

**UNITED STATES DEPARTMENT OF THE INTERIOR  
BLM, BOISE DISTRICT  
EA #ID120-2007-EA-3274 Title Page**

**Upper Castle Creek Juniper Hand Cut**

Applicant (if any):	Proposed Action: Hand cut seral juniper that is encroaching into shrub steppe communities.			EA No. <b>ID-120-2007-EA-3274</b>
State: <b>Idaho</b>	County: <b>Owyhee</b>	District: <b>Boise</b>	Field Office: <b>Bruneau</b>	Authority: <b>NEPA, FLPMA</b>
Prepared By: <b>BFO ID Team</b>	Title: <b>Various</b>			Report Date: <b>August 16, 2007</b>

**LANDS INVOLVED**

Meridian	Township	Range	Sections	Acres
<b>Boise</b>	<b>8S</b>	<b>1W</b>	<b>multiple</b>	<b>33,000</b>

<u>Consideration of Critical Elements</u>	N/A or Not Present	Applicable or Present, No Impact	Discussed in EA
Air Quality			X
Areas of Critical Environmental Concern	X		
Cultural Resources			X
Environmental Justice (E.O. 12898)	X		
Farm Lands (prime or unique)	X		
Floodplains	X		
Migratory Birds			X
Native American Concerns			X
Invasive, Nonnative Species			X
Wastes, Hazardous or Solid	X		
Threatened or Endangered Species	X		
Social and Economic	X		
Water Quality (Drinking/Ground)	X		
Wetlands/Riparian Zones		X	
Wild and Scenic Rivers (Eligible)	X		
Wilderness Study Areas	X		

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# 1 Introduction

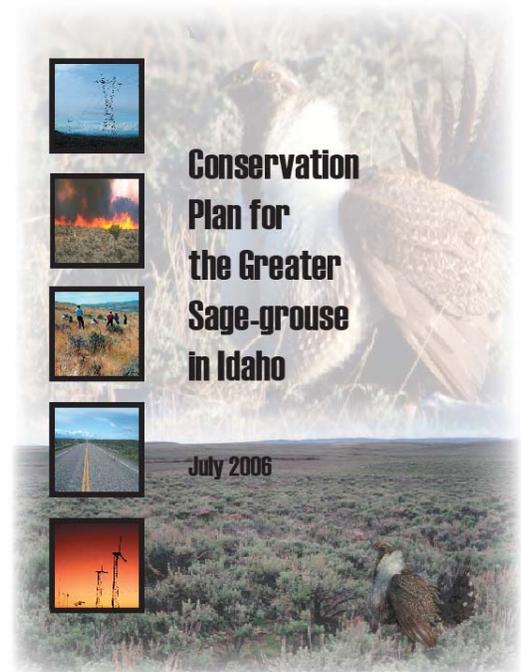
In July, 2006 a Memorandum of Understanding (MOU) implementing the *Conservation Plan for the Greater Sage-grouse in Idaho* (Idaho Sage-grouse Advisory Committee 2006) was signed by directors and administrators from participating State and Federal agencies in Idaho. The plan was developed collaboratively by the Idaho Sage-grouse Advisory Committee, which is a diverse assemblage of agency, agricultural, conservation, and sportsmen interests. The Plan identifies goals and objectives designed to maintain, improve, and increase sage-grouse habitat and populations in Idaho. It also describes 19 threats to sage-grouse in the state, and conservation measures designed to reduce, eliminate, or mitigate those threats.

The greater sage-grouse is an important component of the sage-brush steppe. It is often used as a measure of sagebrush ecosystem health and is a BLM sensitive species. Within the Owyhee Sage-grouse Planning Area, the 2006 Conservation Plan identifies conifer expansion (western juniper) as a major threat to sage-grouse habitat. Western juniper expansion into shrub steppe communities by young seral trees was also previously described in the amended 2004 Owyhee County Local Working Group's Sage-grouse Management Plan as a primary factor influencing loss of sage-grouse habitat in west-central Owyhee County (Owyhee County Sage-grouse Local Work Group 2004). Both plans can be viewed at: [http://fishandgame.idaho.gov/cms/hunt/grouse/conserve\\_plan/](http://fishandgame.idaho.gov/cms/hunt/grouse/conserve_plan/)

Juniper expansion into adjacent shrublands, grasslands, riparian zones, and aspen stands is also acknowledged as an important issue in the Idaho Partners in Flight *Idaho Bird Conservation Plan* (Idaho Partners in Flight, 2000).

The expansion of western juniper throughout the Owyhee Uplands, and many other places within the Great Basin, is well documented (Miller et al. 2005). Prior to Euro-American settlement 140 years ago, juniper was largely restricted to fire safe areas or sites that burned infrequently. The combination of Euro-American settlement, fire suppression, reduction of fine fuels by historic livestock grazing, and elimination of burning by Native Americans has resulted in the absence of fire from most of these areas. As a result, juniper continues to expand beyond its historic range, replacing the native shrub steppe and aspen communities which provide important habitat for a variety of wildlife species.

The sagebrush steppe/mountain mahogany savannas located along the Owyhee Uplands Back Country Byway (from Poison Creek to the Mud Flat Administrative Site) are some of the most scenic areas in the Bruneau Planning Area (Map 1). The mosaic patterns of these communities currently provides a scenic contrast on the landscape and provide cover and structural diversity for many shrub steppe dependent wildlife species. Most of this area remains dominated by shrub steppe and mountain mahogany; however, juniper expansion is evident in most of this area especially as one travels west along the Byway. Most of the juniper within this area is less than 100 years old. Left untreated, this scenic landscape would be dominated by juniper at the expense of the sagebrush/mahogany savanna habitat (Miller et al. 2005).



This area is high priority for treatment because it is the largest area of scattered juniper in the Bruneau Field Office (BFO), it occurs along the edge of the juniper expansion zone, and contains high quality sage steppe and mountain mahogany habitat. The scattered juniper is easily treated with minimal impact at this stage. The BFO cut an adjacent 30,000 acres of similar habitat in 2002-2006, and successfully eliminated most of the juniper with minimal disturbance.

## 1.1 Need for and Purpose of the Proposed Action

The proposed action is needed because:

- Western juniper continues to expand beyond its historic range into the shrub steppe, mountain mahogany savannas, and riparian areas of the Bruneau Field Office. As juniper canopy cover increases, shrub and some perennial herbaceous understory species decline (Idaho Sage-grouse Advisory Committee 2006).
- Conifer/juniper expansion is identified in the 2006 Conservation Plan for the Greater Sage-grouse in Idaho, and the 2004 (as amended) Owyhee County Sage-grouse Management Plan as a threat to sage-grouse habitat in the Owyhee Sage-grouse Planning Area (OSGPA).
- Controlling juniper while it is still fairly dispersed on the landscape would maintain existing shrub –steppe habitats and preclude the need for more costly and intrusive restoration methods years later if juniper is allowed to become more dominant.

