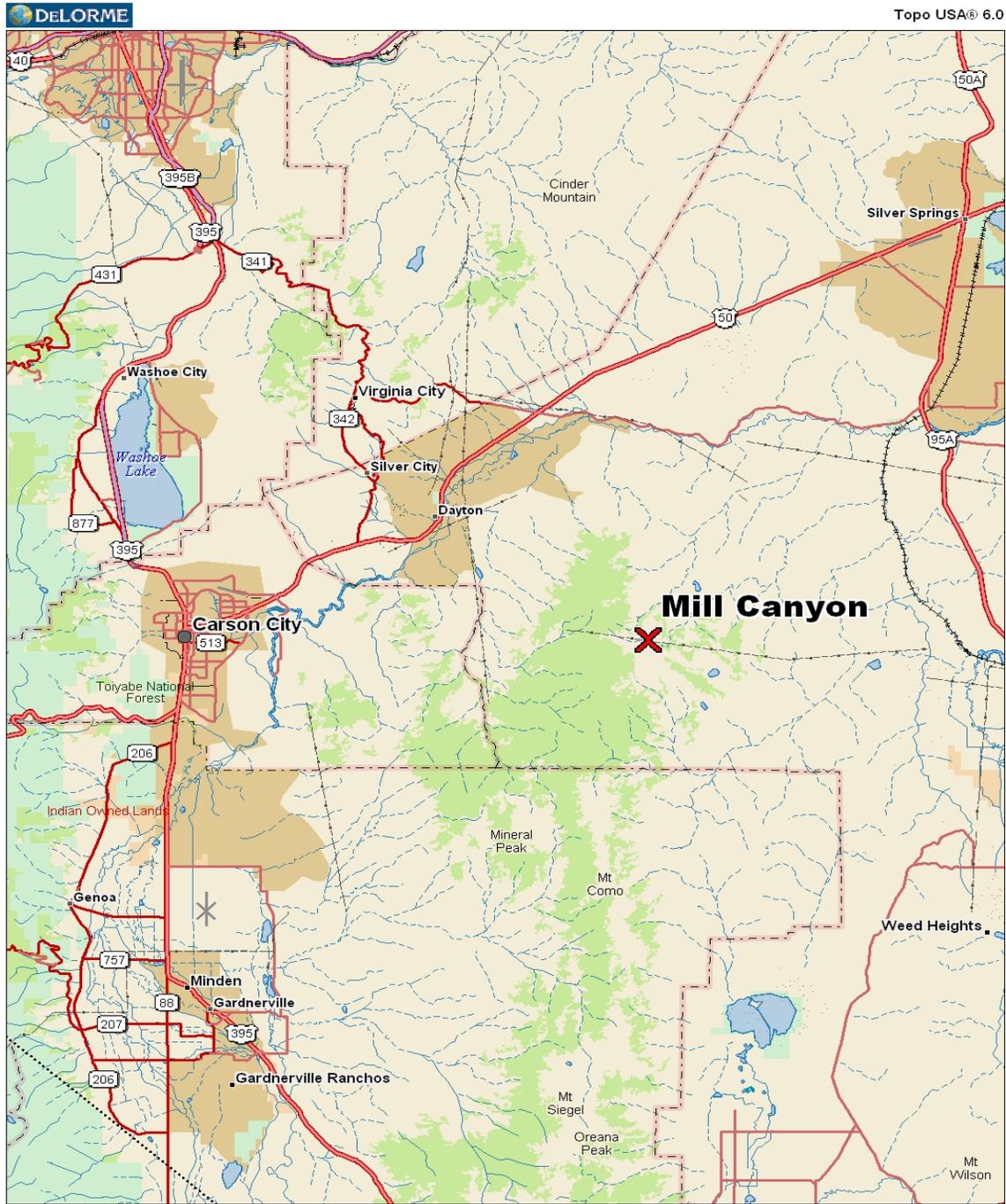
Forest Resource Objectives

Forest and woodland management will be based on the principles of multiple use, sustained yield, and ecosystem management. (CCFO CRMP 2001, pg. FOR-1)

Sell green pinyon and juniper for fuelwood and fence posts, for personal use, at the rate of up to 5,000 cords and 1,000 posts annually...only in areas where there would be no conflicts, or in areas where the conflicts could be mitigated. (CCFO CRMP 2001, pg. FOR-1)

Implementation Level Decisions. Vegetation manipulations such as chaining, burns, and chemical treatments will be allowed only after attempts have been made to sell or dispose of forest products through forestry sales programs. (CCFO CRMP 2001, pg. FOR-2)

FIGURE 1. PROJECT VICINITY



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MN (14.5° E)

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II. PROPOSED ACTION / ALTERNATIVES

PROPOSED ACTION:

Location: T 15N, R 22E Sections 13, 24, 25
T 15N, R 23E Sections 7, 8, 9, 17, 18, 19, 20, 28, 29, 30, and 33

General The proposed project has been developed in collaboration with the local sage grouse working group (Pine Nut Population Management Unit), the Nevada Division of Wildlife and the Carson City Field Office Fuels, Wildlife and Forestry programs.

Over a 5-7 year period, vegetation height and density on up to 2,550 acres, within the project area, would be reduced in order to protect sage grouse habitat, improve sage grouse habitat characteristics, modify fire behavior and enhance fire suppression capabilities (see project map). Within the treatment areas pinyon and juniper trees would be cut and removed or lop and scattered and/or shredded and understory vegetation such as bitterbrush and sagebrush and grass would not be targeted for treatment and left standing. Shredded vegetation would be left in place to reduce dust generation and stabilize the soil surface.

Pre-Treatment Sweep BLM personnel would conduct a pre-treatment sweep of the BLM lands in the project area to flag any current mining claim markers, survey monuments, above ground improvements, or other vulnerable infrastructure for avoidance during vegetation treatment activities.

Treatment Activities The total treatment area would be up to 2,550 acres. Treatments would include a combination of the following:

Tree Cutting and Partial Tree Removal - Pinyon and juniper trees would be cut with hand tools and small mechanized tools and a portion of the trees removed for firewood, either personal use or commercial sale. Firewood cutting treatment areas would be identified away from sage grouse leks, where larger trees are present and located near existing roads (see project map). Vegetation remnants (slash) would be left in place and shredded by subsequent mechanical shredding operations. Firewood cutting activities would be terminated prior to initiation of shredding operations within areas scheduled for shredding. Treatment size: up to 62 acres.

Tree Cutting and No Removal - Pinyon and juniper trees would be cut and lopped and scattered on site. Cut, lop and scatter treatment areas would be where trees are small and sparse and/or where topography or rock limits the use of mechanized equipment. Stump height would be less than 6 inches and slash height would not exceed 3 feet in depth. Treatment size: up to 1000 acres.

Mechanical Tree Shredding - Rubber tired/tracked or metal tracked mechanized equipment with a mastication head would be used to shred trees. All pinyon and juniper trees within the treatment area would be targeted for shredding except for small pockets identified for avoidance to protect sensitive resources. The shrub community would not be targeted for shredding but would be thinned indirectly as part of the tree shredding process. Slash left behind from tree cutting and partial tree removal would be shredded. Stump height would be less than 6 inches and the products of shredding would not exceed 2 feet in depth. Shredded vegetation would be left in place to reduce wind generation of dust and stabilize the soil surface. Treatment size: up to 2,100 acres.

