

# ENVIRONMENTAL ASSESSMENT

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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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# **I. INTRODUCTION/PURPOSE & NEED**

## **INTRODUCTION**

The Bureau of Land Management Carson City District, Stillwater Field Office (BLM) is proposing a 2,607 acre fuels reduction and habitat restoration project on the west side of the Desatoya Mountains, Churchill County, Nevada (See Map 1).

Two major issues confronting the BLM are wildland fire and sage grouse habitat management. Both issues are intimately related to vegetation community dynamics and the ways these dynamics have changed over time.

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 caused 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 habitat developments.

## **PURPOSE & NEED**

The purposes of the proposed project are to:

- Reduce fuel loads and break up the horizontal continuity of the fuel supply.
- Protect and improve wildlife habitat and woodland health.
- Restore ecological diversity in the project area.

The need for this project is to support sage grouse habitat management objectives and decrease the potential for an intense wildland fire in high value wildlife habitat. 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 important wildlife habitat and woodlands within and adjacent to the proposed project area.

## **LAND USE PLAN CONFORMANCE STATEMENT**

The proposed action and alternatives described below are in conformance with the Carson City Field Office Consolidated Resource Management Plan (2001):

- FIR-2.1 Restore fire as an integral part of the ecosystem, improve the diversity of vegetation and to reduce fire hazard fuels.
- WLD-6.4 Wildlife habitat improvement projects will be guided, in the most part, by provisions in activity level plans such as habitat management plans, or interdisciplinary activity plans. These plans will be developed through consultation with interested parties and will be coordinated with livestock, wild horse, and wilderness plans. These plans will be focused on rehabilitation and improvement of wildlife habitat through protective fencing, water developments, grazing management, and vegetation treatments.

- FOR-1.1 Forest and woodland management will be based on the principles of multiple use, sustained yield, and ecosystem management.

## **RELATIONSHIPS TO STATUTES, REGULATIONS, AND OTHER PLANS**

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

This environmental analysis (EA) was prepared in accordance with the National Environmental Policy Act (NEPA) and is in compliance with applicable regulations and laws passed subsequently, including the President’s Council of Environmental Quality Regulations, US Department of Interior requirements, and guidelines listed in BLM Manual Handbook H-1790-1. The EA assesses the potential environmental impacts of the Proposed Action and reasonable alternatives and documents public participation as well as the decision-making process.

## **II. PROPOSED ACTION AND ALTERNATIVES**

### **PROPOSED ACTION**

#### **Location**

T 17N, R 37E Sections 21, 22, 27, 28, 29, 32, 33 and 34 T 16N, R 37E Section 3

#### **General**

The proposed project has been developed in collaboration with the Nevada Division of Wildlife, the Carson City District Fuels program, and the Stillwater Field Office Wildlife and Forestry programs.

The vegetation density of the pinyon and juniper trees in the project area would be reduced or removed on up to 2,602 acres in order to modify fire behavior, improve wildlife habitat characteristics and protect sage grouse habitat. Hand and mechanical treatments would be utilized to promote healthy, productive, and diverse habitats in the pinyon and juniper woodlands, sagebrush and riparian communities. Within the project area, pinyon and juniper trees would be cut and removed, or lopped and scattered, and/or shredded. Both scattered and shredded vegetation remains would be left in place to reduce dust generation and stabilize the soil surface.

## **Treatment Design**

The total treatment area would be up to 2,607 acres (See Map 2). All treatment area boundaries would be located outside of the Desatoya Mountains Wilderness Study Area (WSA). Treatment area edges would be irregular in shape. Wildlife travel corridors would be maintained in the drainage just south of Big Den Creek and in Little Den Creek. A Class Three Cultural Resource Survey would be completed for the proposed mechanical treatment areas. Specific treatment methods would be selected or areas would be identified for avoidance to protect sensitive resources.

Generally, the shrub component would be left in place. In areas identified for mechanical treatments small accounts of the shrub component would be shredded. The brush would be removed to create the fence line corridor for the spring exclosure fence.

The extent of tree removal would vary from 50 to 100 percent, depending upon the objectives identified for each site and as shown on the project map. Approximately 50% would be removed where there is a need to transition from woodland to sagebrush steppe, particularly for visual resource design effect near the WSA boundary. As much as 100% of trees would be removed on other sites where needed to maintain the sagebrush steppe without the risk of impending domination by trees.

## **Specific Treatment Management**

The project area would total 2,607 acres.

- 1,540 acres are identified for hand treatment.
- 1,062 acres are identified for hand and or mechanical treatment.
- 5 acres are identified for spring exclosure fence.

Hand Treatment (Tree Cutting and No Removal) - Pinyon and juniper trees would be cut with hand tools and small mechanized tools and lopped and scattered on site. Stump height would be less than six inches and slash height would not exceed two feet in depth.

Hand Treatment (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 tree would be removed for either personal use or commercial sale. Partial tree removal would only occur in the 1,062 acres identified for hand and/or mechanical treatments or directly adjacent to roads in the hand treatment only area. No off road access would be authorized in the hand treatment only areas. Vegetation remnants (slash) would be left in place and shredded by subsequent mechanical shredding operations. Harvest activities would be terminated prior to initiation of shredding operations within areas scheduled for mechanical treatment.

Mechanical Treatment (Mechanical Tree Shredding) - Rubber tired/tracked or metal tracked mechanized equipment with a mastication head would be used to shred the trees. Stump height would be less than six inches and the products of shredding would not exceed two feet in depth. Shredded vegetation would be left in place to reduce wind generation of dust and stabilize the soil surface.

Mechanical Treatment (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. Shearing would include separating the tree from the stump, less than six 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.

Spring Exclosure Fence – Park Canyon Spring, located at T. 16 N., R. 37 E., Sec. 4, is adjacent to the proposed vegetation treatment area. A five acre fenced exclosure of the springhead and mesic soil type would be constructed and would comply with BLM wildlife fence standards. The wire spacing for the wildlife standard is 16 inches from the ground to the first strand, 22 inches to the second strand, 30 inches to the third strand and 42 inches to the top strand. The bottom strand would be smooth wire to accommodate pronghorn passage. There would be 16 ½ feet spacing between fence posts.

Livestock and wildlife would continue to have access to water that currently flows from the spring brook located adjacent to the proposed fence line. With fencing protection, the flow from the spring is expected to increase over time. If development of the springhead is deemed appropriate, further analysis of that project design would need to be completed separately.

### **Post Treatment Management**

The treatment area 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 area. When fuel loads increase to unacceptable levels or habitat characteristics are degraded to an unacceptable level, maintenance actions would be initiated. If invasive species are found in the project area after treatment, the sites would be identified for treatment in the Stillwater 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:

- Ensure that the initial fuel treatment objectives are met;
- Evaluate fuel load recovery;
- Evaluate the need to remove conifers that were passed over the first time;
- Evaluate habitat characteristics;
- Identify invasive species for subsequent treatment.

### **Specific District Resource Protocol**

#### Cultural Resources:

- 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 District Office and the Nevada State Museum, known historic properties represent significant past human use of the landscape in and immediately adjacent to the Big Den 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 3-2455).
- The mechanical 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 this project. Historic properties identified and evaluated as eligible under the National Register of Historic places would be avoided with a 50 meter buffer during implementation to result in no adverse effect to the historic property(ies) pursuant to 36 CFR Part 800, the *State Protocol Agreement Between the Bureau of Land Management, Nevada and the Nevada State Historic Preservation Office*, Appendix F, Subsection M, (IM no. NV-2005-031) and in consultation with the local tribal entity(ies).
- The lop-and-scatter phase of this project as identified would not adversely affect cultural resources and therefore, will not be surveyed to Class III standards per the aforementioned protocol between the BLM and the NVSHPO, Appendix F., Subsection M., 3., c., (IM no. NV-2005-031).

#### Native American Religious Concerns:

- The Native American tribe that has cultural affiliation with the area within the allotment is the Fallon Paiute-Shoshone Tribe. Per 36 CFR Part 800 and 43 CFR Part 8100 (BLM), as amended, a consultation letter with a general summary of the proposed project, and map including the project area were sent to the Tribe on August 7, 2009, concerning the Big Den Fuels Treatment. Consultation is ongoing until the completion of the project, however to date there are no Native American Religious concerns relative to this project proposal.
- A Class III survey would be conducted for the proposed mechanical treatment as identified 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 as necessary. As always respect for all cultural resources would be maintained especially in the case of human remains that may be inadvertently discovered in the process of conducting the proposed treatments.



#### Soil Water and Air:

- 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.
- 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.

#### Wildlife:

- One to three large dead standing trees would be retained per acre in the 50 % thin area.
- If possible, implementation in the lower elevation hand treatment only areas would occur outside of nesting season (March 1 through May 30).
- Implementation would be limited to the daylight hours.

### **NO ACTION ALTERNATIVE**

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. The resource impacts from wildfires which do occur would be greater than under the natural fire regime. Habitat values would continue to decline as perennial, herbaceous understory would further be reduced in the long term.

## **III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

This chapter identifies and describes the current condition and trend of elements or resources in the human environment which may be affected by the Proposed Action or Alternatives and the environmental consequences or effects of the action(s).

### **SCOPING AND ISSUE IDENTIFICATION**

Collaborative development of the proposed Big Den project was initiated in the fall of 2008.

BLM staff met with the NDOW game biologist assigned to the Desatoya Mountains May 15, 2009 at the proposed project site. The project was discussed in detail and the NDOW game biologist supported the project proposal.

Written communication including a description of the Proposed Action and a map was provided to the Fallon Paiute-Shoshone Tribe on August 07, 2009. Consultation is ongoing.

Internal scoping for the proposed Big Den project was initiated at the regularly scheduled Interdisciplinary Team meeting at the Carson District Office on June 15, 2009 and continued until September 1, 2009.

BLM released a press release soliciting public comment on the proposed Big Den fuels reduction project and posted an information sheet for the project on the Carson City District Office's web page on August 28, 2009. Comments or issue identification were requested by September 14, 2009. No comments or issues were received for this project.

The grazing allotment permittee was sent the information sheet for the project on August 28, 2009. He is in full support of the proposed project.

## PROPOSED ACTION

### General Setting

The proposed project area is located northwest of Carroll Summit, on the west side of the Desatoya Mountains, in Churchill County, Nevada. Vegetation in the project area is typical of the western Great Basin and consists of a mix of grasses, sagebrush, rabbitbrush, bitterbrush, and pinyon and juniper trees. Elevation ranges between 5,600 and 6,685 feet. The general aspect for the project site is west. Slope ranges between 0 and 30 percent. Average precipitation is 10 to 15 inches per year.

## SUPPLEMENTAL AUTHORITIES

Appendix 1 of BLM's NEPA Handbook (H-1790-1) identifies Supplemental Authorities that are subject to requirements specified by statute or executive order and must be considered in all BLM environmental documents. The table below lists the Supplemental Authorities and their status in the project area. Supplemental Authorities that may be affected by the Proposed Action are further described in this EA.