The purpose of the proposed action is to maintain existing habitat for sage-grouse and other sagebrush obligate species whose habitats are threatened by juniper expansion, and to maintain the scenic vistas of the mountain mahogany savanna.

## 1.2 Summary of Proposed Action

The proposed action is to cut (fell) with chainsaws, expanding seral juniper on 33,000 acres of designated key and conifer encroachment sage-grouse habitat within the Bruneau Field Office.

Objectives for this project are taken directly from the habitat objectives outlined in the 2006 Conservation Plan for the Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006). The most relevant objectives for this project are as follows:

### ***Overall Habitat Objectives:***

- Maintain, enhance, or restore sage-grouse habitat, and continuity of habitats, at multiple spatial scales.
- Manage Idaho's landscape to foster a dynamic sagebrush ecosystem that includes a diverse species composition of sagebrush, grasses, and forbs; and incorporates structural characteristics that promote rangeland health in general, and sage-grouse habitat requirements in particular.

### ***Mid-scale habitat sub-objectives:***

- Manage sagebrush so that it is well distributed on the landscape, as ecological site conditions allow. Emphasis should be placed on maintaining or restoring large contiguous core areas or blocks of sagebrush that have the necessary species and age diversity of sagebrush and herbaceous components to produce sustainable sage-grouse habitat. The primary long-term objective is to ensure adequate areas within each SGPA suitable for meeting all seasonal habitat needs of sage-grouse and the sage-grouse population and distribution goals of this Plan.

#### *Fine-scale sub-objectives*

- Projects will contribute to the maintenance, restoration, or rehabilitation of sage-grouse habitats.

### **1.3 Conformance with Applicable Land Use Plan**

The proposed action is in conformance with the 1983 Bruneau Management Framework Plan (MFP), which is the current land use plan for the Bruneau Planning Area. Relevant objectives include:

- WL-4.4: Manage 520,000 acres of sage-grouse range in the BPU to improve nesting, brood rearing, and winter habitats.
- VRM-1: Manage all public lands to protect visual qualities, provide for enhancement consistent with management policies, and rehabilitate lands which presently do not meet the visual quality standards of surrounding lands.
- VRM-1.6: Designate a ½-mile corridor (south of CMU line) on each side of.... Mud Flat Road as a travel influence zone, where activities will preserve or enhance the scenic quality.
- FP-1: Utilize trees that must be cleared for other purposes.

### **1.4 Relationship to Statutes, Regulations, and Other Requirements**

The control of encroaching juniper through active management is consistent with statewide goals in the 2005 Intermountain West Joint Venture's *Coordinated Implementation Plan for Bird Conservation in Idaho* (Sallabanks et al.2005). In this plan, statewide goals include:

- Sagebrush/salt desert shrub habitats (page 17): “Protect, maintain, enhance and/or restore a dynamic shrubsteppe ecosystem that includes no net loss of sagebrush/salt-desert shrub habitat. Fragmented and degraded habitat should be restored to a more healthy condition with a distribution matching historical pattern; restored areas should be linked to those currently existing wherever possible.”
- Juniper/pinyon pine/mountain mahogany habitats (page 23): “Protect, maintain, enhance and/or restore historical juniper woodland habitat, limit further expansion into adjacent grasslands, shrublands, aspen, and riparian areas, and restore encroached habitats by removing juniper woodlands through active management.”

Project objectives are consistent with the intent in the Owyhee Local Working Group Plan's recommendations to “treat and eradicate juniper on a minimum of 500 acres of state land and 12,000 acres of federal land annually to enhance sage-grouse habitat by restoring healthy sagebrush-grassland communities.”

Project objectives are also consistent with findings of the Interior Columbia Basin Ecosystem Management Project which found that the exclusion of fire is resulting in unmanaged conifer expansion throughout much of the Intermountain West and the Columbia Basin. Specifically: (1) Juniper is increasing on dry grasslands and cool shrublands, reducing herbaceous understory and biodiversity, (2) Ladder and ground fuels have increased, resulting in high severity fires, and (3) Aspen has decreased in distribution.

These findings prompted the BLM Idaho State Director BLM to issue Instructional Memorandum (IM) No. ID-2002-031 in 2002 which prioritizes fuels treatments on Idaho BLM public lands. Priorities include: (1) sagebrush steppe protection, (2) sagebrush steppe restoration, (3) aspen protection, and (4) aspen restoration as the top fuels management priorities in the state, because of their importance and risk of future losses. According to the IM:

- Sagebrush Steppe Protection consists of: treating the initial stages of juniper encroachment, thinning “decadent” sagebrush stands, and minimizing invasive species encroachment or expansion.
- Sagebrush Steppe Restoration consists of: converting juniper woodlands back to sagebrush steppe and increasing diversity in crested wheatgrass seeding monocultures.
- Aspen Protection consists of: protecting and maintaining healthy stands and treating stands with initial stages of Douglas fir or juniper encroachment.
- Aspen Restoration consists of: restoring declining aspen stands.

## 1.5 Scoping and Development of Issues

On December 13, 2006 a scoping letter was sent to all interested publics of record which presented a purpose and need for the proposed action, project objectives, a proposed action, and potential issues associated with the proposed action. BLM received two comment letters. Relevant comments were dealt with in a number of ways. They were either: 1) incorporated into the *Project Design and Standard Operating Procedures*; 2) used as *Other Alternatives Considered*; 3) used as issues to be addressed in the effects analysis; or 4) were considered concerns which BLM responded to. The various comments and BLM responses are found at the end of this document.

## 2 Proposed Action and Alternatives

### 2.1 Proposed Action

Treatment Objectives of the Proposed Action: Maintain the long-term health of the mountain mahogany, mountain big sagebrush, bitterbrush, and aspen communities by removing at least 90% percent of the seral juniper within the 33,000 acre project area through hand cutting treatments over the next 6 years. The project area is located approximately 35 miles south of Grandview, Idaho in Owyhee County (Map 2).

Cutting would first focus on areas with the greatest potential for nesting habitat which is usually located near leks (breeding grounds). The project area contains no active leks. However, the SW corner of the project area has one active lek within one mile of the project boundary, seven historic leks within two miles of the project boundary, and one historic lek within the project area. The SE boundary is within one mile of a small active lek and 4 miles of a large lek. Specific cutting procedures are outlined in Section 2.1.1.