Full Tree Removal - Rubber tired/tracked or metal tracked mechanized equipment would be used to shear, either skid or above ground haul, and chip pinyon pine and juniper trees. All pinyon and juniper trees within the treatment area would be targeted for shredding except for small pockets identified for avoidance to protect sensitive resources. Shearing would include separating the tree from the stump, less than 6 inches from the ground. Once the trees are sheared, they would be skidded or hauled to a designated landing or processing area. The trees would then be chipped and hauled off site. Treatment size: up to 2,100 acres.

Post Treatment Seeding - Portions of the project area could be seeded with native shrub, forb and grass species to enhance sage grouse habitat and restore the understory component of the vegetation community. Seed mixes and application rates would be prescribed for specific site conditions. Treatment size: up to 2,550 acres.

Post Treatment Management The treatment areas would be managed to protect enhanced sage grouse habitat characteristics, prevent excessive generation of dust, soil erosion, and protect reseeding efforts. In order to achieve these objectives the following management actions would be enacted.

1. Treatment areas would be closed to use by all motorized vehicles including Off Highway Vehicles.
2. Existing roads in the treatment areas would generally remain open where they serve a legitimate public purpose. They would be managed to prevent generation of excessive dust and erosion.
3. Signs indicating the road closure and management restrictions would be installed at access points to the treatment areas.
4. If invasive species are found in the project area after treatment and reseeding, the sites would be identified for treatment in the Field Office Annual Weed Treatment Plan.

Monitoring Monitoring would be conducted throughout the project area both during and after project implementation. Monitoring would consist of surveys to:

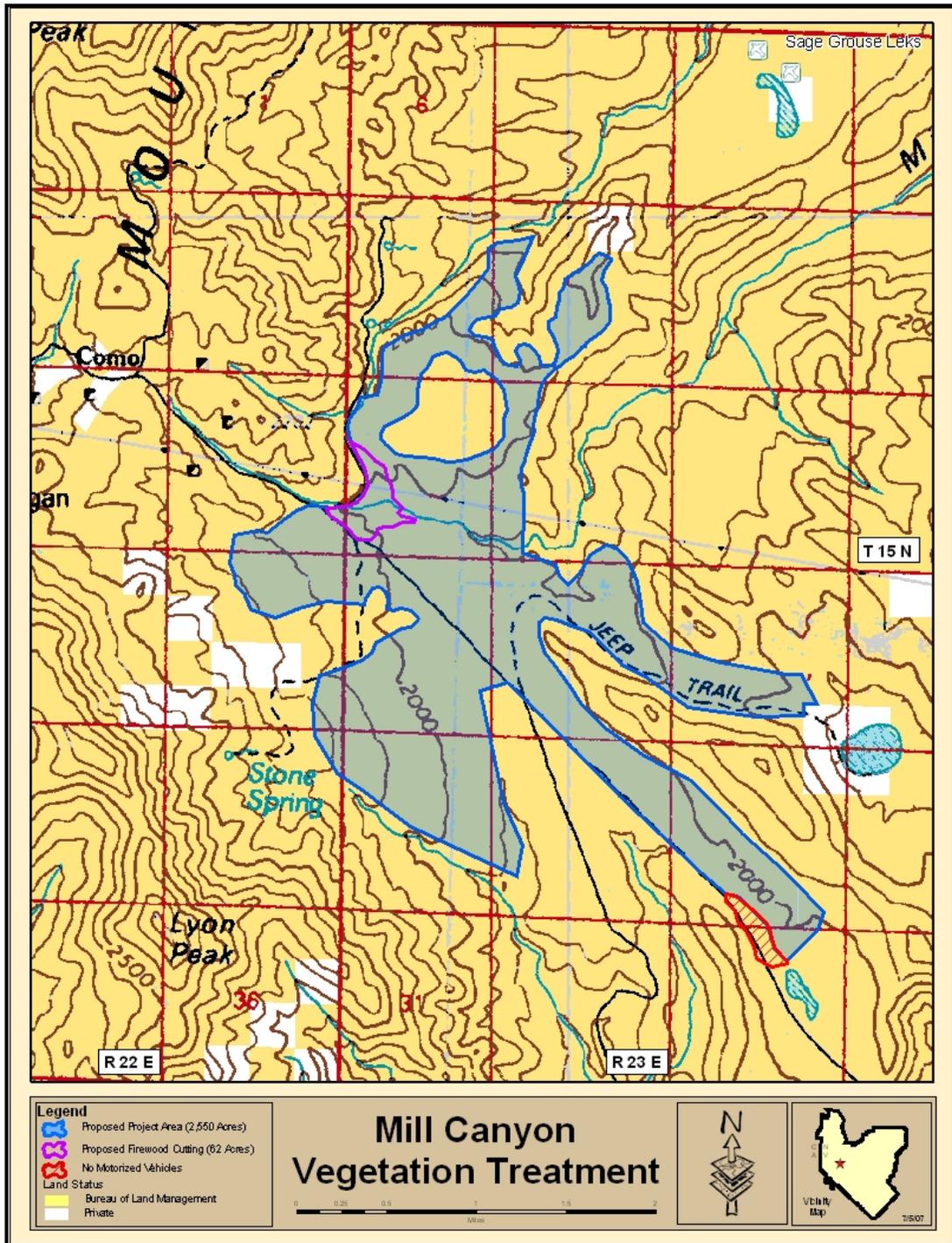
1. Ensure that the initial fuel treatment objectives are met,
2. Evaluate fuel load recovery,
3. Evaluate habitat characteristics,
4. Identify invasive species for subsequent treatment,
5. Ensure that motorized vehicles do not use the reseeded areas.
6. Assess condition and usage of existing roads in the treatment areas.

Maintenance The treatment areas would require periodic maintenance to remain effective for fire behavior modification and enhanced sage grouse habitat characteristics. Monitoring would be conducted periodically to assess changes in fuel loads and habitat characteristics in the treatment areas. When fuel loads increase to unacceptable levels or habitat characteristics are degraded to an unacceptable level, maintenance actions would be initiated.

Mitigation

1. Cultural resources evaluated as eligible under the National Register of Historic Places and unevaluated cultural resources identified during implementation of the project would be avoided. As always respect for all cultural resources would be maintained especially in the case of human remains that would be inadvertently discovered in the process of conducting the proposed project.
2. Soil Water and Air program Best Management Practices (Appendix A) would be implemented to minimize soil erosion and protect water quality. The project would be scheduled during a low-impact period, surface disturbance would be minimized and mitigated and sensitive riparian areas, wetlands and drainages would be avoided.
3. All equipment utilized in the project area would be washed and determined to be free of noxious or invasive species prior to entering the project area.
4. Any treatment done during critical sage grouse activities in spring / early summer, would ensure that sufficient visual and noise screening was in place between the grouse and the activity.
5. Keep machinery outside of the William's combleaf habitat. (see project map)

FIGURE 2. Proposed Action – Mill Canyon Treatment Area



NO ACTION ALTERNATIVE

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Mill Canyon Vegetation Treatment EA
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The No Action Alternative is the current management situation. Under this alternative, there would be no treatments applied within the project area and hazardous fuel conditions would continue to accumulate beyond levels representative of the natural (historic) fire regime. Habitat values would continue to decline as perennial, herbaceous understory would further be reduced in the long term. Land use plan objectives would not be met.