Supplemental Authority*	Not Present **	Present/Not Affected	Present/May Be Affected***	Rationale and/ or Reference Section
Air Quality	X			Resource not present.
Areas of Critical Environmental Concern	X			Resource not present.
Cultural Resources		X		A survey would be completed to determine if any historic properties are present. Based on the survey results and as stated in the Proposed Action, avoidance areas would be established to avoid impacting any historic properties.
Environmental Justice	X			Resource not present.
Farm Lands (prime or unique)	X			Resource not present.
Floodplains	X			Resource not present.
Invasive, Nonnative and Noxious Species	X			Resource not present.
Migratory Birds			X	Carried through EA.
Native American Religious Concerns		X		Written communication including a description of the Proposed Action and a map was provided to the Fallon Paiute-Shoshone Tribe on August 07, 2009. Consultation is ongoing.

Threatened and/or Endangered Species	X			Resource not present.
Wastes, Hazardous or Solid	X			Resource not present.
Water Quality (Surface/Ground)		X		Implementation using the Soil, Water, and Air program best management practices would limit disturbance to the resource.
Wetlands/Riparian Zones		X		Implementation using the Soil, Water, and Air program best management practices would limit disturbance to the resource.
Wild and Scenic Rivers	X			Resource not present.
Wilderness	X			Resource not present.

*\*See H-1790-1(January 2009) Appendix I Supplemental Authorities to be Considered.*

*\*\*Supplemental Authorities determined to be Not Present or Present/Not Affected need not be carried forward or discussed further in the document.*

*\*\*\*Supplemental Authorities determined to be Present/May Be Affected must be carried forward in the document.*

## RESOURCES OR USES OTHER THAN SUPPLEMENTAL AUTHORITIES

The following resources or uses, which are not Supplemental Authorities as defined by BLM's Handbook H-1790-1, are present in the area. BLM specialists have evaluated the potential impact of the Proposed Action on these resources and documented their findings in the table below. Resources or uses that may be affected by the Proposed Action are further described in this EA.

Resource or Issue	Present/Not Affected#	Present/May Be Affected##	Rationale
Fire Management		X	Carried through EA.
Livestock Grazing		X	Carried through EA.
Soils		X	Carried through EA.
Special Status Species		X	Carried through EA.
Recreation	X		Because of the temporary nature of the Proposed Action's activities, recreation resources would not be affected. The non-linear treatment design would also minimize any attractive draw the Proposed Action's activities may have to OHV use within the treatment area.
Vegetation		X	Carried through EA.
Visual Resource Management	X		The Proposed Action would meet the criteria of a Class III area without undue impairment. The Proposed Action design criteria; feathering the edges of the treatment area and areas within the treatment area adjacent to roads, avoiding straight/sharp edged treatment boundaries, and leaving pockets of untreated vegetation within the treatment area would reduce the impact of the linear element of the existing landscape.
Wilderness Study Area	X		The adjacent Desatoya Mountains Wilderness Study Area (WSA) would not be affected by the Proposed Action as the treatment boundaries are located outside of the WSA.
Wildlife General/Game		X	Carried through EA.

*#Resources or uses determined to be Present/Not Affected need not be carried forward or discussed further in the document.*

*##Resources or uses determined to be Present/May Be Affected must be carried forward in the document.*

## **RESOURCES PRESENT AND BROUGHT FORWARD FOR ANALYSIS (All Resources)**

The following resources are present in the area and may be affected by the Proposed Action.

### **A. FIRE MANAGEMENT**

#### **Affected Environment**

The project area is included in the Churchill Ranges Fire Management Unit of the Carson City District Fire Management Plan. Fire is widely recognized as a natural process influencing vegetation patterns in many mountain landscapes of the western United States including the Desatoya Mountains. In recent history, management policy has been the systematic exclusion of fire, which influences vegetation patterns by removing the influence of fire. As crown cover and density increases in the pinyon/juniper woodlands, fuel loads also increase and understory vegetation is depleted. Lack of fire also increases the expansion of the pinyon/juniper into the sagebrush ecosystem. 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 two to five years.

Fire regime condition class (FRCC) describes the degree of fire regime departure from historical fire cycles due to fire exclusion and other influences (selective timber harvesting, grazing, insects and disease, the introduction and establishment of non-native plants). FRCC identifies changes to key ecosystem components such as species composition, structural stage, tree or shrub stand age, and canopy closure. It characterizes the landscape by five “Fire Regime Groups” and three “Fire Condition Classes”. Wildfire risk conditions are identified by the Fire Regime Groups and are measured by the Fire Condition Classes. Specifically, the natural historic frequency and severity of fire within an ecosystem is the identified Fire Regime, and Fire Condition Class identifies the departure of current conditions from the historical reference condition. The National Fire Plan and Healthy Forest Restoration Act dictate that the federal agencies use FRCC as criteria for planning projects.

The project area can be characterized by Fire Regime Group III which has a natural historical fire frequency of 35-100 years and a mixed fire severity. The condition class for the project area can be characterized as primarily Condition Class 1, meaning the fire regime is within the historical range and the risk of losing key ecosystem components is low. However where the pinyon/juniper is encroaching on the sagebrush system the Condition Class is 3, meaning without disturbance the fire regime would become significantly altered from historical ranges and there exists a high risk of losing key ecosystem components from wildfire.

#### **Environmental Consequences**

##### Proposed Action:

The proposed action would create a more balanced and diverse mix of vegetation types. Mostly young pinyon and juniper trees would be removed from the plant community on 2,602 acres of

public land as sagebrush and other lower-growing plants would be retained to provide habitat for wildlife species dependent upon the sagebrush steppe. The trees which are left would be better protected from the adverse effects of wildfire, because fuel loads would be reduced and more natural breaks in fuels would enable better fire control and management. 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 cheatgrass will increase. The project design should limit opportunities for cheatgrass encroachment.

The Proposed Action would slow down the pinyon/juniper encroachment into the sagebrush system. The Condition Class would move from a rating of 3 to 1, meaning the project area would be more in line with historical fire regimes and the risk of losing key ecosystem components would be lower.

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 available on site during treatment operations if the treatment is conducted at a high fire danger.

#### No Action Alternative:

Under the No Action Alternative, the condition of the understory species would continue to decline with the increase of pinyon and juniper trees into the sagebrush system. The areas represented as Condition Class 3 would increase creating further departure from the historical fire regime. The risk of losing key ecosystem components would continue. The risk of equipment starting a wildland fire would not exist and cheatgrass density would not increase due to soil disturbance created by the Proposed Action.

## **B. LIVESTOCK GRAZING**

### **Affected Environment**

There is one permittee authorized to graze cattle on the Eastgate Allotment. Permitted livestock use in the allotment is 1,503 cattle from November 1 until April 15, for a total of 8,203 Animal Unit Months (AUM's) and 239 cattle from April 16 until October 31, for a total of 1,564 AUM's. The winter use area consists of three pastures, and those are the Gabbs Valley, Broken Hills, and the Greyback pastures. The summer use area is made up of the Willow Creek, Park Canyon, West Buffalo, and East Buffalo pastures.

Willow Creek, located in the Willow Creek pasture, and Big Den Creek, located in the Park Canyon pasture, are protected from livestock grazing with enclosure fences.

### **Environmental Consequences**

#### Proposed Action:

Under the Proposed Action Alternative, there is the potential for disturbance to the cattle and a resulting avoidance of the project area if the mechanical treatment is done from April 16 through October 31, when the cattle are using the Park Canyon pasture. If the treatment is done from November 1 through April 15, there would be no disturbance to the cattle since they would be moved out of the area. The amount of forage should increase over time as the trees are removed,

improving the grazing conditions on the allotment. Also, the chance for an intense wildfire would be reduced so the likelihood of having to close the Park Canyon pasture of the Eastgate Allotment in the future would be less.

The construction of the enclosure around Park Canyon Spring would benefit livestock by increasing the flow of water over time, as well as improving water quality and forage conditions near the spring. Livestock would continue to have access to the water since it would flow outside of the fenced area.

There would be minor impacts to livestock grazing as a result of the Proposed Action but they would not be expected to be significant.

#### No Action Alternative:

Under the No Action Alternative, there would be no disturbance to the cattle or resulting avoidance to the project area since the mechanical treatment would not be done. The amount of forage would likely decrease over time since the juniper and pinyon trees would increase in number and would continue to compete with the more favorable forage species, such as the Indian ricegrass, bottlebrush squirreltail, and Sandberg bluegrass. As grass species decline in abundance, there would be increased use by livestock on remaining plants. With the increase in juniper and pinyon and the subsequent decrease in shrub and herbaceous growth, there would also be an increase in competition for remaining forage between livestock and wildlife. As this competition increases, livestock reductions would have to be considered to maintain the current rangeland health on the Eastgate Allotment.

Reductions in the number of livestock and AUM's would also be more likely with this alternative, due to the buildup of large woody material and resulting increased risk of intense wildfires. This would increase the probability that the allotment would be closed to grazing sooner and more frequently than under the Proposed Action Alternative. This livestock closure would be in effect for at least two growing seasons since the burn area would either be fenced or closed by decision or agreement for that period of time. This could create a hardship for the permittee who uses the Eastgate Allotment all twelve months of the year.

## **C. MIGRATORY BIRDS**

### **Affected Environment**

On January 11, 2001, President Clinton signed Executive Order 13186 (Land Bird Strategic Project) 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. Management for these species is based on Instruction Memorandum – IM 2008-050 dated December 18, 2007. The IM contains a list of Migratory Bird Species of Concern for the BLM as an agency. The list of Migratory Bird Species of Concern that occur or are likely to occur in the project area is shown in Appendix B (BLM 2007). The Intermountain West is the center of distribution for many western birds. Over half of the biome's important species have 75% or more of their population in the Intermountain West (Beidleman 2000). No Important Bird Areas have been identified within or near the project area (McIvor 2005).

The project area is comprised of sagebrush community and woodland habitat types. The Desatoya Range is substantial enough to attract and hold moisture producing weather systems



which favors the winter precipitation dependent shrub species that occur. Shrubs should dominate the entire west bench of the Desatoya range including the project area and the shrub stands should be extremely robust. However, pinyon pine and juniper trees have encroached into shrub dominated areas. These tree species dominate much of the project area and are currently crowding the shrub-understory community out of the system. Where only a few trees occur, shrub species are skewed toward mature or decadent age classes with few seedling and young plants present. Grass-forb components are present even if not abundant. Where trees stands are denser, the mature decadent shrub stands are weak. The grass-forb component is very sparse and large areas of bare ground can be seen. This situation is characteristic of an area where pinyon-juniper encroachment has occurred.

Small stringer meadow systems exist just outside of the area proposed for treatment. Older maps indicate that more of these habitats may have historically occurred in areas where pinyon pine and juniper trees now occur or dominate. Little sign of these meadow systems can now be found as stated. Each pinyon and juniper tree can use up to 20 gallons of water per day (Bedell et al 1993) which can easily dry small meadow complexes.