Because juniper is fairly dispersed (<5% cover) in 93% of the area, the amount of slash produced would be minimal. In these areas, trees would be cut (felled) and the larger trees in more visible areas would have their branches lopped and scattered.

In the approximately 7% of the project area where juniper exceeds 5% cover, pile burning would be necessary to remove juniper debris after cutting. In higher density juniper stands, Bates and Svejcar (2006) found that leaving juniper slash adversely impacted the underlying vegetation if allowed to remain on site. Therefore, within these denser areas, the downed trees may be individually burned or the branches lopped, piled, and then pile-burned in spring, late fall, or winter when the ground is frozen or moist, minimizing heat impacts to the soil. The actual foot print of the pile burns is expected to be less than 0.1% of the project area.

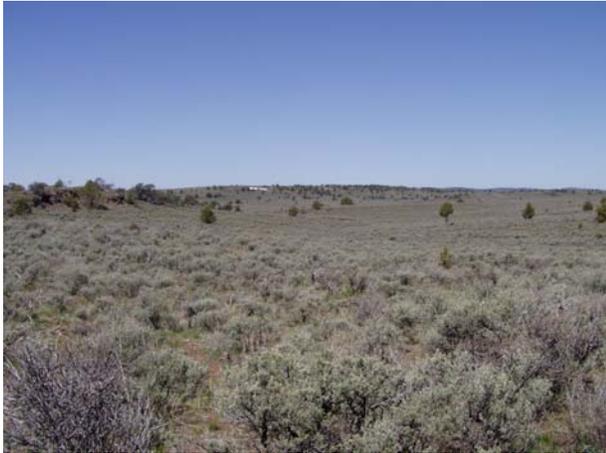


Figure 1. Scattered juniper becoming established in mountain big sagebrush swales which provide important sage-grouse nesting and brood rearing habitat.



Figure 2. Seral juniper along Poison Creek, with highlighted juniper exhibiting older growth characteristics.



Figure 3. Mountain mahogany savanna along Mud Flat Road



Figure 4. Juniper encroaching into mountain mahogany community.



Figure 5. Denser seral juniper stand in which pile burning would be needed.

The juniper would be made available to the public when feasible near established roads and trails, excluding a ½ mile-wide corridor along the Mud Flat Road.

Extra precautions outlined in the Project Design Features (Section 2.1.1) would be taken to minimize visual impacts adjacent to the Owyhee Back Country Byway.

Figures 1-5 portray the proposed treatment area and are representative of juniper size and density that would be treated under the proposed action.

### **2.1.1 Project Design and Standard Operating Procedures (SOP)**

The following design features and standard operating procedures would be incorporated into the project.

**Prioritization:** Cutting would first focus on the SW corner because it has the greatest potential for nesting habitat because it is nearest the most historic leks.

#### Vehicle Use

- Rubber tire ATVs may travel off-road to access the trees. However, ATV use may be restricted where needed to protect sensitive plant populations and cultural resources. ATVs would not access the cutting areas directly from Mud Flat Road. Instead minor roads would be used to access these off-road treatment areas.
- Pickups and larger vehicles associated with cutting treatments and wood gathering activities as well as support vehicles would be restricted to established roads and trails.
- Undercarriages of ATVs will be cleaned before entering the treatment areas.

#### Hand Cutting Treatments

- The following types of juniper would not be cut: 1) older trees >130 years old, 2) trees on shallow sites dominated by exposed bedrock and/or large pieces of rock rubble, 3) trees with large (i.e., ferruginous, red-tailed) hawk nests, 4) trees with artificial bird nest boxes, 5) culturally significant trees, and 6) larger trees which contribute to the visual resource values along the Owyhee Back Country Byway. Leave trees would be marked by BLM.
- Trees would be cut as level and flush with the surface as possible.
- No live branches would remain on the stump of the juniper tree after the tree is cut.
- Where trees are lopped and scattered, branches would be piled at the base of cut trees and bare areas to avoid smothering existing vegetation.
- Pile burning would be in accordance with the Idaho-Montana Airshed Group guidelines.
- Piles of juniper for burning would be located outside of the Byway viewshed.
- Cutting crew camps would be pre-approved by the authorized officer.
- No wood gathering activities would occur within 100 yards of the Mud Flat Road.
- If any active leks are discovered within or near the project area, juniper cutting activities would not occur within ½ mile of active sage-grouse leks before 10AM, from March 1 - May 31.
- Juniper cutting activities would not occur within individually developed buffers around ferruginous hawk nests while they are occupied.

### **2.1.2 Inventory and Monitoring**

The proposed action includes the following inventories and monitoring efforts.

- Pretreatment inventories in the treatment areas would include: raptor nest surveys and cultural inventories. Class III intensive level cultural inventories will be conducted as determined by BLM in consultation with affected Tribes and the Idaho State Historic Preservation Office.

- Noxious weed control efforts are currently ongoing in this area. Known noxious weed populations have been recorded, treated, monitored, and retreated as long as they persist. Additional noxious weeds may exist which have not been detected. Therefore, noxious weeds inventories would be conducted prior to treatment within the proposed treatment areas. The effectiveness of weed control would be monitored using site-specific and landscape level monitoring.
- Site-specific weed monitoring would involve assessing the effectiveness of the treatment or control method on specific weed species relative to application rate, method, and treatment area. Monitoring methods may be qualitative or quantitative and would be commensurate with the level of treatment complexity and size and extent of the infestation. The methods used to monitor treated areas may include field observations, photo plots, and/or density plot methods. Management actions may be refined or changed over time as this monitoring data is analyzed.
- Landscape level weed monitoring would be accomplished over the long term by tracking weed occurrences through Geographic Information System (GIS) mapping. Weed sites would be inventoried and mapped on-the-ground to monitor their extent and rate of spread.

## 2.2 Alternative B – No Action

No juniper treatments would occur in the project area.