ALTERNATIVE CONSIDERED BUT NOT ANALYZED IN DETAIL

Proposed action with the addition of mechanical and/or hand treatment to remove pinyon and juniper trees between the proposed action and the occupied sage grouse lek northeast of the proposed action. This alternative was considered but will not be carried forward for full analysis. The alternative is not practical from a logistical or economic standpoint.

III. AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

SCOPING AND ISSUE IDENTIFICATION:

Collaborative development of the proposed Mill Canyon Fuels/Sage Grouse/Forestry Project was initiated on April 27, 2005 in a meeting with members of the Pine Nut Sage Grouse Population Management Unit working Group. Subsequent field tours to the nearby Brunswick Canyon fuels treatment and the proposed Mill Canyon treatment were conducted with members of the PMU group on August 4, 2006 and the Nevada Division of Wildlife (NDOW) on August 16, 2006.

Letters of consultation were sent to the Washoe Tribe of California and Nevada and the Yerington Paiute Tribe on September 15, 2006.

A discussion was conducted face to face with the Washoe environmental personal on December 6, 2006. The cultural resource personal differed to the Yerington Paiute Tribe concerning this project proposal.

A field tour of the area was conducted with representatives of the Yerington Paiute Tribe on October 11, 2006. The Yerington Paiute Cultural Resource representative stated that he would have no concerns as long as sites evaluated as eligible for the National Register of Historic Sites be avoided during the implementation of the proposed project. As always respect for all cultural resources would be maintained especially in the case of human remains that would be inadvertently discovered in the process of conducting the proposed project.

BLM staff met with the NDOW game biologist assigned to the Pine Nut Mountains on March 27, 2007 to discuss the project proposal. The project was discussed in detail and the NDOW game biologist supported the project proposal.

The project was also reviewed and scoped by a team of BLM resource specialists in the Carson City Field Office between March 27 and April 23, 2007. Internal scoping for the proposed Mill Canyon Vegetation Treatment Project was conducted at the regularly scheduled Interdisciplinary Team meeting at the Carson City BLM Field Office on April 23, 2007.

Information about the project was posted on the Carson City Field Office web page on June 12, 2007. A press release was sent out on June 12, 2007 inviting the public to the Lyon County Board of Commissioners meeting on Thursday June 21, 2007 where the project was presented.

[State Clearinghouse, state agency review and comment...](#)

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

Appendix 5 of BLM's NEPA Handbook (H-1740-1) identifies Critical Elements of the Human Environment that are subject to requirements specified by statute or executive order and must be considered in all BLM environmental documents. The Critical Elements are:

Critical Element	Not Present *	Present/Not Affected *	Present/May Be Affected**
Air Quality		X	
Areas of Critical Environmental Concern	X		
Cultural Resources		X	
Farm Lands (prime or unique)	X		
Floodplains	X		
Native American Religious Concerns		X	
Migratory Birds		X	
Threatened or Endangered Species	X		
Wastes, Hazardous or Solid	X		
Water Quality (Surface/Ground)		X	
Wetlands/Riparian Zones		X	
Wild and Scenic Rivers	X		
Wilderness	X		
Invasive, Nonnative Species	X		
Environmental Justice	X		

*Critical Elements determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.

**Critical Elements determined to be Present/May Be Affected must be carried forward in the document

CRITICAL ELEMENTS PRESENT BUT NOT AFFECTED:

Air Quality Affected Environment

Under the Clean Air Act Amendments of 1990, the US EPA established National Ambient Air Quality Standards (NAAQS) and designated six criteria pollutants for improving air quality throughout the country. Nevada has also adopted these air quality standards, which include six "criteria pollutants:" lead, ozone, sulfur dioxide, oxides of nitrogen, carbon monoxide, and particulate matter smaller than 10 microns in diameter (PM10).

The US EPA established standards for each pollutant that must not be exceeded. Areas that exceed a federal air quality standard are designated as non-attainment areas. The project area, located in Lyon County, is in attainment with the NAAQS.

No air quality monitoring data for criteria pollutants is available for Lyon County. The project area typically has good visibility. No sensitive receptors to criteria pollutants are near the project area.

Fugitive (wind blown) dust from mechanical equipment conducting the proposed treatment could have a localized, temporary minor impact on air quality but given the remote location of the project no sensitive receptors would be impacted. Machinery exhaust would emit carbon monoxide, sulfur dioxide, and nitrogen dioxide; however the quantities would be so small that their emission would not cause substantial or long-term impacts on air quality in the local area.

Activities that remove vegetation and disturb the soil surface can increase the amount of dust introduced into the atmosphere through wind action. The extent and longevity of the impact is affected by the size of the disturbed area, soil types present, and weather conditions following the disturbance. Mitigation measures that minimize destruction of vegetative cover and stabilize the soil surface would reduce the severity and longevity of these impacts. The proposed fuel reduction project would leave vegetation root systems in place and shredded vegetation on the soil surface. This would serve to reduce dust generation and stabilize the soil surface. No substantial long-term dust generation is expected to occur in the project area.

Cultural Resources and Native American Religious Concerns

Affected Environment

Both Cultural Resources and Native American Religious Concerns also are present but would not be affected by the alternatives. The analyses conducted to reach these decisions are discussed.

Following BLM regulations (43 CFR Part 8100) and other federal laws including the National Historic Preservation Act (16 USC § 470f) and its implementing regulations (36 CFR Part 800), as amended, BLM reviewed the immediate region for historic properties prior to a federal undertaking (issuance of a federal permit). By definition, an historic property is a “prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places” and includes “artifacts, records, and remains that are related to and located within such properties” (36 CFR 800.16(l)(1)). Based on research of files at the Carson City Field Office and the Nevada State Museum, known historic properties represent significant past human use of the landscape in and immediately adjacent to the Mill Canyon Fuels Treatment location. These include prehistoric-period lithic scatters, stone alignments, and camp sites of an extensive period of time ranging from the Paleoarchaic (over 8500 years ago) through the nineteenth-century. Also present are historic-period debris scatters; stone structures and buildings; roads associated with mining, ranching, and transportation. Further details on local site types and the potential for effect to historic properties from the implementation of this project are available in a technical report prepared for the first phase of this project (CRR 3-2315, Deis 2007).

Each phase of this project has the potential to adversely affect cultural resources. Per 36 CFR Part 800 and 43 CFR Part 8100 (BLM), as amended, BLM is required to identify and evaluate cultural resources within the area of potential effect for each phase of this project. Historic properties identified and evaluated as eligible under the National Register of Historic places will be avoided during implementation to result in no adverse effect to the historic property(ies) pursuant to 36 CFR Part 800, and in consultation with the local tribal entity and the Nevada State Historic Preservation Office.

The Native American tribe that has cultural affiliation with the area of this project are the Yerington Paiute Tribe and Washoe Tribe of Nevada and California. Per 36 CFR Part 800 and 43 CFR Part 8100 (BLM), as amended, consultation letters with a general summary of the proposed project implementation, and project location map were sent to the Washoe Tribe of Nevada and California and the Yerington Paiute Tribe on September 15, 2006 concerning the Mill Canyon Fuels Treatment. During a subsequent meeting on December 6, 2006, Washoe Cultural Resource personnel deferred to the Yerington Paiute Tribe concerning this project. During a face to face meeting with Washoe Environmental personnel a request was made to observe the mechanical implementation for this project. Contact will be made prior to implementation. During a face to face meeting with Yerington Paiute Cultural Resource personnel on October 11, 2006 a request was made to avoid all historic properties, however to date there are no Native American Religious concerns relative to this project. At each new phase for the Mill Canyon Fuels Treatment, a Class III survey will be conducted and may potentially have an effect on tribal concerns. Per 36 CFR Part 800 and 43 CFR Part 8100 (BLM), as amended, BLM would review known tribal concerns and conduct Native American coordination and consultation.