The pinyon pine and juniper trees and meadow stringers currently act as a conduit for conveying fast-moving, catastrophic crown wildfires from lower elevations into higher elevations. Prevailing summer winds are from the southwest to the northeast, a situation which also favors the chimney effect the trees can have in pushing the fire across the bench and up the mountainside.

There are approximately 2,600 acres within the project area where migratory bird species that use sagebrush habitat find only fading habitat. Upper sagebrush-grassland habitat supports the highest species richness and one of the highest densities of migratory birds in Nevada. Pinyon-juniper supports about half of the species richness and density of migratory birds than does sagebrush steppe (Medin 1990). Brewer's sparrow and sage sparrow that are sagebrush obligates, which need a sagebrush dominant system to complete their life cycle, may not be present at all. On the current trajectory, pinyon-juniper dominated areas would convert to closed woodlands which would eventually support little to no understory species. The existing trees serve as seed sources to establish seedlings further down the bench where the cycle of dominance and understory loss continues. Species diversity and richness and numbers of individuals of migratory birds would be declining in the general project area because of the loss of shrub community habitat. The risk of losing the entire habitat in a catastrophic wildfire is high.

## **Environmental Consequences**

### Proposed Action:

The BLM IM 2008-050 recommends that impacts to migratory bird habitats, and effects to individual as well as populations be addressed (BLM 2007). The IM's Species of Concern are to be singled out for analysis.

Migratory bird species potentially associated with the project site run the gamut of being semi-obligate to woodlands, to being obligate of sagebrush which means some would be benefited by the Proposed Action and others would not. The Proposed Action would interrupt the current trajectory of having pinyon/juniper encroachment continue resulting in the loss of several

thousand acres of sagebrush community as bird habitat. Benefits would come from shrub and grass dominated areas being re-established, maintained or rehabilitated as a habitat type. Park Spring meadow would be enhanced under the Proposed Action. It is possible that other meadow systems could be restored as water is released from woodland transpiration under the Proposed Action. Diversity of migratory bird species now using the general area can be maintained through this landscape scale habitat improvement. Numbers of some species could be supported for longer periods. Sagebrush obligate species could be supported. The proposed project would move toward the main goal of reducing the potential of catastrophic wildfire that could permanently eliminate the sagebrush community in this area.

Birds don't confine their use to arbitrary areas such as the proposed treatment area. For this reason, the entire woodland habitat within the Desatoya Range was used for analysis since this more closely represents actual migratory bird habitat. Impacts to individual and local populations of migratory bird species specifically using woodland habitat would be minimal because only 0.15% of the pinyon-juniper habitat in the Desatoya Range would be treated under this project proposal (BLM 1994) In general, there could be some temporary impacts to individual local birds but *populations* either would not be affected or would benefit from the proposed treatments.

The affects of the proposed alternative for Migratory Bird Species of Concern associated with the project area are shown in the table of Appendix E. A narrative describing the specific improvements and adverse affects by species is also presented. The Proposed Action would not create a significant change to migratory bird use or their habitat.

#### No Action Alternative:

By not choosing the Proposed Action, the current trajectory of pinyon-juniper encroachment would continue resulting in the loss of several thousand acres of sagebrush community as bird habitat. The no action alternative would not reduce the potential of catastrophic wildfire and the possibility of permanently eliminating the sagebrush community in this area is greatly increased. Diversity of migratory bird species now using the general area would be reduced as the sagebrush community disappeared. Numbers of some species would be supported for shorter periods of time.

Some bird species that use woodland habitat to a greater or lesser extent could benefit from the no action alternative. The existing trees would remain and new trees would occupy a place further into the sagebrush community in the future. In general, there could be some long-term benefits to individual local birds but *populations* would not be affected by selection of the no action alternative.

The affects of the no action alternative for Migratory Bird Species of Concern associated with the project area are shown in the table of Appendix E.

## **D. SOILS**

### **Affected Environment**

The soils within the Big Dens project area vary from shallow to very deep depending on geomorphology, with surface textures ranging from extremely stony loams to gravelly sandy loams. They are well drained, and pH's are neutral to moderately or strongly alkaline. Parent



materials are mixed volcanic rocks, and runoff is medium. The dominant soil series are Old Camp, Clanalpine, Colbar, Yody, Buffaran, Pineval, and Ricert: fine-loamy natrargids and durargids to loamy-skeletal haplargids and argixerolls.

## **Environmental Consequences**

### Proposed Action:

The proposed Action would have a positive effect on the soils resource. The various treatment designs would help prevent a catastrophic wildfire in the area by thinning the Pinyon and Juniper canopy and opening the understory to native grasses and forbs. Scattering cut and shredded vegetation would also protect the soil surface from rain-drop splash and snow melt runoff. There would be minor impacts to soils as a result of the Proposed Action but they would not be expected to be significant.

### No Action Alternative:

The No Action alternative could have a negative effect on the soils resource if a severe burn occurs in the future. The loss of pinyon-juniper and shrub canopy cover and whatever basal cover that presently exists could cause an increase in runoff with the associated sheet and rill erosion during a significant precipitation event.

## **E. SPECIAL STATUS SPECIES**

### **Affected Environment**

The trajectory for sensitive species in the general project area is less diversity and abundance through loss of habitat due to encroachment.

#### *BLM Sensitive Species*

BLM Manual 6840 – Special Status Species Management, establishes policy for management of Bureau sensitive species which are found on BLM-administered lands (BLM 2008). Species designated as BLM sensitive must be native species found on public lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or
2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

The list of BLM sensitive species that occur or are likely to occur in the project area is shown in Appendix C (BLM 2003).

The general issue of pinyon-juniper encroachment and loss of the shrub community that was discussed for migratory birds is the same for BLM sensitive species. The bat and myotis species that depend on insects for forage find over 100 known species of insects that are associated with big sagebrush (Welch 2005). (This explains the very large numbers of insect-eating birds and other mammals found in the sagebrush habitat type.) Again, the trajectory for forage insect

production is less diversity and abundance through loss of habitat to pinyon-juniper encroachment. At present, it is only a matter of time before a catastrophic wildfire alters a vast amount of landscape for many years. If this occurred, sensitive species diversity would be dramatically altered. Additionally, the magnitude and duration of the effects of a catastrophic wildfire could be large and long-term.

## **Environmental Consequences**

### Proposed Action:

#### *BLM Sensitive Species*

In general, most BLM Sensitive Species that could occur in the project area would benefit from the proposed treatments because shrub and grass dominated areas would be maintained or enhanced as a habitat type. Diverse forage sources such as seeds, insects and rodents would be maintained in a healthy shrub community. Some individuals may be displaced during implementation, but populations would be unaffected by implementation.

One goal of treatment is to reduce the potential of catastrophic wildfire. If a wildfire occurred and could be kept to a cool, fingering burn as a result of the treatment, the bench and mountain can regenerate itself. BLM sensitive species habitat might be changed for the short-term, but might not be permanently altered and made non-useable. Local individuals and populations would benefit, but regional populations wouldn't be affected.

The table in Appendix F shows the longer-term effects of the residual habitat on the BLM sensitive species that could occur in or near the general project area. A narrative describing the specific effects by species is shown in Appendix F. The narrative also describes mitigation that has been recommended to enhance beneficial effects and reduce adverse effects to some sensitive species. There would be minor impacts to BLM Sensitive Species as a result of the Proposed Action but they would not be expected to be significant.

### No Action Alternative:

#### *BLM Sensitive Species*

One goal of treatment is to reduce the potential of catastrophic wildfire. Without the treatment, it is only a matter of time before a catastrophic wildfire alters a vast amount of landscape for many years. If this occurred, species diversity would be dramatically altered. High numbers of some species could not be supported. Additionally, the magnitude and duration of the effects of a catastrophic wildfire could be large and long-term. Not implementing the proposed action could be important to local and possibly regional populations of BLM sensitive species.

If the proposed action wasn't implemented, there would be lost opportunity to enhance shrub community habitats important to several BLM sensitive species. None of these opportunities is important to local or Continental populations except sage grouse.

Thinning of the woodlands would not occur nor would pinyon removal. Some BLM sensitive species individuals might benefit from not having the project implemented. However, this benefit wouldn't be important to local or Continental populations.

The actual implementation process wouldn't occur and so, would eliminate the possibility of displacing individuals, causing loss of that year's young or having another direct effect to individual wildlife. However, this benefit would not be important to local or Continental populations.

## **F. VEGETATION**

### **Affected Environment**

The stated need for treatment is to reverse the loss of the shrub community to pinyon-juniper encroachment. The effects of pinyon-juniper woodland encroachment on shrub communities have been well documented. The first shrub community species to disappear are perennial forbs and shrubs (Bedell et al 1993). When pinyon-juniper trees are only three to six feet in height, understory species begin declining in vigor and occurrence at a rapid rate (West et al 1979).

Woodlands in the project area as well as other areas of the Desatoya Range have been expanding both externally and internally. External expansion has allowed trees to move from fire safe sites (shallow rocky soils) that always produced trees into sagebrush cover types on the upper alluvial fans, canyon bottoms, and hillslope areas with deeper soils. In essence, the area of woodland has increased. Internal expansion is the continuing increase in either tree density or cover where trees have already established (North Central 2009).

Water interception and use by pinyon-juniper and particularly by juniper at lower elevations such as on the proposed project area, causes a decline in forbs, grasses and shrubs partially through water interception (Bedell et al 1993). When the shrub community in a woodland declines, areas covered by bare mineral soils increase which increases sedimentation. Sedimentation is 20 times less in a sagebrush grass community than from bare ground (Bedell et al 1993). Pinyon-juniper woodlands can also use water before other plants start to grow and each tree can use up to 20 gallons of water per day when available (Bedell et al 1993). This water is transpired into the atmosphere (Baker and Folliott 2000). Because pinyon-juniper's effective leaf area can be large, there usually isn't enough water in the soil for nearby plants to compete. Soil moisture is usually limited by mid-summer which weakens shrubs, grasses and forbs that need water later to complete reproduction. In succeeding years, there are fewer plants, more runoff and less site productivity (Bedell et al 1993).

Several parasitic plants use sagebrush stems as their host. Paintbrushes, *Castilleja* sp. are an example. Many of these plants add color to the landscape, add diversity to the system and can be important wildlife foods (Welch 2005) by providing trace nutrients.

The major grass species found in the project area are Indian ricegrass (*Achnatherum hymenoides*), Thurber's needlegrass (*Achnatherum thurberianum*), needleandthread grass (*Hesperostipa comata*), bottlebrush squirreltail (*Elymus elymoides*), Basin wildrye (*Elymus cinereus*), and Sandberg bluegrass (*Poa secunda*).