## 2.3 Alternatives Considered but not Analyzed in Detail

Other alternatives were considered by BLM staff or were suggested by the public through scoping. These alternatives were considered but not analyzed in detail, because they did not address the purpose and need for action, were ineffective at addressing the purpose and need for action, or were cost prohibitive. They include:

- **Mechanized treatment for juniper control.** Chaining, mastication, and other mechanized treatments can be highly successful in reducing juniper competition and encouraging increased productivity of shrub and herbaceous species. However, these methods are generally not as cost effective as hand cutting in areas with dispersed juniper. Additionally, greater short term disturbances would result from the use of heavy equipment (Miller et al. 2005). Therefore, this alternative was dismissed because hand cutting is more cost effective throughout 93% of the area that contains sparse juniper of less than 5% canopy cover.
- **Prescribed Fire.** Prescribed fire is most effective in eliminating juniper where there are high concentrations of young encroaching juniper and where the shrubs and understory vegetation still exists. Although the proposed project area is adapted to periodic fire, the use of prescribed fire was dismissed because it would negatively impact much of the old growth mountain mahogany which provides scenic values, and important wildlife habitat. Prescribed fire would also have a short term negative effect of removing the sagebrush cover needed by sagebrush obligate species for the next 20 years. Therefore prescribed fire would not meet the purpose and need for the project of maintaining existing habitat for sagebrush obligate species, and to maintain the scenic mountain mahogany savannas.
- **Leaving significant numbers of seral juniper trees for bluebirds and other juniper associated species.** The main objective of the project is to maintain and enhance sagebrush steppe which is undergoing juniper expansion, as identified in the state and county plans (Idaho Sage-grouse Advisory Committee 2006, Owyhee County Sage-grouse Local Work Group 2004). Retaining seral junipers beyond those already designated (trees with raptor nests, artificial bird nest boxes, and trees which contribute to the Visual Resource Values along Mud Flat Road)

would not meet the purpose and need of the project—to maintain the shrub-steppe communities by removing at least 90% of the seral juniper from this area. Also, the encroaching juniper are not old enough to have developed cavities necessary for bluebird nesting. Without the aid of the artificial nest boxes few bluebirds would nest in this area.

- **Not pile burning the juniper debris.** During scoping the need for pile burning was questioned and some concern was expressed that individual tree and pile burning would heat the soil and impact the perennial grass understory. Recent studies by Bates and Svejcar (2006) found that in dense juniper areas unburned debris tended to smother perennial forbs and most perennial grasses, and reduced their establishment because of reduced light levels. They also found that perennial grass density and cover increased faster under burned debris than unburned debris. Leaving unburned piles would therefore negatively affect the perennial grass understory in the limited areas where juniper piling is necessary. Unburned piles would impact the scenic view shed along the Owyhee Back Country Byway. Additionally, leaving the piled juniper debris on site can present a fuel load problem for several years following treatment (Miller et al. 2005). Therefore, this alternative was dismissed.

### **3 Affected Environment and Environmental Consequences**

This chapter describes the affected environment (resources that are affected by the alternatives), and the environmental consequences which describe the anticipated effects on the resources if the alternatives are implemented. The general effects of each alternative on resource categories are addressed. Direct effects are caused by an action and occur at the same time and place. Indirect effects are caused by an action and occur later in time or farther removed in distance. Cumulative effects (CE) are defined as the effect on the environment which results from the incremental effect of an action when added to other past, present, and reasonable foreseeable future actions regardless of what agency or person undertakes such other actions.

The proposed treatment area occupies approximately 33,000 acres which are identified in the Conservation Plan for the Greater Sage-grouse in Idaho as Key sage-grouse habitat and Conifer Encroachment areas. This area is located along the eastern edge of the western juniper expansion zone and bisects a portion of the Owyhee Back Country Byway (from Upper Poison Creek to approximately 3 miles east of the Mud Flat Administrative Site) (Map 1).

#### **3.1 Vegetation, Invasive Species, Special Status Plants**

##### **3.1.1 Affected Environment—Vegetation, Invasive Species, Special Status Plants**

Vegetation: Elevations range from approximately 5,000 to 6,300 feet. Annual precipitation is approximately 16 inches with the majority of accumulation in late winter and spring. Sagebrush steppe and mountain mahogany savanna communities dominate the area. In this document they will be referred collectively as shrub steppe communities. The dominant understory species consist of Idaho fescue and bluebunch wheatgrass. Riparian communities are located along Poison Creek, portions of South Fork Castle Creek, Rock Creek, and Pole Creek, and a few scattered aspen stands also occur. Juniper is

generally scattered in the riparian areas along these streams in the project area. Several spring wetlands and aspen stands contain significant amounts of early seral juniper in and immediately adjacent to these habitats.

Prior to European settlement, various disturbances, mainly wildfires and burning by Native Americans maintained the shrub steppe, aspen, and riparian communities by restricting juniper distribution to fire resistant ridges and other areas with minimal fuels (Shin 1980). The productive mountain big sagebrush/Idaho fescue communities had a mean fire interval of approximately 10 to 25 years and large fires every 38 years (Miller et al. 2005). Although fire has a direct short term effect of killing sagebrush, its long-term indirect effect is of maintaining the shrub steppe landscape by reducing juniper expansion.

Most of the plant communities are undergoing the Phase 1 stage of juniper expansion (Miller et al. 2005) in which juniper trees are present, but shrubs and herbs are still the dominant vegetation that influence the ecological processes on the site. For the most part, the composition of understory vegetation has not yet been affected by the low cover of juniper. Through most (approximately 93%) of the project area the juniper is fairly dispersed and does not generally occur in dense stands.

Some scattered older trees (which would not be cut) occur on approximately 1,000 acres along the western edge of the proposed project area near Rock Creek. Few old growth juniper occur throughout the remainder of proposed project area. Most of the seral juniper trees are less than 100 years old and are easily distinguished from the old, non-target trees mainly by (among other characteristics) their conical shape as opposed to the flat top indicative of the older trees.

Annual Weeds: Cheatgrass currently occurs in small patches around water troughs, salt licks, livestock loafing areas under some juniper and mahogany trees, and other limited disturbed sites, but has shown not to be very competitive on these intact high elevation shrub steppe communities.

Noxious Weeds: Since 2000, 18 locations of white-top, two occurrences of Russian knapweed and one occurrence of Scotch thistle have been found on the proposed project area. These infestations are monitored and treated annually. Multiple, annual applications at a site are uncommon and not likely to occur; however chemical control of some noxious weeds such as Russian knapweed may require repeat treatment for years to be effective in controlling existing infestations. It is anticipated that treatment of the same noxious weed areas year after year will be the norm due to the difficulty in eradicating them.