Migratory Birds

Affected Environment

In April, 2007 the U.S. Fish and Wildlife Service's electronic listing of federally listed threatened, endangered, proposed for listing and candidate (TEPC) species was reviewed to determine which species might be associated with this vegetation treatment project area (www.fws.gov/nevada/protected_species/index.html 2007). The bald eagle, a federally listed threatened species could potentially be found within the project boundaries.

Bald eagles may fly over the project area enroute from a wintering area in the south Carson Valley to nesting sites on the Truckee River and Stillwater National Wildlife Refuge. The project area may be used for foraging by bald eagles. This bird uses fish but will also utilize carrion and sage grouse, which would provide occasional use by this eagle in the project area. The proposed project wouldn't affect bald eagles that might use the area on an occasional basis.

OTHER RESOURCES PRESENT AND BROUGHT FORWARD FOR ANALYSIS:

Fire Management

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Mill Canyon Vegetation Treatment EA
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Affected Environment

Historical livestock grazing, later fire suppression and perhaps climate change have allowed density and crown cover to increase in many pinyon-juniper woodlands. As crown cover and density increase, fuel loads also increase and understory vegetation is depleted. Increases in woody and fine fuel loads result in a shift from frequent low and mixed intensity fires to less frequent high intensity fires. High intensity fires create a post fire environment that is often exploited by fire dependent species such as cheatgrass. Once established this species provides fine fuels that increase opportunities for wildfire ignition and spread. In many areas cheatgrass is associated with a fire return interval of 2-5 years.

Both cheatgrass invasion and pinyon and juniper tree encroachment on shrub communities have been identified as detrimental to wildland fire management operations. In the vicinity of the project area pinyon-juniper woodlands are forming a horizontally continuous supply of heavy fuels. Once formed, the supply of heavy fuels would make it very difficult to prevent an intense wildfire from spreading from the heavily forested mountainous region to the west across the project areas to the heavily forested mountains to the east. Wind driven fires are characteristic of the Pine Nut Mountains and typically spread from west or southwest to the east or northeast.

High intensity fires are difficult to control and dangerous to firefighters engaged in suppression operations.

Environmental Consequences

Proposed Action

Removal of trees and indirect thinning of the shrub community would create an area where wildfire burns with reduced intensity. Treated areas would provide a safer and more effective area for conducting fire suppression activities, thus increasing the ability of firefighters to suppress a fire before it reaches unmanaged fuels in the adjacent areas.

There is a slight risk of the equipment conducting the mechanical treatment starting a wildland fire by hitting rocks and causing sparks. This risk can be minimized by scheduling the treatment outside periods of very high to extreme fire danger or by having water, a pump and hose on site during treatment operations if the treatment is conducted at a high fire danger.

There is some risk of annual weeds, such as cheatgrass, invading portions of the treated area if a significant portion of the brush is removed through treatment. This could increase the amount and horizontal distribution of fine fuel available and possibly result in an increased rate of fire spread. However, wildfires burning in cheatgrass are more easily controlled than fires burning in heavier fuels.

No Action Alternative

Implementation of the No Action Alternative would not improve the ability to control wildfires in the Mill Canyon area of the northern Pine Nut Mountains. Fuel loads would continue to gradually increase and associated fire behavior would gradually become more severe. The ability to control wildfire in the vicinity of the proposed project area would continue to erode as fuel loads increase.

General Vegetation

Affected Environment

The challenging goal in managing pinyon-juniper woodlands within the sagebrush steppe plant community is to seek the optimal balance between the values provided by the woodland and the values afforded by the sagebrush steppe. The biologically richest sites are in these ecotones, or areas with a mix of vegetation types rather than all just the same or monotypic stands of either trees or sagebrush.

The shrubs, grasses, and forbs in the project area are best represented by the Wyoming Big Sagebrush (SRM 403) and Low Sagebrush (SRM 406) rangeland cover types. In half of the project area Wyoming big sagebrush (*Artemisia tridentata* subsp. *wyomingensis*), forms the bulk of the shrub overstory, accompanied by antelope bitterbrush (*Purshia tridentata*) and much smaller amounts of green rabbitbrush (*Chrysothamnus viscidiflorus*). The principal understory species are the perennial bunchgrasses along with sparse and variable forb cover. The other half of the project area is characterized by a shrub layer of Low sagebrush (*Artemisia arbuscula*) and an herbaceous layer of perennial bunchgrasses and forbs. (Rangeland Cover Types of the United States 1994)

Singleleaf pinyon pines (*Pinus monophylla*) and Utah junipers (*Juniperus osteosperma*) are native to the area and occurred widely over the Pine Nut Mountains prehistorically, and their populations were influenced mostly by fire, insects, disease, and Native American activities including burning, cutting, pruning, and fuels management to favor pine nut crops. Those influences resulted in a dynamically changing pattern of vegetation featuring many diverse stages of tree cover and open areas.

Many thousands of acres were clearcut harvested for use in the middle to late 1800s for fuel and mine timbers. Heavy historical grazing by livestock over many decades removed the fuel that enabled wildfires to exert natural control on trees, and the grazing also gave unpalatable woody species the competitive advantage over palatable herbaceous plants. Modern firefighting techniques in recent decades have been effective at suppressing small and moderate wildfires. Most of the trees covering the landscape there have grown up in just the last century in much higher densities of growth and leaving few natural openings. A downside of this overgrowth of trees is that when a fire does get started, it is likely to reach catastrophic proportion that is difficult and expensive to manage and much more damaging to the woodland ecosystem as a whole than natural prehistoric fires would generally be. It takes many decades for pinyon and juniper trees to grow back into an area that has been burned by a large, intense fire. Many examples of these points are readily available to observe in specific instances on the landscape, and abundant scientific literature documents these phenomena of pinyon and juniper ecology.

Potential vegetative composition for the project area is about 55% grasses, 10% forbs and 35% shrubs. Species most likely to invade this cover type are cheatgrass (*Bromus tectorum*), mustards and other annual forbs. Singleleaf pinyon pine and Utah juniper will invade this site where it occurs adjacent to woodlands. Pinyon and juniper trees are currently scattered throughout the project area, encroaching up and down from adjacent wooded slopes, and cheatgrass is present in portions of the project area, primarily in the Wyoming Big Sagebrush cover type.

Environmental Consequences

Proposed Action

Mostly young pinyon and juniper trees will be removed from the plant community on 2,550 acres of public land as sagebrush and other lower-growing plants will be retained to provide habitat for wildlife species dependent upon the sagebrush steppe. This is expected to result as planned in manifestation of a more balanced and diverse mix of vegetation types. The trees which are left to continue to grow on the landscape will be better protected from the adverse effects of wildfire, because fuel loads will be reduced and more natural breaks in fuels will enable better fire control and management. The proposed action would result in a much better balance of vegetation types, and more biological diversity in the greater plant community due to a moderate amount of tree removal. There would be some vegetation disturbance moving the equipment around the project site and removing/shredding the trees. This disturbance would be minimal and selective in nature. With any vegetation manipulation in areas where cheatgrass is already present, there is a chance the amount of cheat grass will increase. The project design should limit opportunities for cheatgrass encroachment.