The major shrub species found in the project area are big sagebrush (*Artemisia tridentata*), low sagebrush (*Artemisia arbuscula*), Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), shadscale saltbush (*Atriplex confertifolia*), green rabbitbrush (*Chrysothamnus viscidiflorus*), winterfat (*Krascheninnikovia lanata*), spiny hopsage (*Grayia spinosa*), antelope

bitterbrush (*Purshia tridentata*), Nevada ephreda (*Ephedra nevadensis*), and green ephreda (*Ephedra viridis*).

The major forb species found in the project area are buckwheats (*Eriogonum* species), *Phlox* species, globemallow (*Sphaeralcea* species), arrowleaf balsamroot (*Balsamorhiza sagittata*), and four-o'clock (*Mirabilis* species).

The major tree species found in the project area are Utah juniper (*Juniperus osteosperma*) and singleleaf pinyon pine (*Pinus monophylla*).

Species found in the riparian areas include quaking aspen (*Populus tremuloides*), chokecherry (*Prunus virginiana*), willow (*Salix* species), wild rose (*Rosa woodsii*), gooseberry (*Ribes* species), sedge (*Carex* species), and rush (*Juncus* species).

### **Environmental Consequences**

#### Proposed Action:

The proposed action would restore and/or maintain the big sagebrush community on the project site. Perennial forbs and shrubs could be maintained and would even increase in frequency and vigor in the treated areas. Woodland expansion downslope would be set back which would maintain that understory vegetation over time. Sedimentation rates would be stabilized or would decline as the shrubs, forbs and grasses are retained or re-established. This action would ensure plants such as the paintbrush would be retained in the system. This would be a step in restoring and maintaining diversity in the system, retaining visual resources and supplying important wildlife species with plants.

Under the Proposed Action, the removal of trees would provide more water and nutrients for the perennial bunchgrasses, forbs, and shrub community, increasing the quantity and the vigor of these plants over time. The chance for an intense wildfire would be reduced, preventing much loss of these vegetative communities.

Under this alternative, the condition of the riparian vegetation at Park Canyon Spring would improve by building rootmass, preventing mechanical damage because of trampling, and trapping sediments since cattle would not be able to get into the enclosure. The vegetation would make more efficient use of water onsite, increasing the diversity in riparian plant species and age-class, as well as plant vigor.

There would be minor impacts to the vegetation as a result of the Proposed Action but they would not be expected to be significant.

#### No Action Alternative:

Perennial forbs and shrubs would continue to decline in vigor and many would be lost from the site. Woodland expansion down slope is highly probable with understory vegetation being lost over time as this occurs. Sedimentation rates may increase as the shrubs, forbs and grasses are lost to bare mineral soils associated with closed woodland stands.

Under the No Action Alternative, the riparian enclosure fence around Park Canyon Spring would not get built in the near future. Cattle would continue to trample the riparian vegetation, which would cause a decline in the vigor of the plants, the number of individual plants, and the diversity in plant species. The condition of the riparian vegetation would not improve by building rootmass, would not be able to trap an increased amount of sediments, and would begin to make less efficient use of water onsite.

## **G. WILDLIFE**

### **Affected Environment**

#### *General:*

The habitat for general wildlife would be the same as described for migratory birds – sagebrush and woodland with a few small, stringer meadows. These habitat types are described in Appendix C.

Common general wildlife species in the project area include Great Basin kangaroo rat, gray fox and black-throated sparrow (BLM 1994). At least two species of mammals and four species of migratory birds potentially found on the project site are obligates of big sagebrush. Nearly 160 species of mammals and migratory birds, and 40 species of herptiles potentially found on the project site have a facultative relationship with big sagebrush (Welch 2005). For the same reason as described for migratory birds, current trajectory for general wildlife habitat appears to be downward for diversity and individual numbers. Sagebrush dependent species currently have less quantity and poorer quality habitat than if the trees were less abundant and also face the possibility of losing more sagebrush habitat to either pinyon-juniper expansion or wildfire.

#### *Game Species:*

Higher elevations of the Desatoya Range east of the project site serve as key mule deer summer range (NDOW 2009a). The project site is located within a critical mule deer winter range. (A large portion of this winter range burned in a wildfire in 1985 (BLM 1994). It has never returned to a fully functional winter range, i.e., sagebrush establishing as the dominant vegetation type.) The denser, nearly closed stands of pinyon-juniper presently occur in areas of the project site that receive slightly higher precipitation levels than those farther down the bench. These areas should and could be dominated by Wyoming big sagebrush near the bottom and at the mid-levels of the benches. Wyoming big sagebrush should grade into mountain big sagebrush as elevations increase. Mountain and Wyoming big sagebrush have the highest protein content of all the sagebrush types (Welch et al 1986) which makes these sages key spring and winter forage for mule deer. Antelope bitterbrush and curl leaf mountain mahogany are also available. Pinyon-juniper encroachment on the bench and the crowding out of these valuable shrubs was documented as early as 1994 (BLM 1994). The current trajectory suggests that the encroachment would continue and the shrub community would be reduced in abundance in the future.

The bench of the project area also serves as a fall and spring transition range for mule deer moving southward to the Buffalo Hills. High quality forage is essential in fall to assist deer in surviving the winter and reproducing successfully in spring. The conversion of the sagebrush dominant area with attendant understory into a pinyon-juniper dominated one with little to no understory is currently making this transition range much less effective than it could be. Mule deer are also a facultative associate of big sagebrush. This sagebrush habitat type provides a food that can supply a significant portion of the nutrition mule deer need. Wyoming big sagebrush and mountain big sagebrush can make up to 90% of the spring diet, a crucial time for pregnant does.

Big sagebrush also serves as cover for fawning and cover for all age classes of mule deer (Welch 2005).

The project site is surrounded by occupied yearlong pronghorn range (NDOW 2006b) and pronghorn move in and out of the project site (BLM 1999). Some individuals may use the treed areas as summer thermal cover as seen in other areas. However, no permanent herd is associated with the actual project site. Pronghorn are a facultative associate of big sagebrush and use the sagebrush habitat type up to 51%. Use of Wyoming sagebrush is positively correlated to pronghorn fawn survival; sagebrush is used for fawn hiding cover. Big sagebrush can account for up to 55% of the pronghorn diet (Welch 2005).

Occupied bighorn sheep range occurs on the eastern edge of the project site, and occurs to the west of the project site in the Grayback Mtn area (Salisbury 2009). Much of the general area adjacent to and near the project site that isn't occupied is considered potential bighorn range. A delineated travel corridor exists which links the Desatoyas with Grayback. This corridor bisects the project site (NDOW 2006c). Desert bighorn sheep are a facultative species of big sagebrush. Up to a quarter of the bighorn diet can be made up of big sagebrush which in certain areas is preferred forage (Welch 2005). Bighorn sheep survival depends heavily on the ability of these herd animals to spot and outrun predators. The thicker the pinyon-juniper belt becomes between the Desatoya Range and Grayback, the longer these animals are exposed to hidden predators when the bighorn travel between the ranges. The travel corridor is experiencing an increased predator risk because of the increasing density of trees.

Mountain lion populations cycle with the mule deer herd. Lions can be found in any habitat used by mule deer. When deer numbers are low, lion numbers drop. Mountain lion predation on mule deer would not cause a healthy mule deer population to decline (Wallmo 1981). However; if a mule deer population is low and habitat is in poor condition or in short supply, mountain lions can keep deer at the lower level. The current conditions could be allowing mountain lions to keep mule deer populations low because of less than ideal transition and critical winter range conditions for mule deer.

Mountain quail are present and can be common near the boundary of the Wilderness Study Area and Big Den creek (Salisbury 2009). Mountain quail have a facultative association with big sagebrush. This means that the birds use big sagebrush for some of their life cycle functions (Welch 2005). Mountain quail use dense shrubby habitats such as sagebrush and are particularly fond of this habitat type when it is near water. The creeks near the project site and spring meadow complex proposed for fencing provide this type of feature.

The project area is within the Desatoya Population Management Unit for sage grouse (NDOW 2009d). In recent years, more information has been learned regarding important lek sites and the distribution of sage grouse within the Desatoya PMU. Currently, there are nineteen leks that have been identified. The continuous identification of new leks in recent years strongly suggests that additional leks exist (North Central 2009). The Desatoya Range appears to be an important component for the Nevada sage grouse population. At least two active leks occur near the general project area (Salisbury 2009). Nesting and winter habitat in the form of Wyoming big sagebrush occur in and around the project area. Summer habitat can be found in the high



elevations east of the project area. Lower Big Den Creek is used by sage grouse all summer when it flows. Young-of-the-year sage grouse were seen using the lower Big Den Creek area in mid-August, 2009 (DePaoli 2009). At least one meadow stringer holds sage grouse during brood rearing periods in the year.

Sage grouse were seen on Park Spring meadow area in July 2009 during a field trip to the project area (Wilson 2009 a). The spring has surface water with a small amount of riparian vegetation. It has the potential to be an important sage grouse brooding area because it lies between the two active sage grouse leks and nesting areas. The springhead and spring brook have been down cut in the past, which has caused draining of the meadow surrounding the spring (Zeedyk 1996).

Ants are an extremely important component of the sage grouse chick diet. Big sagebrush support higher colony densities of ants than any other vegetation type (Welch 2005). With a weaker and less abundant sagebrush community, fewer ants are produced and this affects chick survival.

Since the mid 1970's the sage grouse population in the Desatoya Range has experienced a downward trend. The sage grouse hunting season within the Desatoya PMU has been closed since 1999 (North Central 2009). The current situation for sage grouse habitat is the same as described for migratory birds. The pinyon-juniper encroachment that would eventually crowd out sagebrush and the attendant understory would eliminate sage grouse nesting and winter habitat. As juniper encroaches into the meadow system, the trees would dry the spring. The meadow vegetation and sage grouse brooding area would be lost. There is a current moderately high risk due to the loss of sagebrush-covered rangelands from expanding pinyon juniper woodlands. Pinyon Juniper is expected to expand into sage grouse winter range in the future (North Central 2009)

Sage grouse face another threat from the presence and possible expansion of pinyon-juniper into nesting habitat. These trees serve as perches for predatory bird species such as ravens. Studies have shown significantly increased levels of predation of eggs and hatchlings due to just such a juxtaposition of habitat and trees (Coates 2009).

The threat that the pinyon-juniper stands and stringers present to sage grouse from wildfire is great. A wildfire start from south of Little Den Creek to Big Den would catch prevailing southwest to northeast winds. These winds would push wildfire across the bench, would cause some fires to crown in the woodland and would allow wildfire to enter the high elevations of the Desatoya Range more quickly than if the fire were closer to the ground. Sage grouse nesting, winter and summer habitat in or near the project area are all at risk of destruction from catastrophic wildfire the current situation. A wildfire of several thousand acres, not uncommon on the Carson City District, would render the existing sage grouse complexes non-functional. Older wildfires in the general area have not fully recovered and are still cheatgrass dominated, a general threat identified for the Desatoya Range (North Central 2009).

Lower Big Den creek contains stocked non-native eastern brook trout and supports a small fishery (BLM 1994).