Special Status Plants: Mud Flat milkvetch (*Astragalus yoder-williamsii*), a Type 3 BLM Sensitive Plant Species, occurs in the project area. There are no other known occurrences of BLM Sensitive Plant Species in the area. BLM Type 3 species are species that are globally rare, with moderate risk of endangerment. This species is a former federal candidate for listing as threatened or endangered and is of particular concern due to its limited distribution. This plant is restricted to uplands in the upper forks of the Owyhee River in Idaho and one disjunct location in Nevada. In Idaho, Mud Flat milkvetch occurs on flat to very gentle slopes predominately in swale positions on fine loamy soils in mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and low sagebrush (*Artemisia arbuscula*) communities. A few populations have also been located in sagebrush communities near western juniper (*Juniperus occidentalis*) woodlands, and in some cases junipers are encroaching into those sagebrush communities.

Mud Flat milkvetch is a diminutive perennial, usually less than 3 inches in height. It begins flowering as early as May and has mature fruits in mid-July. Mud Flat milkvetch can be locally abundant, but is not a

dominant species due to its scattered distribution and low percent cover. Within the project area the occurrence of this species varies from small, dense clusters to more widely scattered plants.

Mud Flat milkvetch seems tolerant of some disturbance as portions of some populations occur in areas disturbed by heavy grazing, along road tracks, in recently burned areas and in association with ant hills (Mancuso and Moseley 1993). However, like other *Astragalus* species, this plant appears to be a poor competitor and does not seem to tolerate direct competition with other herbs or shade from large shrubs or trees, occurring mostly within openings in the vegetation, sparsely covered microsites, or areas devoid of other vegetation (Mancuso and Moseley 1993).

### **3.1.2 No Action Environmental Consequences—Vegetation, Invasive Species, Special Status Plants**

Vegetation: No direct effects would result from not removing juniper. Over the long-term, continued juniper expansion would result in the eventual loss of the shrub steppe, mahogany, riparian, and aspen communities and conversion of these plant communities into juniper woodlands.

Annual Weeds: Over the long term the increased juniper density and subsequent loss of understory species would result in accelerated soil erosion and possible increase in invasive species.

Noxious Weeds: Over the long term the increased juniper density and subsequent loss of understory species would result in accelerated soil erosion and possible increase in invasive species.

Special Status Plants: Based on evidence suggesting that this species may be a poor competitor and somewhat shade intolerant, it is possible that, over the long term, Mud Flat milkvetch populations could decline if the relatively open structure of its sagebrush habitat were altered by an increase in juniper cover.

### **3.1.3 Proposed Action Environmental Consequences—Vegetation, Invasive Species, Special Status Plants**

Vegetation: The proposed cutting treatments would have a short and long term direct effect of eliminating most juniper from the proposed project area landscape.

The primary long term indirect effect of the proposed action would be maintenance of the existing shrub-steppe, mahogany, aspen, and riparian communities. Since most of the area consists of intact shrub-steppe communities which are not yet being impacted by the expanding juniper, significant increases in perennial grass cover would not be expected. However, in approximately 7% of the area where juniper cover is greater than 5%, increases in perennial grass and shrub cover may be expected. Bates et al. (2006) found that cutting treatments on a site dominated with 100 juniper trees per acre resulted in five fold increases in perennial grass density six years after cutting (from 2 plants per square yard in 1991 to 10-12 plants in 1997).

The actual foot-print from the pile and individual tree burning is expected to occur on less than 0.1% of the project area. A short-term loss of vegetative cover could result from the burn treatments within that 0.1% area. Bates and Svejcar (2006) found that perennial grass density and cover increased faster under burned debris than unburned debris, particularly Thurber's needlegrass and bluebunch wheatgrass. It appeared that reduced light levels inhibited germination and/or establishment of some plants. Unburned

debris tended to smother perennial forbs and grasses (except squirreltail) and reduce their establishment. Based on these findings, no long-term direct loss and a slight long-term indirect increase in perennial grass cover and density would be expected especially in the areas where denser juniper would be cut.

Annual Weeds: Disturbed sites containing cheatgrass may experience a short term increase in cheatgrass following cutting. This indirect effect could result from the increased light and water made available from eliminating the competing trees. Research by Bates et al. (2006) on a dryer warmer site dominated by dense juniper and having depleted understories (which are much more susceptible to cheatgrass invasion) reported a flush of cheatgrass underneath former tree canopies and debris piles for 5 years, followed by a dramatic decrease with corresponding increases in perennial grass biomass and cover. The proposed project area with its intact shrub/steppe communities and its cooler, moister climate should not experience the cheatgrass flush that Bates reported. BLM staff observations on similar treatments in the nearby Battle Creek Allotment found no detectible increases in cheatgrass establishment outside previously disturbed sites.

Noxious Weeds: Off road ATV travel by cutting crews may have a slight temporary indirect effect of increased risk of noxious weed establishment. However, because the proposed action: 1) does not consist of ground disturbing activities, 2) requires the undercarriage of ATVs to be cleaned before entering the treatment area, and 3) restricts full sized vehicles to existing roads and trails, the likelihood of increased noxious weed establishment is expected to be low and would not increase the risk of noxious weed establishment over other current human activities taking place in the area. The pre and post treatment inventories to locate and treat any newly discovered weeds would help reduce the risk of noxious weed establishment and may result in the discovery and control weeds which have not yet been detected in this area.

The amount of wood gathering throughout the project area is expected to be minimal since the juniper is sparsely distributed throughout most of the proposed project area, consists primarily of smaller branchy trees which are not particularly desirable for fire wood or poles, and is located many miles from any urban area. Restricting wood gathering vehicles to established roads and trails would prevent crushing damage to plants and reduce the likelihood of noxious weed establishment.

Special Status Plants: The proposed action is predicted to benefit Mud Flat milkvetch. Removing juniper from sagebrush habitats it is invading probably enhances the site for Mud Flat milkvetch since this species appears to prefer open habitats. In contrast, associated activities such as vehicle damage and piling and burning of downed trees could destroy plants. Direct impacts to populations would be avoided during implementation as a mitigating measure to further protect this species.

## **3.2 Air Quality**

### **3.2.1 Affected Environment—Air Quality**

Limited data is available on the air quality of the project area due to the fact that no air quality stations are operating in this portion of Idaho. Some data gathered at a field study station near Silver City (1994, CH2MHill) indicate that levels for PM10 and TSP are well below current Federal and State standards. Average particulate concentrations measured were 28.4 ug/m<sup>3</sup> for Total Suspended Particulates and 20.1 ug/m<sup>3</sup> for PM10. No PM2.5 sampling was done at this time. The PM10 concentration is well below the

Federal and State 24-hour standard of 150 ug/m<sup>3</sup> and indicates the area has low levels of TSP and PM<sub>10</sub>. Other parameters, though not monitored, are believed to be below any standards due to no available source of emissions. National Ambient Air Quality Standards (NAAQS) are expected to be met under the existing conditions in the area.