No Action Alternative

If the proposed action is not undertaken, trees would continue to expand into formerly more open sagebrush areas, and biological diversity would continue to decrease due to too many trees. Tree density would continue to increase, and accompanying accumulations of heavy fuel would continue to increase the chances of catastrophic wildfires, which in turn would damage more woodland resources as well as other vegetation resources. The trees in such a scenario are the most adversely affected plant species, because they take the longest to grow back. Many more trees would remain at risk of being lost on the landscape than are proposed for removal. The overall result would be less biological diversity, in this case because of too few trees.

General Wildlife

Affected Environment

A Habitat Management Plan written in 1987 characterized the woodland area of the Pine Nut Mountains as being a “dense, closed canopy stand of pinyon pine and Utah juniper dotted with small fire-caused clearings of various age” “a monotypic woodland with little understory vegetation” (BLM 1987).

Several terrestrial wildlife habitats occur within the project area as described in the Nevada Wildlife Action Plan (Wildlife Action Plan Team 2006). The major wildlife habitat types include,

Sagebrush –Wyoming big sagebrush and low sage can be found in the openings on the project area. Nevada bluegrass, squirreltail and buckwheat species provide important forage for wildlife species although this is sparse. In ideal condition, this habitat can support a lush undergrowth of bunchgrasses and forbs, especially in snowbank swales that are found in upper elevations and in this project area. Wildlife species such as Great Basin pocket mouse, sagebrush lizard and sage sparrow can be found in this habitat type (Wildlife Action Plan Team 2006).

Lower Montane Woodlands – Pinyon and juniper trees are the dominant vegetation types in this habitat. Forbs and grasses are sparse, especially as the canopy closure increases. Cliffrose and bitterbrush that should occur in the understory are key mule deer forage species in this habitat

type. Wildlife species such as short-horned lizards, gray fox and gray vireo can be found in this habitat type (Wildlife Action Plan Team 2006).

Because of the closing and closed nature of the tree canopy of the project area, general wildlife populations would be skewed to those species tolerant of that condition. Diversity might not be at potential since understory would be sparse or non-existent; it would not support the shrub / herbaceous- using species of wildlife. A large amount of edge currently exists within the project area. Species benefited by this condition would be more abundant than ones needing large blocks of contiguous habitat.

The project area is located within a key mule deer summer range area (BLM 1982). However, because of the closing canopy conditions that are causing understory species to fade, key summer browse is being lost and mule deer summer range conditions are less than ideal. Poor key summer range condition translates into poorer fawn survival and a less fit deer herd going into winter where overwinter mortality can increase.

A sage grouse lek is located near the project area. Sage grouse require sage brush habitats and avoid wooded areas. The majority of sage grouse nesting typically occurs within 3 miles of leks in sage brush habitats. The current encroachment of pinyon pine and juniper are likely adversely impacting sage grouse by usurping important sage brush habitats near the lek.

Mountain quail are present in the general project area. Mountain quail benefit from riparian vegetation adjacent to shrub lands. This quail uses flowers, new growth on shrubs and insects found in riparian areas and shrub lands. Cyclic wetter years produce good populations of these birds. An occasional chukar, an exotic species, can be found in the project area (BLM 1987).

Environmental Consequences

Proposed Action

The proposed treatment may allow a much more diverse general wildlife population to exist on and near the project area since understory vegetation such as sagebrush, grasses and forbs should increase in acreage. Trees would still stand adjacent to the project area to support species needing that habitat. The net edge would not change much so the project wouldn't have an effect on that assemblage of wildlife species.

Treatment of the trees to release understory vegetation could have a large impact on mule deer. If key browse species respond positively, key summer range condition would improve. This can translate into increased fawn survival. It can allow the deer herd to be more fit going into winter and as a result, overwinter mortality may decline.

Sage grouse would benefit from the proposed treatment as sage brush would be expected to dominate the treated areas and the expansion of pinyon pine and juniper would be set back. Nesting habitat would be increased reversing the trend of losing nesting habitat to pinyon pine and juniper.

Leking and nesting sage grouse are sensitive to disturbances, to eliminate any adverse affect toward sage grouse from the proposed action the areas closest to the lek should not be treated

between 1 March and 15 May. However, the benefits of the proposed action far outweigh any adverse effects over the long term.

The proposed treatment would not affect mountain quail to any extent since no riparian areas will be impacted by the treatment. Chukar would not be affected.

No Action Alternative

If the proposed treatment is not implemented, general wildlife diversity in the project area will continue to decline and be skewed toward closed canopy woodland assemblages. If a wildfire occurred, the general wildlife community would be skewed toward those species tolerant of early seral, non-treed conditions. Overall diversity would suffer.

The mule deer key summer range will continue to decline as the closing woodland canopy causes key browse species to fade. Because this effect is occurring all across the Pine Nut range, the effect in this local area would add to the overall effect of decreased fawn survival and a less fit deer herd. Wildfire that would remove trees could benefit mule deer habitat, but if the acreage was large and the burn hot, key forage species would be lost in the short and long-term. The overall effect would be a reduction in mule deer carrying capacity.

Sage grouse would not benefit from increased nesting habitat and the trend of habitat loss would continue. The population of sage grouse in the Pine Nut range is greatly reduced from historical levels, with pinyon and juniper tree encroachment thought to be the primary cause.

Mountain quail and chukar would not be affected if the proposed treatment were not done.

Special Status Species

Affected Environment

BLM Sensitive Species

BLM Manual 6840 defines sensitive species as "...those species not already included as BLM Special Status Species under (1) Federal listed, proposed or candidate species; or (2) State of Nevada listed species. Native species may be listed as "sensitive" if it: (1) could become endangered or extirpated from a state or significant portion of its range; (2) is under review by the FWS/NMFS; or (3) whose numbers or habitat capability are declining so rapidly that Federal listing may become necessary, or (4) has typically small and widely dispersed populations; (5) inhabits ecological refugia, specialized or unique habitats; (6) is state-listed, but is better conserved through application of the BLM sensitive species status." It is BLM policy to provide sensitive species with the same level of protection that is given federal candidate species. The major objective of this protection is to preclude the need for federal listing (BLM 2003).

Sage grouse were addressed in the proceeding narrative as an upland game species. These are also a BLM sensitive species.

Many of the bat species expected to forage on this project site are tied to trees for forage production.

Nevada BLM sensitive species expected, or found in or near the project area are shown in Appendix B (BLM 2003).

Environmental Consequences

Proposed Action

Potential effects of the proposed fuels treatment on sage grouse have been discussed. The proposed fuels treatment would allow some sensitive species to respond positively, some to respond negatively and some to have a mixed response (Finch et al 1993). It doesn't necessarily preclude the presence of a species (Fagerstone and Ramey 1995). Overall, the proposed treatment would allow species assemblages associated with sagebrush / herbaceous dominated habitat to use the local area. Some increases in use and occurrence may occur as this habitat type is maintained and expanded.