### **Environmental Consequences:**

## Proposed Action:

### *General*

The benefits of the proposed treatment for general wildlife would be very similar to that described for migratory birds. The treatment would halt the trajectory of lost sagebrush community understory. This would allow greater diversity and numbers of general wildlife species to be supported in the long-term. Although some individuals would be disturbed by the treatment process, most would simply move and return. Catastrophic wildfire could alter or eliminate general wildlife habitat but the proposed treatment would reduce this risk. Local individuals would benefit from the treatment, but populations would not be affected.

### *Game Species*

Pinyon-juniper treatment was identified as a beneficial need for game species as early as 1994 in the Desatoya Habitat Management Plan (BLM 1994).

The proposed treatment would have an important effect on key mule deer range in the general area. Reduction of catastrophic wildfire would be a benefit to the summer range in higher elevations and critical winter range along the bench within the project area. The project would also set pinyon/juniper encroachment back which would retain mule deer key browse species or allow it to become more abundant and vigorous. Retention or re-establishment of shrubs as a cover for mule deer is an important benefit that would result from the proposed treatment. The treatment would be important for local deer and also migratory deer. Retaining high quality mule deer forage especially in the summer and fall translates into better fawn survival that is important to the populations in the general area.

Pronghorn individuals using the project area would have better sight distance to evade predators while present. However; the big sagebrush species are too tall for pronghorn to use for any length of time. The proposed project would have some benefit to individuals, but none to surrounding herds. The proposed improvement of Park Spring could benefit pronghorn individuals and possibly a surrounding herd as a more stable source of water could be provided.

The thicker the pinyon-juniper belt becomes between the Desatoya Range and Grayback, the longer bighorn are exposed to hidden predators when these animals travel between the ranges. Treatment that would restore and/or maintain big sagebrush would benefit bighorn during travel from one area to another. Treatment would also maintain and restore high quality forage for use by the bighorn.

A normal predator prey relationship can be re-established between mule deer and mountain lions. The proposed treatment would allow a healthy shrub community to be maintained or re-establish. This would translate into a more fit mule deer herd which can maintain or increase numbers even with predation.

Loss of any habitat due to pinyon-juniper encroachment would negatively impact local populations of mountain quail. Any treatment that would restore and/or maintain sagebrush habitat would benefit individuals and local populations. The proposed spring and meadow enhancement would benefit local populations.



Sage grouse populations would see an increased benefit in the long-term from the proposed project. The project would help retain an area of big sagebrush habitat that is currently being used for winter, nesting and a brood rearing area. Since this bird needs 20-40% big sagebrush cover to support the species, the proposed project would help retain or increase to this cover level. Studies in Idaho, Montana and Wyoming have shown that wintering sage grouse can gain weight during winter when the diet is nearly 100% big sagebrush leaves and short shoots. Big sagebrush plant material and seeds contain high fat, protein and phosphorus levels and is highly digestible (Welch 1999). The project would indirectly benefit sage grouse by maintaining sagebrush habitat that supports high densities of invertebrates, such as ants, needed by young chicks for food. The proposed treatment would improve the quantity and quality of sage grouse food sources, an important benefit to the local birds.

Retaining or enhancing sagebrush would work toward meeting management goals recommended in the North Central Working Group Plan for the Desatoya Sage Grouse Population Management Unit (PMU). Additionally, tree removal may eliminate existing predator perches that can have an effect on chick survival. The proposed treatment would reduce the threat of wildfire that could destroy the entire Desatoya sage grouse complex of summer, winter, nesting and brood rearing habitat.

The proposed spring project would maintain and possibly enlarge a known sage grouse brooding area by allowing water to rise and re-wet the surrounding meadow area (Zeedyk 1997). Mitigation has been proposed to lessen or eliminate short-term impacts by protect nesting and brooding habitat at critical times of the year. Treatment would also decrease sedimentation into Big Den Creek and could keep the lower reaches flowing longer into the year – a benefit for summer sage grouse use. Implementation of the project would have an important benefit for local sage grouse and could have a benefit on the entire Nevada sage grouse population since the Desatoya population is considered to be an important component (North Central 2009).

Impacts associated with the actual treatment process are different than impacts associated with residual habitat. Implementation impacts are short-term but may affect individuals of species whose habitat would be benefited in the long-term. Sage grouse may use lower elevations of the treatment area for nesting. Mastication or hand cutting could disturb individual nesting birds of the species listed. Mitigation has been recommended to reduce short-term impacts to sagebrush nesting birds by treating the lower elevation area outside of the nesting season. Because fuels reduction is the main goal of the treatment, the current year threat of catastrophic wildfire must be weighed against the loss of annual production for a minimal number of birds. If treatment had to be done during nesting season, only that year's production would be lost.

The proposed treatment would help keep sediment levels in check which would benefit fish habitat in the lower reaches of Big Den Creek. Tree removal would also forestall drying of the lower reaches of the creek through woodland evapotranspiration. Fish habitat would be maintained or improved by the proposed action which would help sustain existing fish, but numbers likely wouldn't increase.

No Action Alternative:

*General*

Without treatment, the current trajectory of lost understory communities would continue and expand. This would allow less diversity and fewer numbers of general wildlife species being supported in the long-term. No individuals would be disturbed by the activity in the short-term. Catastrophic wildfire could alter or eliminate general wildlife habitat for the long-term. Local individuals would see a lost opportunity for habitat retention, but populations wouldn't be affected.

### *Game Species*

In every instance, the threat of catastrophic wildfire is maintained under this alternative which could mean long-term or permanent loss of game habitat. Not implementing the proposed treatment would have an important effect on key mule deer range in the general area. The risk of catastrophic wildfire to the summer range in higher elevations and critical winter range along the bench within the project area would remain. Pinyon-juniper encroachment into key winter and fall mule deer browse areas would result in the eventual loss of the shrub understory which would make the area nearly unusable by mule deer. Loss of shrubs as a cover for mule deer could make deer retreat to less favorable areas. Not implementing treatment would be important for local deer and also migratory deer. Losing high quality mule deer forage especially in the summer and fall translates into higher fawn mortality which is important to the populations in the general area.

Pronghorn individuals would eventually not use the treatment area. Not treating would be a loss to a few individuals, but wouldn't affect surrounding herds. Loss of the improvement of Park Spring could affect pronghorn individuals and possibly a surrounding herd because that water source could eventually dry as the woodlands surrounded it.

Not treating to restore and / or maintain big sagebrush would be a lost opportunity to enhance travel corridor habitat for bighorn. Additionally, leaving the trees would allow better cover for predators to take bighorn while travelling between the Desatoya Range and Grayback. Woodlands could become thick enough that the project area wouldn't be used as a travel route by bighorn which, in time, might push these animals to a less favorable area.

Not treating encroaching woodlands would allow the short-term loss of a vigorous, healthy shrub community and the eventual loss of the plant species altogether. This would translate into a less fit mule deer herd that would be less able to withstand normal predation by mountain lions.

Not treating the encroaching woodland would allow an opportunity to enhance habitat to be lost for local mountain quail, but wouldn't have an effect on populations of mountain quail.

By not treating, areas of big sagebrush habitat that are currently being used as a winter, nesting and brood rearing area would be lost in the long-term. This bird needs 20-40% big sagebrush cover to support the species which the proposed project would help retain – an amount that can't be maintained in pinyon-juniper woodland. Valuable forage for adult sage grouse in the form of sagebrush would be weakened in the short-term and lost in the long-term. Ant and other

invertebrates produced in sagebrush communities and used by sage grouse chicks would be reduced in density which would affect chick survival and the local populations.

If treatment isn't implemented, management goals recommended in the North Central Working Group Plan for the Desatoya Sage Grouse PMU would not be addressed. By retaining the woodland and allowing it to advance, predator perches that can have an effect on chick survival would be retained. The risk of catastrophic wildfire that could destroy the entire Desatoya sage grouse complex of summer, winter, nesting and brooding habitat would remain. The proposed spring project may not be done. An opportunity to possibly enlarge a known sage grouse brooding area might be lost or delayed.

The Park Spring meadow enhancement project would be delayed. The lower reaches of Big Den Creek would be subjected to increasing sedimentation as woodland density increased and would suffer increased evapotranspiration which would eventually dry this portion of the creek. Sage grouse brooding and summer use areas would continue to degrade or would cease to exist.

On the other hand, there would be no short-term impacts to sage grouse nesting and brooding habitat at critical times of the year. Not implementing the project would have an adverse affect on local sage grouse and could have an adverse effect on the entire Nevada sage grouse population since the Desatoya population is considered to be an important component (North Central 2009). Not treating the bench would allow sediment levels to increase which would degrade fish habitat in the lower reaches of Big Den Creek. The woodland increase would also allow evapotranspiration of water to continue and increase. Eventually, the lower reaches of Big Den Creek probably wouldn't flow. Fish habitat would be degraded and/or lost if the proposed action weren't implemented. With less habitat available, existing fish populations would be more exposed to disturbance that could greatly reduce numbers or eliminate some species. This wouldn't be important to populations, but a visual and diversity resource would be reduced or lost.

## **CUMULATIVE IMPACTS**

The cumulative impacts of the Proposed Action are based on the direct and indirect effects of the project when considered in combination with the effects of past, present, and planned future actions in the Desatoya Mountains.

Approximately 300 acres of the Desatoya Mountains (435,000 acres) has been treated in the past decade to move vegetative conditions toward a more historic vegetative composition and structure which is more resistant to adverse effects of uncharacteristic wildfire. Present actions include those projects with currently approved environmental analysis. All present actions for the Desatoya Mountains have been completed. Reasonably foreseeable future actions include those projects that are in the planning stage and likely to be completed in the next 10 years. Reasonably foreseeable future actions include up to 1,500 acres of vegetation treatment per year. The Big Den Fuels Reduction/Habitat Restoration project would affect less than 6/10 of 1% of the Desatoya Mountains.

All resource values and issues affected by the proposed Big Den Fuels Reduction/Habitat Restoration project have been evaluated for cumulative impacts. It has been determined that cumulative impacts would be negligible as a result of the proposed action or alternatives because

there are no anticipated negative cumulative effects, but rather beneficial effects when considered with other vegetative treatments in the Desatoya Mountains.

**MONITORING**

The monitoring described in the Proposed Action is sufficient for this action.