The Clean Air Act establishes a national goal of preventing any further degradation or impairment of visibility within federally designated areas. Attainment areas are classified as Class I, II, or III and are subject to the Prevention of Significant Deterioration (PSD) program. The project area is a designated Class II area. The Jarbidge Wilderness area located approximately 100 miles southeast of the project area is the closest PSD Class I designated area.

### **3.2.2 No Action Environmental Consequences—Air Quality**

No effects.

### **3.2.3 Proposed Action Environmental Consequences—Air Quality**

The only direct impact to air quality by this action is the production of smoke related to the slash pile burning. Burning will proceed during stable and unstable atmospheric conditions with expected smoke suspension to be short lived and scattered over small areas. The communities of Murphy and Silver City would not be directly or indirectly impacted by the smoke from this burning. The Jarbidge Wilderness Area, a Class I air shed, would not be affected by this action. Smoke will be noticeable for 1-2 days following the burn (mainly due to smoldering of the slash pile materials). Due to the small volume of fuels expected to be consumed, particulate emissions are projected to be well under the NAAQS, and no violations are anticipated.

## **3.3 Soils/Watershed**

### **3.3.1 Affected Environment—Soils/Watershed**

Soils in the area formed in residuum and colluvium derived dominantly from welded rhyolitic tuff (with the exception of the soils in the northern portion of the project area which formed in granitic material). These soils occur on foothills and structural benches. They are generally shallow to moderately deep, cool, and well drained. Surface textures are mostly gravelly loams with subsoils ranging from gravelly loam to gravelly clay loams. The hazard of erosion by water for these soils is slight to moderate. The dominant soil series in the area are the Hat and Cleavage like soils with the Kanlee and Poisoncreek soils associated with the granitic areas. Soils information was gathered from the Soil Survey of Owyhee County Area Soil, Idaho (NRCS 2003). Detailed soil information can be found at <http://soils.usda.gov/survey> and follow prompts to the above online soil survey.

### **3.3.2 No Action Environmental Consequences—Soils/Watershed**

No direct effects would result. The long term indirect effect of continued juniper expansion, would result in the transition to a juniper woodland type system, where interspatial plant communities are reduced or absent. Over the long term the increased juniper density and subsequent loss of understory species would result in accelerated soil erosion, loss of site productivity, decreased watershed function, and reduced nutrient and energy cycling.

### 3.3.3 Proposed Action Environmental Consequences—Soils/Watershed

Overall, the removal of encroaching juniper would be very beneficial to the soils and watershed components of these lands. Preventing the long-term decline in ecological condition that accompanies juniper encroachment would result in better watershed function (hydrologic, nutrient, and energy cycles). Healthy shrub and bunchgrass communities would stabilize soils, improve infiltration and storage, prevent excessive runoff, and maintain soil productivity.

Direct and indirect impacts from the actual cutting operations would be minimal. Some physical soil disturbance would occur from vehicle use, dragging cut materials, and foot traffic but these would only affect small localized areas (totaling less than 3 percent of the area) and natural recovery would occur within two years of the disturbance.

Direct impacts from slash pile burning, intense surface heating causing soil sterilization, would be minimal because slash piles in the Project Area are small and scattered, and piles would be burned when soils are moist. Total surface area affected would be less than 0.1 percent. There are adequate seed sources of native perennial plant species to allow rapid colonization of any localized areas that could become impacted.

## 3.4 Wildlife, Special Status Animals, Migratory Birds

### 3.4.1 Affected Environment— Wildlife, Special Status Animals, Migratory Birds

Special Status Animals are in **bold type** in the discussion below and the ones discussed are those special status species that would be most affected by the project. There are no federally endangered or threatened species in the project area; but one federal candidate species, the **Columbia spotted frog**, is found in ponds and low gradient streams with slow flowing water.

Overall, the area provides habitat for sage-steppe birds including **sage-grouse**, **Brewer's sparrow**, and **sage thrasher**, as well as species associated with the mahogany stands –some with juniper mixed in - such as dusky flycatcher, black-headed grosbeak, green-tailed towhee, mourning dove, and chipping sparrow, and during fall migration, yellow-rumped warblers. The project area occurs within “conifer encroachment” and adjacent “key” habitat areas delineated on the Idaho Sage-grouse Habitat Planning Map. Encroachment of western juniper into sage-steppe communities in this area during the past century or more has reduced habitat quality for sagebrush obligates in some areas or poses a risk to habitat quality, especially for sage-grouse. Encroachment of juniper into mahogany stands has also occurred. Less common species include bushtits, gray flycatcher, and blue-grey gnatcatcher. Raptors include red-tailed hawks, kestrels, and golden eagles. **Ferruginous hawks** have rarely been seen there. During migration, sharp-shinned hawks, Cooper's hawks, and **goshawks** move through.

Sage-grouse use the project area mostly as summer habitat (ID Fish and Game Department unpublished telemetry data). It is also likely used as nesting habitat. Sage-grouse generally nest within one to two miles of a lek. The most recent lek survey was an aerial survey conducted in 2004 and 2005. No active leks were found within the project area. Two active leks occur within 1 mile and eight active leks within 10 miles of the project boundary. Approximately 20 historic leks occur within 10 miles of the project boundary.

Junipers support species not common elsewhere in the Bruneau Field Office (BFO); however, species found in juniper (American robin, ruby-crowned kinglet, Townsend's solitaire, northern flicker, mountain bluebird, Cassin's finch, dusky flycatcher, and yellow-rumped warblers) are generalists that can be found in a variety of other habitats. Townsend's solitaire and robins eat juniper berries extensively in the winter.

Antelope use the open sagebrush areas. Mountain mahogany and bitterbrush provide browse for mule deer and elk, and these animals use the mahogany clumps for hiding and thermal cover. Common small mammals include white-tailed jackrabbits, mountain cottontail, ground squirrels, chipmunks, and pocket gophers. **Pygmy rabbits** are common and burrow in the deeper soils under larger, denser sagebrush, which is found in a mosaic with low sage and mountain mahogany. Common mammalian predators include coyote and badgers.

### **3.4.2 No Action Environmental Consequences—Wildlife, Special Status Animals, Migratory Birds**

If no efforts were made to slow or stop the encroaching juniper in the project area, eventually sagebrush-dependent species would disappear as the encroaching junipers thickened to a closed-canopy juniper woodland. **Brewer's sparrows** (Sauder 2002), sage thrashers (Miller 2005), **pygmy rabbits, sage-grouse**, and antelope are all species that would disappear. Most of the other wildlife species listed above would be reduced in populations, if not completely gone, from a closed juniper woodland, including most songbirds, mule deer, (Miller et al 2005), and **spotted frogs**.