Because 156,000 + acres or 99% (Barker 2007) of the available pinyon-juniper woodlands in the Pine Nut mountain range would be left after treatment, there would be no great effect to juniper titmouse and the bats that use the trees as forage sites. There is plenty of woodland habitat in the Pine Nut mountains for these species. Habitat fragmentation is not a major issue for the bat species associated with this project site (Wisdom et al 2000).

No Action Alternative

Potential effects on sage grouse of not implementing the proposed treatment have been discussed. If the proposed treatment is not implemented, some sensitive species would respond positively, some to respond negatively and some to have a mixed response (Finch et al 1993). Non-treatment wouldn't necessarily preclude the presence of a species (Fagerstone and Ramey 1995). However, as the canopy of the woodland closed, species assemblages associated with shrub and herbaceous dominant habitats would not occur as often in the local area. If a wildfire occurred, sensitive species occurrence would be skewed to those tolerant of early seral, non-treed conditions. Diversity would not be as great.

If the proposed project were not implemented, juniper titmouse and bats that use the trees as forage sites would not be affected. If a wildfire occurred, these species occurrence would decline sharply since trees are key for use. Overall populations in the region or state would not be affected, but populations in the Pine Nut Mountains could be reduced for the short and long-term.

Special Status Species

Affected Environment

Neo-tropical Migratory Birds

On January 11, 2001, President Clinton signed Executive Order 13186 (Land Bird Strategic Project area) placing emphasis on conservation and management of migratory birds. The species are not protected under the Endangered Species Act, but most are protected under the Migratory Bird Treaty Act of 1918. No BLM policies have been developed to provide guidance on how to incorporate migratory birds into NEPA analysis. However, advice based on past USFWS MOU's, list items the USFWS believes are fundamental for the analysis of impacts to

and planning for these birds. These items are (1) effects to highest priority birds listed by Partners in Flight; (2) effects to important bird areas (IBA's); (3) effects to important overwintering areas.

Avifaunal Biomes that are found on the project area are described by Partners in Flight (PIF) [Beidleman 2000], PIF-Nevada (Neel 1999) and Nevada Wildlife Action Plan (Nevada Wildlife Action Plan Team 2006). The Intermountain West is the center of distribution for many western birds. Over half of the biome's Species of Continental Importance have 75% or more of their population here. Many breeding species from this biome migrate to winter in central and western Mexico or in the Southwestern biome (Beidleman 2000). There are no Important Bird Areas (IBA) associated with this project area. Some of the migratory bird species associated with the wildfire areas may be heavily weighted to early seral species, this isn't affecting overall populations.

Brewer's sparrow is a shrub obligate. Gray flycatcher can be sensitive to pinyon-juniper woodland conversion (www.natureserve.com). This species uses mature stands located in canyon heads for nesting (BLM ND). Pinyon jay is a bird species that prefers open habitat within a forested area (Finch et al 1997). Sage sparrow is an obligate of big sagebrush habitat (Medin et al 2000).

The species of concern listed by PIF that could occur in the project area are shown in Appendix C.

Environmental Consequences

Proposed Action

Potential effects of the proposed fuels treatment would allow some migratory birds to respond positively, some to respond negatively and some to have a mixed response (Finch et al 1993). A negative response doesn't necessarily preclude the presence of a species.

Brewer's sparrow would be favored by pinyon-juniper woodland conversion to a shrub / herbaceous vegetation community (BLM ND). This species tends to prefer older sagebrush stands so positive effects would come in the long-term.

Sage Sparrow would be favored by pinyon-juniper woodland conversion to a shrub / herbaceous vegetation community. The size of the conversion, a solid block exceeding 320 acres would be especially ideal for this species. This species also tends to prefer older sagebrush stands so positive effects would come in the long-term (BLM ND).

Large scale conversion of pinyon-juniper woodlands to shrub dominated lands or conversion to agricultural lands can adversely affect gray flycatcher (www.natureserve.com). However, neither effect will result from the proposed treatment. There will be over 156,000 acres of available pinyon and juniper trees in the Pine Nut Mountain range left after treatment. Additionally, gray flycatcher will probably benefit from the expansion and maintenance of the wildland sagebrush and bunchgrass community that would result from this treatment (BLM ND).

Pinyon jays prefer open habitat within treed areas (Finch et al 1997). The proposed treatment will expand and maintain this opening within the pinyon-juniper woodland associated with the Pine Nut range.

Gray vireo uses more mature pinyon-juniper with sparse understory. Overall, patchy habitat is preferred. Heads of canyons are often used if mature trees are present (BLM ND). Since a mature stand of pinyon is to be retained in a canyon head, because 99% of the available pinyon-juniper in the Pine Nut mountain range left after treatment, and the treatment will contribute to local patchiness, gray vireo won't be affected.

Juniper titmouse, mountain bluebird and western bluebird are not affected by habitat conversion of one wildland habitat to another (www.natureserve.com).

Since the proposed project is to create a larger block of sagebrush / grassland dominant habitat, the treatment won't fragment the pinyon-juniper forest surrounding the block. There won't be affects from fragmentation to neo-tropical migratory birds.

Additionally, insect and vegetation food sources supplied by understory habitat needed by these species would be increased. This would be a short and long-term indirect beneficial effect of the proposed project.

It is possible that the mechanical treatment could destroy individual nest sites when done in spring. However, if done in early spring, neo-tropical migratory birds generally re-nest. Additionally, the loss of an individual nest would not have an effect on entire populations or nesting success in the Pine Nut Mountain range.

No Action Alternative

Potential effects of not implementing the fuels treatment would allow some migratory birds to respond positively, some to respond negatively and some to have a mixed response (Finch et al 1993). A negative response wouldn't necessarily preclude the presence of a species. However, as time passed, bird species assemblages that used closed canopy woodlands would dominate the local area. Species needing shrub / grasslands dominated habitat would be reduced in occurrence. If a wildfire occurred, sensitive species occurrence would be skewed to those tolerant of early seral, non-treed conditions. Overall migratory bird diversity would not be as great.

Brewer's sparrow, sage sparrow and pinyon jay would not be favored if the fuels treatment weren't completed (BLM ND). Eventually, this species would be less likely to occur in this local area as the woodland canopy closed. If a wildfire occurred, Brewer's sparrow and sage sparrow would be benefited in the long-term if a native shrub dominated habitat returned.

Gray flycatcher might be benefited in the short-term by allowing the existing woodland canopy to continue to close. However, in the long-term, that closure would lead to the loss of the wildland sagebrush and bunchgrass community needed by this species in addition to the closed canopy woodland. In the long-term, this species would be less likely to occur in this local area. If wildfire occurred, the woodland needed by this species along with the shrub community would be lost for many years.

Gray vireo would be benefited in the short and long-term if the entire woodland was allowed to mature to a closed canopy state. However, if wildfire occurred, the habitat would be completely lost for many years.

Juniper titmouse, mountain bluebird and western bluebird are not affected by habitat conversion of one wildland habitat to another (www.natureserve.com). However, if wildfire occurred and a complete loss of the woodland habitat occurred, these species would be adversely affected.

Insect and vegetation food sources supplied by understory habitat needed by bird species would be lost as the woodland canopy closed. This would be a short and long-term indirect adverse effect of not implementing the proposed project.

If the proposed project were not implemented, no individual nests would be inadvertently destroyed by the mechanical treatment. However, the effect would be so minimal that there would not be a benefit to entire populations or nesting success in the Pine Nut Mountain range.