**IV. PERSONS, GROUPS, AND AGENCIES CONSULTED**

**LIST OF PREPARERS**

**Bureau of Land Management**

<b>NAME</b>	<b>TITLE</b>	<b>PROJECT EXPERTISE</b>
Keith Barker	Fire Ecologist	Proposed Action
Jim DeLaureal	Soil Scientist	Soils
Jill Devaurs	Range Specialist	Livestock Grazing
Susan McCabe	Archeologist	Cultural Resources
Dave Schroeder	Reclamation Compliance Specialist	Recreation/VRM
Rita Suminski	Wildlife Specialist	Wildlife
Gabe Venegas	Hydrologist	Water Quality
Desna Young	Environmental Coordinator	NEPA
Steep Weiss	Forester	Forestry

**Persons, Groups, and Agencies Consulted**

<b>NAME</b>	<b>AGENCY</b>	<b>PROJECT EXPERTISE</b>
Chairman Alvin Moyle	Fallon Paiute-Shoshone Tribe	Cultural Resources
Jason Salisbury	Nevada Department of Wildlife	Wildlife

**V. APPENDICES OR ATTACHMENTS**

- Appendix A - Soil Water and Air program Best Management Practices
- Appendix B – Migratory Birds
- Appendix C – General Wildlife Habitats
- Appendix D – BLM Sensitive Species
- Appendix E – Effects to Migratory Birds
- Map 1-General Vicinity
- Map 2-Big Den Project Area

## **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 – Migratory Birds

The following is a list of the Migratory Bird Species of Concern that are or could be associated with the project area:

### Game Birds of Conservation Concern

Dove, Mourning	<i>Zenaida macroura</i>
Pigeon, Band-tailed	<i>Columba fasciata</i>

### Bird Species of Conservation Concern

Golden Eagle	<i>Aquila chrysaetos</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Prairie Falcon	<i>Falco mexicanus</i>
Northern Goshawk	<i>Accipiter gentilis</i>
Ferruginous Hawk	<i>Buteo regalis</i>
Swainson's Hawk	<i>Buteo swainsoni</i>
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>
Sage Grouse	<i>Centrocercus urophasianus</i>
Greater Columbia Basin pop.	
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Brewer's Sparrow	<a href="#"><i>Spizella breweri</i></a>
Sage Sparrow	<a href="#"><i>Amphispiza belli</i></a>
Gray Vireo	<i>Vireo vicinior</i>
Black-throated Gray Warbler	<a href="#"><i>Dendroica nigrescens</i></a>

BLM. 2007. IM-2008-050 Migratory Bird Treaty Act – Interim Guidance. Dated December 18, 2007. Unpub. Doc. CCFO files.

Wilson, John. 2009 b. Informal report on migratory birds likely to be associated with the Big Den project area. Unpub. Doc. CCDO – Stillwater Field Office files.



## APPENDIX C – General Wildlife Habitats

Several diverse, general wildlife habitats occur within the project area. These are described.

**Sagebrush** – Within the project area, this habitat type is currently interspersed in the pinyon/juniper woodlands. Some areas are large enough to be a dominant habitat type, but many are totally influenced by the surrounding treed areas. Where stands of sage brush occur, mountain big sagebrush dominates higher elevation, moister sites and Wyoming big sagebrush dominates lower elevation, drier sites. Grasses and forbs such as bluegrass, Indian paintbrush and the half-shrub Eriogonum (buckwheat) should occur in the understory but are sparse in more treed areas. Bitterbrush can be co-dominant with mountain big sagebrush but is generally weak and fading from the system in the project area. Great Basin big sagebrush and low sagebrush can be found as small inclusions associated with specific soil types. Wildlife species such as horned lizards, kangaroo mice and vesper sparrow can be found in this habitat type.

**Woodlands** – The woodland made up of both pinyon and juniper dominate much of the area. With the exception of the drainages where larger trees exist, none of the pinyon appears to be of nut producing age. The junipers may produce berries in favorable moisture years. There are some understory species associated with the woodland, i.e. bitterbrush, big sagebrush varieties, arrowleaf balsamroot and blue bunch wheatgrass. General wildlife species associated with this habitat type include Cassin's finch, pinyon mouse and horned lizards.

**Springs and Springbrooks** - The general project area has only one spring and springbrook present – Park Spring. The drier area around the spring is dominated by big rubber rabbitbrush. The wetter areas have some rushes and sedges. Wildlife species associated with this habitat type include wandering garter snake, shrew sp. and sage grouse.

Wildlife Action Plan Team 2006



## APPENDIX D – BLM Sensitive Species

The following is a list of BLM Sensitive Species that do or could occur on the project site:

Golden Eagle	<i>Aquila chrysaetos</i>
Peregrine Falcon	<i>Falco peregrinus</i>
Prairie Falcon	<i>Falco mexicanus</i>
Greater sage-grouse	<i>Centrocercus urophasianus</i>
Long-eared Owl	<i>Asio otus</i>
Juniper Titmouse	<i>Baeolophus griseus</i>
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>
Mountain quail	<i>Oreortyx pictus</i>
Gray Vireo	<i>Vireo vicinior</i>
Shrike, Loggerhead	<i>Lanius ludovicianus</i>
Vesper Sparrow	<i>Pooecetes gramineus</i>
Desert Bighorn Sheep	<i>Ovis canadensis nelsoni</i>
Pygmy Rabbit	<i>Brachylagus idahoensis</i>
Pallid bat	<i>Antrozous pallidus</i>
Spotted bat	<i>Euderma maculatum</i>
Townsend's Big Eared Bat	<i>Corynorhinus townsendii</i>
Long-eared myotis	<i>Myotis evotis</i>
Small-footed myotis	<i>Myotis ciliolabrum</i>
Long-legged myotis	<i>Myotis volans</i>
Big brown bat	<i>Eptesicus fuscus</i>
Western Pipistrelle Bat	<i>Pipistrellus hesperus</i>
Little Brown Myotis	<i>Myotis lucifugus</i>
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>

## APPENDIX E – Affects to Migratory Birds

There are some individual migratory bird species of concern that would benefit directly or indirectly from the proposed treatment. Some individuals would be adversely affected. The specific beneficial / adverse effect and bird species are shown and described in the trailing text.

Table E-1. Expected impacts to migratory birds from the alternatives associated with the Big Den Fuels Treatment Project, Desatoya Range, Nevada.

Activities	Proposed Action					50% Thinning	No Action
	Hand Treatment (Tree Cutting No Removal) – trees lay where cut	Hand Treatment (Tree Cutting Partial Tree Removal) – personal use or commercial firewood	Mechanical Treatment (Mechanical Tree Shredding)	Mechanical Treatment (Full Tree Removal)	Spring and Meadow Complex Fencing		
<b>Migratory Birds of Special Concern</b>							
Mourning Dove	-	-	-	-	<b>I</b>	-	<b>-A</b> (springhead delayed)
Golden Eagle	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-
Peregrine Falcon	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-	-
Prairie Falcon	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-	-
Northern Goshawk	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-
Greater Sage Grouse	<b>IM*</b>	<b>IM*</b>	<b>IM*</b>	<b>IM*</b>	<b>I</b>	<b>A</b>	<b>A</b>
Ferruginous Hawk	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-	<b>A</b>
Swainson’s Hawk	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-	<b>A</b>
Pinyon Jay	-	-	-	-	-	-	-
Loggerhead Shrike	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-	<b>A</b>
Brewer’s Sparrow	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	<b>A</b>	<b>A</b>
Sage Sparrow	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	<b>A</b>	<b>A</b>
Gray Vireo	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	-	-	<b>I</b>
Black-Throated Gray Warbler	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	-	<b>A</b>

BISON ND, Floyd 2007, North Central 2009, Welch 2005, Wildlife Action Plan Team 2006, Sieg 1991, [www.natureserve.com](http://www.natureserve.com)

**I** = improve or most ideal = treatment would directly or indirectly benefit habitat and individual birds of this species

**A** = affected = treatment would negatively affect habitat for individual birds of this species  
**Dash** = neutral = treatments won't improve or negatively affect species or habitats because the treatment won't change basic life cycle needs related to food, reproductive habitat, shelter habitat, or the species uses both sagebrush and woodland habitat so benefits and effects cancel  
**M** = mitigated = treatment design has been altered to protect species / habitats or specific parts of the habitats  
\* = timing mitigation for sage grouse will provide short-term protection to allow creation of the long-term benefit

Ferruginous hawk, golden eagle, loggerhead shrike, black-throated gray warbler, mourning dove, pinyon jay and prairie falcon all have a facultative association with big sagebrush (Welch 2005). This means that the species use big sagebrush for some of their life cycle functions, from 20-80% by species (Welch 2005). Treatment which would restore or maintain big sagebrush habitat would be beneficial to individuals and localized populations. Loggerhead shrike needs mature sagebrush, a state which can be obtained with the proposed action. Sagebrush loss has been identified as a major threat for sage sparrow ([www.natureserve.com](http://www.natureserve.com)) a situation addressed by the proposed action. Although mourning dove uses sagebrush habitat, these birds are also dependent on pinyon woodlands so benefits to these birds would be less than the others. Mourning dove habitat would be enhanced by the spring protection project, but would result in only a few more individuals using the site.

Ferruginous hawks often use flat-top junipers at the end of stringers as nest sites. Swainson's hawk may use this special feature too. Most of these nest sites are associated with south to southeast exposures. The project area contains some juniper stringers but these are west facing. A field examination of the project area revealed that no ferruginous or Swainson's hawk nest sites were present on the project area.

Northern goshawks located in Nevada nest in aspen stands and hunt in big sagebrush habitat. The project area can support the hunting activity. Since big sagebrush supports the most biomass of mammalian prey species, goshawk would benefit from the treatment. However, it would only benefit local birds, not western populations.

Peregrine falcons would use the project area only for foraging. The proposed project would improve shrub habitat that can produce very dense numbers of prey. It is possible that water sources might be more productive or ones not known might appear. This would benefit peregrine young who catch large flying insects as their first prey. Improved water production would produce more insects. Not doing the project wouldn't be especially harmful since these birds can easily fly long distances for food.

A key management for pinyon jay is preventing catastrophic stand replacing wildfires (BISON ND) which this treatment is intended to do. Although pinyon jay uses sagebrush habitat, these birds are also dependent on pinyon woodlands so benefits to these birds would be less than the others. One source states that Continental populations of pinyon jays is down with declines attributed to loss of mature pinyon and other non-forest activities (Floyd 2007; BISON ND). However, other sources don't list any specific threat to the species ([www.natureserve.com](http://www.natureserve.com)). The pinyon trees being removed are not mature pinyon so are not ideal habitat for pinyon jay at this

point. On a landscape scale, there is sufficient pinyon habitat left in the Desatoya Range and western Nevada to provide mature trees and mature tree recruitment. The proposed treatments on 0.15% of the woodland within the Desatoya Range isn't a significant enough impact to cause further decline in the Continental pinyon jay population.

Sage grouse were discussed as a game species.

Both Brewer's Sparrow and Sage Sparrow are mature sagebrush obligates with requirements similar to sage grouse (Welch 2005). Obligate species are those where the habitat is necessary for the animal to complete its life cycle. Both species place their nests in big sagebrush plants rather than under the sage. These species are also dependent for food on the insect species supported in big sagebrush communities (Welch 2005). A treatment that would restore and/or maintain big sagebrush would benefit individuals of these species and local populations. The no action alternative could result in these species being scarce in the area over time. Neither alternative would affect regional populations.