Juniper is valuable for some wildlife, but there are no juniper-obligate species. Junipers provide berries that are favored by mountain bluebirds, Townsend's solitaires, cedar waxwings, and American robins. Tree nesters such as grey flycatchers, Cassin's finches, chipping sparrows, dark-eyed juncos, mountain chickadees, northern flickers, and house wrens all increase in the early stages of juniper encroachment, but did not continue to increase as the juniper cover increased (Noson 2002, Miller 2005). Additionally, junipers can provide winter thermal cover for deer (Miller 2005). Old growth juniper, in particular, is valuable for some birds, especially hole nesters. However, old growth would not be cut in this project and is present mainly in the western edge of the project area. Younger stands of juniper do not provide the cavities and hollows that are the valuable aspect of old growth. Overall, areas with the highest densities of junipers have the lowest diversity and abundance of birds (Sauder 2002, Miller 2005).

During nesting, **sage-grouse** would probably avoid areas that have scattered trees that provide perches for raptors. However, they will use areas later in the summer that have junipers (IDFG unpublished telemetry data). In the late summer, sage-grouse use wet areas that still have green plants. Anecdotal evidence and several studies indicate that junipers can dry up springs and wet meadows (Miller 2005, Clary et al 1974, Baker 1984). So, encroaching juniper would likely also reduce late summer habitat quality for sage-grouse by reducing spring flow. Late-stage juniper forest would not provide habitat for sage-grouse, which depend extensively on sagebrush for food.

**Spotted frogs** depend on still or slow-moving water of creeks or springs in the mahogany savanna. Most of the known spotted frog populations in Owyhee County occur in the mahogany and juniper zone. This is because the gently rolling topography causes streams to meander slowly and create pools, in contrast to fast-running streams on steeper slopes. Juniper encroachment may reduce spring and creek flow or even dry springs up. Thus juniper encroachment is probably detrimental to spotted frog habitat. Current

interagency management plans (including BLM, Idaho Department of Fish and Game, and U.S. Fish and Wildlife Service) for the spotted frog on state lands at Sam Noble Springs (which is surrounded by the project) are to cut junipers away from occupied spring-fed frog ponds.

Deer will eat juniper if little else is available, but they would find less to eat in closed juniper woodland than in the mahogany savanna, where there are forbs, grasses, and favored browse shrubs.

### **3.4.3 Proposed Action Environmental Consequences—Wildlife, Special Status Animals, Migratory Birds**

The proposed action and the associated project design features would create minimal disturbance to wildlife species during the actual cutting activities. The primary and long-term consequence to wildlife species from cutting scattered juniper would be to maintain a valuable wildlife habitat of mahogany savanna and sagebrush steppe.

In the mahogany savanna, the copses of mahoganies provide some of the same values for wildlife as junipers: hiding and thermal cover for deer, habitat for some tree nesters, and a seed source that attracts fall migrants such as yellow-rumped warblers. However, mahogany trunks are too hard and generally not large enough to provide cavities for hole-nesting birds. Cutting juniper out of stands of mahogany and from within the sagebrush would eliminate a berry source and most potential habitat for cavity nesters, but other aspects of its values for wildlife are maintained in the project area because of the mahogany stands.

Overall habitat quality for **sage-grouse** would improve or be maintained because sagebrush would remain on the landscape for food and cover, potential raptor perch sites would be removed, and junipers would not be drying springs and wet meadows. The higher elevation shrub-steppe of the project area is particularly important habitat for sage grouse in the late summer because the gently rolling topography of the mahogany savannah lends itself to forming meadows and wider riparian areas that stay green later in the year, providing green forbs for sage grouse food. Thus the project would be maintaining a particularly important part of the sagebrush habitat in southwest Idaho.

Since no known active leks occur within the project boundary, there is minimal potential for disturbance to occupied sage-grouse leks. (mating grounds). In the event that new leks are discovered, restricting cutting activities within ½ mile of occupied sage-grouse leks to after 10AM from March 1 – May 15 would prevent disturbance to lekking birds. The likelihood of causing nest failure from ATV travel or walking is slight, because the percentage of country that would actually be traveled would be low.

Disturbance to deer and antelope fawns from cutting and cross-country ATV travel is expected to be minimal. Cover underneath junipers is generally sparse and is therefore not generally used for fawn cover. In the unlikely event that a fawn is disturbed it would not be expected to effect its survival.

**Pygmy Rabbits** would be beneficially affected because sagebrush habitat would be maintained or improved. Additionally, the sagebrush habitats in the mahogany zone where this project is planned are particularly important for pygmy rabbits. Survey data from 2002-2006, by the Bruneau and Owyhee FO, show that the greatest concentration of pygmy rabbits in Owyhee Co. are in the mahogany savannah. The cutting activity itself is not likely to affect pygmy rabbits in any measurable way. Pygmy rabbits have

two kinds of burrows: main burrows and natal burrows. The main burrows are deep and would not be crushed in the instance of driving an ATV or walking over them. Additionally, burrows are found in areas of tall thick sage that would usually prevent ATV access. Natal burrows are small and shallow, and not necessarily in the tall sage, and thus possibly could be crushed by an ATV driving over it. However, the likelihood of driving over and crushing a natal burrow is negligible, because they are small and hidden under bushes, dispersed on the landscape, and are only used for 3 weeks. Restricting wood gathering vehicles to established roads and trails, and restricting off-road travel by the cutting crews to ATVs would reduce the potential for collapsed natal burrows. In the unlikely event a natal burrow was crushed and rabbits killed, it would not affect the population.

Raptor nest surveys for the large hawks would minimize the likelihood of project-related disturbance. Nest trees of **ferruginous hawks** or red-tailed hawks would not be cut. The likelihood of finding ferruginous hawk nests in this area appears to be low, because of the higher elevation and rolling topography. If occupied nests are discovered, individualized buffers would be developed if necessary, and cutting would be delayed within those buffers until birds were fledged.

The project area is in existing sagebrush and mountain mahogany habitat which has very scattered juniper. Therefore, for the most part, the proposed action would not reduce existing habitat for juniper-associated species, it would just prevent their expansion in the long term within the proposed project area. Some scattered areas (approximately 7 % of the proposed project area) contain stands of juniper which could qualify as juniper habitat. Within these areas, habitat for juniper-associated species would decrease while habitats for sagebrush obligate species would increase over the long term.