Special Status Species

Affected Environment

State Listed Species

BLM Manual 6840 defines State listed species as “species listed by a State in a category implying but not limited to potential endangerment or extinction.” BLM Manual 6840.06D provides policy regarding State listed species stating that “The BLM shall carry out management for the conservation of State listed plants and animals. State laws protecting these species apply to all BLM programs and actions to the extent that they are consistent with the Federal Land Policy and Management Act (43 U.S.C. 1701 et seq) and other Federal laws. In states where the State government has or proposes species in categories such as State threatened or endangered, implying potential endangerment or extinction, State Directors will develop policies that will assist States in achieving their management objectives for those species.”

William’s combleaf (*Polyctenium williamsiae*) is listed by the State of Nevada as critically endangered. It is BLM policy to provide state-listed plants with the same level of protection that is given to federal candidate species. The major objective of this protection is to preclude the need for federal listing (BLM 2003). William’s combleaf is a rare perennial plant species which inhabits ephemeral playa lake margins and pools within pinyon-juniper-sagebrush ecosystems. The ephemeral lakes and pools fill with water during the winter and spring. The accumulated water drowns invading sagebrush, saturates the soils, and disperses seed of the William’s combleaf throughout the ephemeral lake margin. The ephemeral lakes also serve as a water source for wildlife and livestock in the area. The ephemeral lake levels fluctuate yearly and seasonally with the lakes typically evaporating away by late summer.

Environmental Consequences

Proposed Action

There are no pinyon or juniper trees within the immediate vicinity of the ephemeral playa lakes or the ephemeral pools and therefore the William’s combleaf habitat is not likely to be impacted by tree removal activities. However, the proposed fuels treatment involves the use of heavy machinery traveling cross-country and the machinery could potentially crush and/or uproot William’s combleaf plants if it inadvertently entered the habitat. The area machinery is not to

enter has been identified on the project map. The heavy machinery could also transport noxious weed seed as the same equipment will be traveling cross-country throughout the project area. Tall whitetop (*Lepidium latifolia*) is found in abundance only 1.5 miles west of the project area and this species is known to have invaded other ephemeral lakes to the north of the project area.

No Action Alternative

If the proposed action did not occur the William's combleaf plants within the ephemeral pools would not be impacted as heavy machinery would not travel cross-country. There would also be one less possible vector of noxious weed transport into the habitat.

Soils

Affected Environment

The soils within the project area vary somewhat in physical, chemical, and biological characteristics. Parent material, surface and subsurface textures and rock fragments, elevation, aspect, and slope determine the inherent productivity. Erosion and runoff potential, while affected greatly by these factors, is also dependant upon the basal and canopy cover of vegetation on site. Roads, livestock and horse use, mining and other overland activities, and general motorized vehicle use have impacted soils in certain areas. Generally the soils in the project area are classified as Mollisols, with much of the area in the ten to twelve inch precipitation zone. Soil reactions range from near neutral to moderately alkaline, and soil depths are generally moderately deep to shallow. Detailed descriptions of the soils within the project area can be found within the Lyon County Soil Survey, issued in 1984 by the U.S. Dept. of Agriculture-Soil Conservation Service.

Environmental Consequences

Proposed Action

The implementation of this alternative could have a positive effect on the overall soils resource by increasing basal vegetation cover. There could be small localized areas of soil disturbance due to vegetation removal but these would not affect watershed stability.

No Action

The implementation of the no action alternative would have no effect on the soils resource.

CUMULATIVE IMPACTS

All resources and issues potentially affected by the Mill Canyon Vegetation Treatment Project have been evaluated for cumulative impacts.

Examination of the environmental consequences in this environmental assessment reveals that the proposed action may affect fire management, general vegetation, general wildlife, special status species, and soils and therefore may contribute to cumulative impacts on the issues and resources. Thus these issues and resources were considered in the cumulative impacts analysis.

Cumulative impacts were analyzed by combining the potential impacts of the proposed action with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary

to identify other past, ongoing, or reasonably foreseeable future actions in the Pine Nut Mountains.

Other actions that have the potential to have a cumulative impacts in conjunction with the Mill Canyon Vegetation Treatment Project include:

- Other vegetation management actions in pinyon-juniper woodlands by the BLM's Carson City Field Office to implement the BLM's Carson City Field Office's Consolidated Resource Management Plan (2001) and Fire Management Plan (2004).
- Vegetation management actions in pinyon-juniper woodlands by tribal and private landowners.
- Insect and disease outbreaks
- Wildfire

The BLM Carson City Field Office manages 75% of the 407,000 acres in the Pine Nut Mountains. Past, present and foreseeable vegetation treatments involving pinyon and juniper tree thinning and/or removal approved/conducted by the BLM in the Pine Nut Mountains include firewood sales, wildlife habitat improvement projects, fuels management projects, and projects associated with utility right-of way construction and maintenance. These projects combined have and are expected to continue to affect an average of less than 1000 acres, 0.2% of the mountain range, 0.6% of the pinyon-juniper woodlands in the mountain range, per year.

The Brunswick Canyon Fuels Treatment Project, the largest tree treatment project completed by the BLM in the Pine Nut Mountains in the last 30 years, was completed in 2004, 9 miles west-southwest of the proposed action. The Brunswick Canyon Fuels Treatment Project treated 460 acres in the same manner as proposed for the Mill canyon Vegetation Treatment Project.

Past, present and foreseeable vegetation treatments involving pinyon and juniper tree thinning and/or removal approved/conducted by tribal and private landowners in the Pine Nut Mountains are negligible.

Insect and disease outbreaks in the pinyon-juniper woodlands of the Pine Nut Mountains are cyclical and unpredictable. One of the most significant outbreaks, caused scattered pinyon tree mortality, occurred over the past five years. Due to the infrequent and unpredictable nature of insect and disease outbreaks it is not possible to accurately quantify the impacts of past and future outbreaks.

Over the past 20 years, wildfire in all vegetation types in the Pine Nut Mountains has burned an average of approximately 1,000 acres, 0.2% of the mountain range, annually. The average annual acres burned by wildfire in the foreseeable future are expected to remain fairly constant.

The Mill Canyon Vegetation Treatment Project would treat up to 2,550 acres over a 5-7 year period, or 375 to 525 acres per year. This project combined with the other BLM Carson City Field Office projects, tribal and private projects and wildfire in the Pine Nut Mountains would affect less than 2,000 acres, 0.4% of the mountain range, 1.2% of the pinyon-juniper woodlands in the mountain range, per year. This would result in over 98% of the woodland habitat in the Pine Nut Mountains being unaffected annually.

Given the relative small area potentially affected by the Mill Canyon Vegetation Treatment Project combined with other past, present and foreseeable projects and wildfire in the Pine Nut Mountains, the Mill Canyon Vegetation Treatment Project would not have a cumulative adverse effect on any issues or resources of concern.

Vegetation treatment projects, similar to Mill Canyon, may be conducted elsewhere in the Pine Nut Mountains on public land in the future to serve similar purposes and needs in fulfillment of land use plan objectives. Each project would continue to be addressed in environmental processes and documents. Over the long term, the cumulative effects of these treatments could be expected to be favorable in terms of lessened adverse fire impacts, improved wildlife habitat quality and increased biological diversity in the Pine Nut Mountains.