Gray vireo is a pinyon woodland associated species. The species such as this vireo that uses the woodland occasionally or nearly exclusively would lose habitat under the proposed project. However, the treatment would affect only 0.15% of the woodlands available in the Desatoya Range (BLM 1994) and many of the trees are juniper rather than pinyon. Continental populations of gray vireo are stable (Floyd 2007); loss of this habitat won't have an effect on individuals or the population at large. Not doing the project would retain all of the pinyon, but 0.15% of the total would have little effect on local individuals and none on the population whole.

Impacts associated with the treatment process are different than impacts associated with residual habitat. Implementation impacts are short-term but may affect individuals of species whose habitat would be benefited in the long-term. Gray Vireo and Pinyon Jay would all be expected to nest in the treatment areas. Other migratory bird species of concern either don't have nesting habitat at the present time, or use the units for something other than nesting. Mastication or hand cutting could disturb individual nesting birds of the species listed. Mitigation has been recommended to reduce short-term impacts to sagebrush nesting birds. However, because fuels reduction is the main goal of the treatment, the current year threat of catastrophic wildfire must be weighed against the loss of annual production for a minimal number of birds. If treatment had to be done during nesting season, only that year's production would be lost which would not be important at either a local or regional population level.

## APPENDIX F – Effects to BLM Sensitive Species

There are some individual BLM sensitive species that would benefit directly or indirectly from the proposed treatment. Some individuals would be adversely affected. The specific beneficial / adverse effect and BLM sensitive species are shown and described in the trailing text.

Table F-1. Expected impacts to BLM sensitive species from the alternatives associated with the Big Den Fuels Treatment Project, Desatoya Range, Nevada.

Activities	Proposed Action						No Action
	Hand Treatment (Tree Cutting No Removal 1540 acres) – trees lay where cut	Hand Treatment (Tree Cutting Partial Tree Removal) – personal use or commercial firewood	Hand Treatment (Tree Cutting Mechanical Tree Shredding)	Mechanical Treatment (Full Tree Removal)	Spring and Meadow Complex Fencing	50% Thinning	No Tree Cutting, Removal, Shredding. No spring and meadow fencing
<b>BLM Sensitive Species</b>							
Golden Eagle	I	I	I	I	-	-	A
Peregrine Falcon	I	I	I	I	-	-	A
Prairie Falcon	I	I	I	I	-	-	A
Northern Goshawk	I	I	I	I	I	-	A
Ferruginous Hawk	I	I	I	I	-	-	A
Swainson’s Hawk	I	I	I	I	-	-	A
Greater Sage Grouse	IM*	IM*	IM*	IM*	I	A	A
Pinyon Jay	-	-	-	-	-	-	-
Mountain Quail	I	I	I	I	I	A	A
Gray Vireo	A	A	A	A	-	-	I
Long-eared Owl	-	-	-	-	I	A	-A(spring delay)
Juniper Titmouse	A	A	A	A	-	-	A
Shrike, Loggerhead	I	I	I	I	-	-	A
Vesper Sparrow	I	I	I	I	-	-	I
Desert Bighorn Sheep	I	I	I	I	-	-	I
Pygmy Rabbit	I	I	I	I	-	A	A
Pallid bat	I	I	I	I	I	-	A
Spotted bat	I	I	I	I	-	-	A
Townsend’s Big Eared Bat	I	I	I	I	I	-	A
Long-eared myotis	IM*	IM*	IM*	IM*	I	-	-
Small-footed myotis	AM*	AM*	AM*	AM*	-	A	I

Long-legged myotis		<b>IM*</b>	<b>IM*</b>	<b>IM*</b>	<b>IM*</b>	<b>I</b>	-	-
Little Brown myotis		<b>IM*</b>	<b>IM*</b>	<b>IM*</b>	<b>IM*</b>	<b>I</b>	-	-
Big brown bat		<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	<b>I</b>	-	<b>A</b>
Western Pipistrelle Bat		-	-	-	-	<b>I</b>	-	-
Brazilian free-tailed bat		-	-	-	-	<b>I</b>	-	-

Block and Finch 1997). BISON ND, Floyd 2007, North Central 2009, Welch 2005, Wildlife Action Plan Team 2006, Sieg 1991, [www.natureserve.com](http://www.natureserve.com)

**I** = improve or most ideal = treatment would directly or indirectly benefit habitat and individual birds of this species

**A** = affected = treatment would negatively affect habitat for individual birds of this species

**Dash** = neutral = treatments won't improve or negatively affect species or habitats because the treatment won't change basic life cycle needs related to food, reproductive habitat, shelter habitat, or the species uses both sagebrush and woodland habitat so benefits and effects cancel

**M** = mitigated = treatment design has been altered to protect species / habitats or specific parts of the habitats

\* = timing mitigation for sage grouse will provide short-term protection to allow creation of the long-term benefit and snag retention mitigation will provide protection for bats using this special feature.

Golden eagle, peregrine and prairie falcons, northern goshawk, ferruginous and Swainson's hawk, pinyon jay and loggerhead shrike were discussed in Appendix E.

Sage grouse were discussed in Appendix E.

Pinyon jay and gray vireo were discussed in Appendix E.

Mountain quail was discussed as a game species.

Although long-eared owl uses sagebrush habitat and is a facultative user, these birds are also dependent on woodlands so benefits to these birds would be less than the others. This owl would lose some habitat under the proposed project. However, the treatment would affect only 0.15% of the woodlands available in the Desatoya Range (BLM 1994) and many of the trees are juniper rather than pinyon. Local owls could be slightly affected by range wide populations are secure ([www.natureserve.com](http://www.natureserve.com)); this project would have no effect.

Thinning treatments impact juniper titmouse (Block and Finch 1997). However, only 0.15% of the Desatoya Range would be treated; over 98% of this species' habitat would remain untreated in the Desatoya Range alone. Local individuals could be affected; however, individuals would be expected to move. The proposed project wouldn't affect population levels for this bird which are not a concern ([www.natureserve.com](http://www.natureserve.com)). Not treating might be the most ideal for some individuals, but wouldn't affect populations.

Vesper sparrow has a facultative association with big sagebrush (Medin 1990; Welch 2005). This means that the birds use big sagebrush for some of their life cycle functions, from 20-80% by species (Welch 2005). Loss of any habitat due to pinyon/juniper encroachment would negatively impact this species. Any treatment that would restore and/or maintain sagebrush habitat would benefit individuals and local populations. Not treating would allow an opportunity to enhance habitat to be lost locally, but wouldn't have an effect on populations.

Desert bighorn sheep were discussed as a game species.

Pygmy rabbits are sagebrush obligates (Welch 2005). Big sagebrush in deep, loose soils is used for warren habitat by this species. Additionally, pygmy rabbit has also been seen eating big sagebrush and big sagebrush seeds. The plant material and seeds contain high fat, protein and phosphorus levels and are highly digestible. These particular criteria are ones especially limiting to wintering animals (Welch 1999). Treatment which would restore and/or maintain sagebrush steppe habitat would be beneficial to this species.

Big brown bat, Townsend's big-eared bat, pallid bat, long-legged myotis and long-eared myotis all have a facultative association with big sagebrush. This means that the species use big sagebrush for some of their life cycle functions, from 20-80% by species (Welch 2005). Spotted bat uses sagebrush as a foraging area, but no other life-cycle function.

Both long-legged and long-eared myotis use trees with exfoliating bark as roost sites. Small-footed myotis and big brown bat use snags ([www.natureserve.com](http://www.natureserve.com)). Mitigation has been recommended to retain these trees in the treatment areas where trees are to be left. In the areas where trees are to be totally removed, timing of removal during the day would be recommended to try to minimize impacts. However, some myotis and bats may be displaced. These would be localized, short-term impacts. Treatment which would restore or maintain big sagebrush habitat would be beneficial in the long term to individuals and localized populations of these bats and myotis.

Snag and large dead standing trees have been proposed for retention as mitigation for bats that use this type of habitat. These would be retained only in the 50% thin area because sage grouse habitat improvement would rank higher than for bats. Retaining snags and dead standing trees in the other treatment areas would allow too many predator perches to survive and would negate beneficial effects of the treatments. Impacts to long eared myotis and long-legged myotis would be partially negated by retention of these habitat features under mitigation.

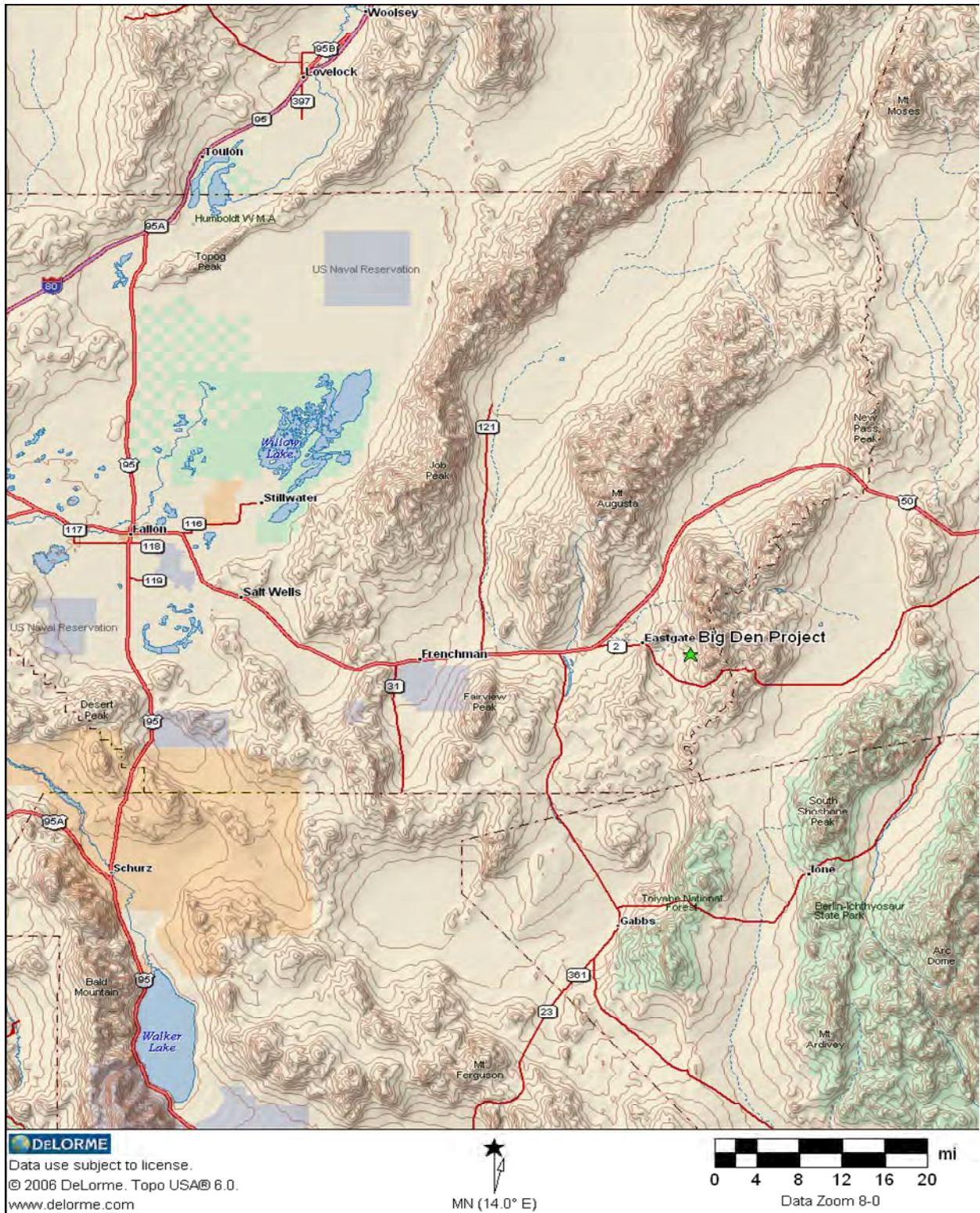
Western pipistrelle uses big sagebrush and would benefit from the project. Little brown myotis and Brazilian free-tailed bat would use both woodland and sagebrush habitat ([www.natureserve.com](http://www.natureserve.com)) so might lose some habitat. The loss could affect local individuals somewhat, but wouldn't be important for the population. All of these bat species use water based insect prey so would benefit from the spring enhancement project.