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Appendices of Attachments:

Appendix A- Soil Water and Air program Best Management Practices

Appendix B - BLM Sensitive Species associated with Mill Canyon Fuels Treatment Project

Appendix C - Neo-tropical Migratory Birds, Species of Continental Importance on Mill Canyon Fuels Treatment Project

Appendix A Soil Water and Air program Best Management Practices

The following best management practices (BMPs) are to be used to minimize soil erosion and protect water quality when completing forestry or hazardous fuel reduction projects. The management objectives of these projects are achieved by altering vegetation communities. Implementing the BMPs will minimize unnecessary surface disturbance and damage to residual vegetation that protects soils from erosion.

BMP 1: Schedule projects during low-impact period

Definition: Projects will be scheduled to avoid wet soil conditions.

Purpose: Timber and fuels projects can cause soil disturbance and damage non-target plants

that provide ground cover. BMP 1 restricts projects to periods that will minimize the likelihood of these impacts.

Applicability: This practice would apply to any project site when significant soil surface disturbance could occur, but is especially important on fine-textured soils and soils with well developed structure, such as loams. These soils are especially prone to compaction, rutting, and similar impacts.

Planning Criteria: If contracting or scheduling in-house labor, plan to complete work during periods when soils are typically dry. Fall and winter are the preferred seasons for fuels projects due to the low risk of wildfire, BLM budget cycles, and greater availability of fire personnel. Regional precipitation primarily occurs in winter, however, so flexibility should be provided in the work schedule to avoid wet conditions.

BMP 2: Minimize and mitigate surface disturbances

Definition: Methods that avoid unnecessary surface disturbance will be chosen.

Purpose: These management practices will reduce or mitigate surface disturbances which can lead to soil erosion in many ways, including (1) directly detaching and transporting soil, (2) exposing soil to erosion by reducing non-target vegetative ground cover, (3) compacting soils and reducing infiltration, and (4) rutting that concentrates overland flow.

Applicability: BMP 2 would apply to any project site where significant surface disturbance could occur, but is especially important on fine-textured soils and soils with well developed structure, such as loams. These soils are especially prone to compaction, rutting, and similar impacts.

Planning Criteria: Site access should minimize the amount and intensity of disturbance associated with vehicle traffic and off-road travel. Choose appropriate treatment methods to minimize surface disturbance and to avoid impacts to non-target plants when felling trees, operating machinery, and performing other tasks.

Methods:

1. Minimize the area and intensity of disturbance. For example, a road that switchbacks up a slope would disturb a greater area, but have less impact than one directed up and down a slope.
2. Avoid repeated vehicle and equipment traffic on areas that are prone to soil and vegetation impacts.
3. Plan vehicle routes where they will do the least damage, such as rock outcrops or coarse-textured soils that resist compaction.
4. Travel and conduct treatment operations along the contour of the slope to the extent possible to avoid channelizing overland flow.
5. When leaving slash or wood chips onsite, scatter over disturbed areas to protect exposed soils from raindrop impact.

BMP 3: Avoid sensitive riparian areas, wetlands, and drainages

Definition: Exclude treatment from sensitive riparian areas, wetlands, and drainages, including an adequate buffer where appropriate. The presence of water in these areas could be ephemeral, so BMP 3 might be necessary where no surface water is present during project planning and implementation. Note that BMP 3 could be modified or limited for projects that target plants in these areas (e.g., removing juniper near a spring to reduce competition with riparian species).

Purpose: BMP 3 is designed to protect sensitive riparian and wetland areas, and to prevent sediment deposition in drainages where the sediment could be transported to other water bodies.

Applicability: This practice could apply to any project where an identifiable drainage exists, but is especially important for perennial waters, riparian and wetland areas, and where a drainage leads from the project area to a water body.

Planning Criteria: Survey the project area to identify riparian and wetland areas, and drainages. Evaluate the potential for sediment to be generated by the project and delivered to offsite water bodies. Determine what areas will be left untreated to protect these resources. Size of buffers will depend on project objectives and site conditions, such as soil type, vegetative cover, slope, and aspect.

Methods:

1. Mark buffer areas to be left untreated or where treatment will be limited.
2. Be sure work crews have clear instructions on the meaning of any markers.
3. Map avoidance areas in GIS to facilitate planning and communication with work crews.
4. When necessary, have a project inspector onsite during operations to instruct crews on avoidance areas.
5. If avoidance is unfeasible, use portable bridges or other devices to prevent impacts.
6. Do not perform equipment maintenance onsite where fuel, lubricants, or other contaminants could enter water bodies.

APPENDIX B

BLM Sensitive Species associated with Mill Canyon Fuels Treatment Project

Animal

Golden Eagle – *Aquila chrysaetos*
Juniper Titmouse - *Baeolophus griseus*
Pinyon Jay - *Gymnorhinus cyanocephalus*
Greater sage-grouse- *Centrocercus urophasianus*
Mountain quail - *Oreortyx pictus*
Prairie Falcon – *Falco mexicanus*
Loggerhead shrike- *Lanius ludovicianus*
Gray vireo- *Vireo vicinior*
Long-eared myotis – *Myotis evotis*
Fringed myotis – *Myotis thysanodes*
Silver-haired bat - *Lasionycteris noctivagans*

California myotis - *Myotis californicus*
Long-eared myotis - *Myotis evotis*
Little brown myotis - *Myotis lucifugus*
Long-legged myotis - *Myotis volans*
Townsend's big-eared bat - *Corynorhinus townsendii*
Hoary bat - *Lasiurus cinereus*

Source: www.natureserve.com, www.heritage.nv.gov, CCFO Habitat Management Plans, misc. observ

APPENDIX C

Neo-tropical Migratory Birds, Species of Continental Importance on Mill Canyon Fuels Treatment Project

Western Shrublands (Beidleman 2000) – Shrubsteppe was identified as the highest priority habitat for conservation for breeding birds. This habitat type supports the largest nesting-bird species list of any upland vegetation type in the West (Beidleman 2000). Species of concern associated with this habitat type in the plan area,

Shrub-Steppe

Sage grouse – *Centrocercus urophasianus* (Beidleman 2000)
Brewer's sparrow – *Spizella breweri* (Beidleman 2000)
Sage Sparrow – *Amphispiza belli* (Neel 1999, Beidleman 2000, Nevada Wildlife Action Plan 2006)

General issues related to this habitat type include fragmentation from man-caused activities. Threats to this habitat type include overgrazing of grasses and forbs that alter community structure, invasion of non-native grasses and fire suppression / crown-killing wildfire (Beidleman 2000). Loss of shrub understory, increasing human infrastructure which fragments and degrades habitat, and increases soil erosion was also identified (Nevada Wildlife Action Plan 2006).

Woodland – Pinyon-juniper woodlands are characteristic of this habitat type Species of concern associated with this habitat type in the plan area,

Gray Flycatcher – *Empidonax wrightii* (Beidleman 2000)
Gray Vireo - *Vireo vicinior* (Beidleman 2000)
Juniper Titmouse – *Baeolophus ridgwayi* (Beidleman 2000)
Mountain Bluebird – *Sialia currucoides* – cavity nester (Neel 1999)
Pinyon Jay – *Gymnorhinus cyanocephalus* (Neel 1999)
Western Bluebird- *Sialia mexicana* – snags / hollow tree (Neel 1999)

General issues related to this habitat type include fragmentation from man-caused activities (Beidleman 2000).