Impacts associated with the actual treatment process (short-term) are different than impacts associated with the residual habitat (long-term). Implementation impacts are short-term but may affect individuals of species whose habitat would be benefited in the long-term. All of the

species listed may occur within the treatment units at various times of the year. Mastication or hand cutting could disturb individuals of the species listed. Mitigation has been written to treat outside of sage grouse nesting season which would coincide with many other nesters. However, because fuels reduction is the main goal of the treatment, the current year threat of catastrophic wildfire must be weighed against the loss of annual production for a minimal number of species. If treatment had to be done during the spring season, only some of that year's production would be lost and that wouldn't be important to the local populations nor would it cause changes in regional or Continental population trends.

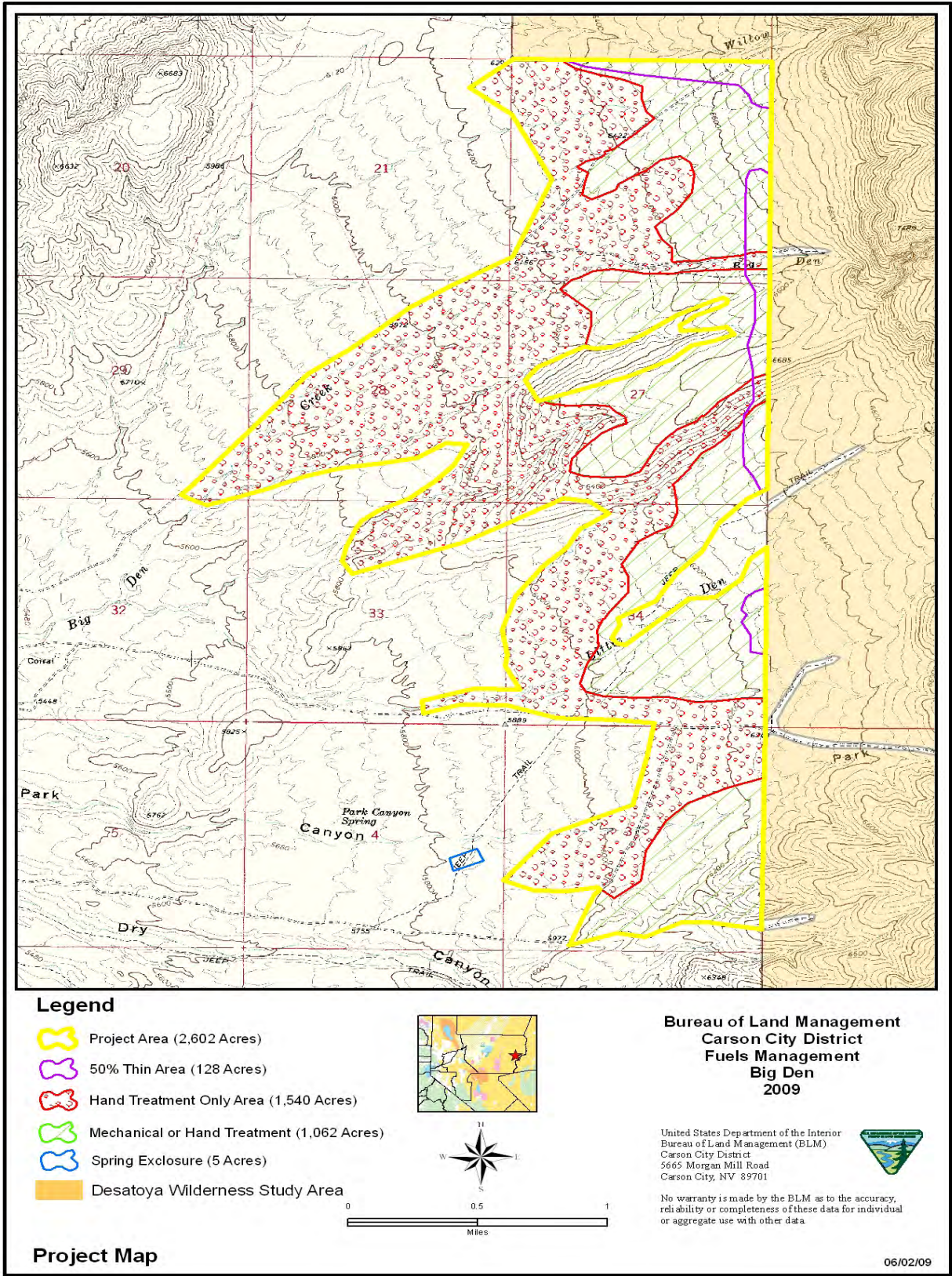


# MAP 1-General Vicinity





# MAP 2-Big Den Project Area



## REFERENCES

- Baker M. and P. Ffolliott 2000. Contributions of watershed management research to ecosystem-based management in the Colorado River Basin. USDA Forest Service Proc. RMRS-13. Pp. 117-119.
- Beidleman, C. (ed) 2000. Partners in Flight Land Bird Conservation Project, Version 1.0 Colorado Partners in Flight, Estes Park, Colorado.
- Bedell, T. et al. 1993. Western Juniper – Its impacts and management in Oregon Rangelands. Oregon St. Univ Ext. Service. EC 1417. 15 pp.
- BISON. ND. BISON database. <http://fwie.fw.vt.edu/www/spp.htm>.
- BLM 1994. Desatoya Mountains Habitat Management Plan. N3-WHA-T017. Unpub. Doc. CCDO-Stillwater Field Office files.
- 1999. Desatoya Mountains Ecosystem Management Plan. Unpub. Doc. CCDO files.
- 2003. Nevada BLM Sensitive Species List. Unpub. Doc. Signed 7-1-03. Reno, NV.
- . 2007. IM-2008-050 Migratory Bird Treaty Act – Interim Guidance. Dated December 18, 2007. Unpub. Doc. CCFO files.
- Block, W. and D. Finch, ed. 1997. Ecology of Southwestern Ponderosa Pine Forests IN Songbird ecology in southwestern ponderosa pine forests: a literature review. USDA, FS, Rocky Mtn. Forest and Range Exp. Sta. Gen. Tech. Rep. RM-GTR-292. Ft. Collins, CO
- Coates, Pete. 2009. Presentation to Nevada Governor's Sage Grouse Task Force Team Meeting. April 30, 2009. Sparks, NV. (research paper online [www.usgs.gov](http://www.usgs.gov))
- DePaoli, R. 2009. Personal communication between Rick DePaoli, CCDO Rangeland Mgt. Spec. and Rita Suminski, Supervisory Wildlife Biol. concerning a sage grouse sighting on Big Den Creek the week of August 17, 2009.
- Floyd et al. 2007. Atlas of the breeding birds of Nevada. Univ of Nev Press. Reno. 581 pp.
- McIvor M. 2005. Important Bird Areas of Nevada. Lahontan Audubon Society. Reno, NV.
- Medin, D. Birds of an upper sagebrush-grass zone habitat in east-central Nevada. USFS. Inter Mtn Res. Sta. Res. Paper INT-433. p. 2.
- North Central. 2009. Greater Sage-Grouse Conservation Plan for the North Central Plan Area of Nevada., 2009. Prepared by: The North Central Local Planning Group In Conjunction with: The Nevada Governor's Conservation Team, Appendix N, Desatoya PMU. <http://www.ndow.org/wild/conservation/sg/plan/index.shtm>



NDOW. 2009a. Misc. key game habitat maps – mule deer. CCDO files. Carson City, NV

----- 2006b. Misc. key game habitat maps - pronghorn. CCDO files. Carson City, NV

----- 2006c. Misc. key game habitat maps - bighorn. CCDO files. Carson City, NV

----- 2009d. Misc. habitat maps – sage grouse. CCDO files. Carson City, NV

Salisbury, J. 2009. Personal communication between NDOW biologist Jason Salisbury and BLM biologist Rita Suminski during a 2009 field visit to Big Den project area.

Seig, C. 1991. Rocky Mountain juniper woodlands: year-round avian habitat. USFS. Res. Paper RM-296. 7 pp.

West, N. et al. 1979. Patterns and rates of pinyon/juniper invasion and degree of suppression of understory vegetation in the Great Basin. Rng. Imp. Notes. Int. Region, USFS.

Wallmo, O. et al. 1981. Mule and black-tailed deer of North America. A Wildlife Mgt. Inst. Book. Olof Wallmo, Ed. Univ of Nebraska, Lincoln. Pp. 273-284.

Welch, B. et al. 1986. “Hobble Creek” - A Superior Selection of Low Elevation mountain big sagebrush. USFS Intermtn Res. Sta. Res. Paper INT-370. p. 2.

Welch, B. 1999. Add three more to the list of big sagebrush eaters. USFS Proc. RMRS-P-11. p. 171-174.

----- 2005. Big sagebrush: A sea fragmented into lakes, ponds, and puddles. GTR. RMRS-GTR- 144. Ft. Collins, CO. 210 pp.

Wildlife Action Plan Team. 2006. Nevada Wildlife Action Plan. Nevada Department of Wildlife, Reno.

Wilson J. 2009a. Personal communication between BLM biologist John Wilson and BLM biologist Rita Suminski during a 2009 field visit to Big Den project area.

----- 2009b. Informal report on migratory birds likely to be associated with the Big Den project area. Unpub. Doc. CCDO – Stillwater Field Office files.

Zeedyk. 1996. Managing roads for wet meadow ecosystem recovery. USFS – SW Reg. FHWA-FLP-96-016. 72 pp.

[www.natureserve.com](http://www.natureserve.com)