### **3.5 Visual Resources**

#### **3.5.1 Affected Environment— Visual Resources**

Public land within the project area is a mix of VRM Class II, III, and IV lands, with a majority of the land classified as VRM Class III. The objective in Class II areas is to retain the existing character of the landscape, and “activities are to be designed and located to blend into the natural landscape and not (be) visually apparent to the casual visitor” (Bruneau MFP VRM-1.2). In Class III areas, changes to the characteristic landscape can be moderate and evident to the casual visitor, and in Class IV landscapes, the level of change can be high. In addition, a ½ mile corridor along the Mud Flat Road is managed as a travel influence zone, similar to VRM Class II, where activities will preserve or enhance the scenic quality. The project area is scenic, with a mix of rolling hills, steep slopes, long vistas, open meadows, sagebrush and grass-dominated slopes, mahogany savanna, and different densities of junipers.

The Owyhee Uplands Back Country Byway traverses the project area. The Byway is a 101-mile improved gravel road between Grandview, Idaho and Jordan Valley, Oregon. The road is part of a national system of scenic and backcountry byways, and is a popular scenic drive for visitors to public land. The Byway serves as a staging area for trips into more remote scenic and primitive backcountry areas of Owyhee County.

#### **3.5.2 No Action Environmental Consequences— Visual Resources**

There would be no direct effects. A gradual transition in vegetation on the landscape to more of a juniper woodland would occur over time, but is unlikely to have an adverse effect on visual resources for many

decades. Adverse effects of the vegetation treatment project, such as slash piles and ATV tracks, would not occur.

### **3.5.3 Proposed Action Environmental Consequences— Visual Resources**

Juniper removal would have beneficial and adverse impacts on visual resources. A reduction in seral junipers, particularly in the mahogany savannas, would have a beneficial long-term effect on visual quality. Retaining old growth juniper, and other scenic groupings of junipers would maintain the high scenic quality along the Byway.

During the juniper treatment, for a period of several years, there would be adverse impacts on visual resources. Slash piles would create the most noticeable short-term adverse impact, particularly if any are located in VRM Class II areas where management activities “should not be apparent to the casual observer.” The adverse impacts related to the slash piles would end after the piles are burned and perennial grasses recover on the burn sites. ATV tracks throughout the project area would have an adverse impact. While it is expected that the signs of ATV use would disappear in 1 to 2 years as vegetation recovers, it is possible that an indirect adverse effect would occur if the newly-created ATV tracks encourage additional off-road travel and become permanent. Dead junipers scattered across the landscape would have an adverse impact, which would be most noticeable for the first couple of years, but some would be apparent for the foreseeable future. The adverse visual effect of the cut trees would be partly mitigated by flush-cutting the stumps, and lopping and scattering the trunk and branches.

## **3.6 Cultural Resources**

### **3.6.1 Affected Environment — Cultural Resources**

Cultural resource inventory data is incomplete for the project area. A Class II (sample) inventory of the Boise District was conducted by Jack Young, 1984. Young projected medium and high site densities for the geographic area where the current project proposal is located. A Class II inventory of the Castle Creek drainage conducted by Sharon Metzler in the vicinity of the current proposal concluded that the area appears to have been occupied continuously for the last 9,000 years (Metzler 1977). Numerous smaller inventories have been completed for compliance with Section 106 of the National Historic Preservation Act for BLM actions such as fences, pipelines and rights of ways.

A portion of the project area is within the Camas and Pole Creek National Register Archaeological District. The Pole Creek drainage and some surrounding areas were inventoried by Dr. Mark Plew from 1975 – 1980. Dr. Plew also conducted excavations in the general vicinity of the project proposal. This district has been characterized by Dr. Plew as a mid to late archaic occupation area and contains physical evidence of human activity reflecting approximately 6,000 years of human history. Dates are based on projectile point chronologies and supported by radiocarbon dates. Communal hunting was a major component of the Owyhee Uplands and many of the sites are rock alignments and associated sites. Other site types include petroglyphs, rockshelters, campsites, lithic scatters, and lithic workshops. Historic era sites include stock camps, petroglyphs, trails, and CCC sites and structures.

### **3.6.2 No Action Environmental Consequences — Cultural Resources**

Environmental consequences of the No Action alternative would potentially result in an increase of junipers and decrease the understory of sagebrush and grasses. This would potentially reveal the presence of cultural sites on the surface of the ground and leave the sites vulnerable to vandalism and theft. A

potential increase in juniper growth would also have a greater fuel load for wildland fire to burn on top of fragile cultural sites. Wildland fire is destructive to cultural resources as it includes both uncontrolled fire effects and the potential effects of fire suppression. (Hanes 2001, Duke et al. 2003) Generally, subsurface cultural materials are protected from the effects of fire below a depth of 10 cm of soil cover but stumps, heavy duff, surface logs, and roots that smolder and burn have the potential to expose subsurface materials to heat over a period of time, and have the potential to adversely affect fragile cultural materials. (Oster n.d.) Indirect impacts of wildland fire would leave cultural sites exposed and potentially at risk from vandalism and theft, soil erosion, increased rodent and insect activity.

The effect of fire on cultural resources may not be important in some cases. The effect may not change or diminish the characteristics that make a site eligible for listing in the National Register of Historic Places. As an example, heat may destroy obsidian hydration bands on surface artifacts, but the surface component of the site may not be of particular value in the site's overall assessment. Fire may burn the solder out of a hole-in-cap can, but this effect does not diminish the can's ability to provide chronological information for a site. (Hanes 2001, Duke et al. 2003)

### **3.6.3 Proposed Action Environmental Consequences — Cultural Resources**

Environmental consequences of the Proposed Action would include driving cross country with rubber tired ATV's, dropping trees and letting them lie on the ground. This would result in minimal displacement of artifactual material and an increased potential for deadwood to burn in a wildfire on top of a cultural site. Impacts from lop and scattering of juniper could result in some displacement of artifactual material. Impacts of pile burning juniper may include displacement of artifactual material and altering site context by dragging trees and branches across cultural sites and burning on top of sites. Impacts from pile burning would include those listed in the No Action alternative plus a potentially higher temperature of heat and duration of exposure to heat due to the increased fuel load of juniper piles. Staging and camping areas present ground disturbing impacts that would alter the context of cultural sites such as compaction of soils, displacement and breakage of artifactual material resulting in reduced integrity of cultural deposits.

Class III intensive level cultural resource inventories would be conducted where needed, prior to project implementation. Any significant sites located during inventories would be avoided by ground disturbing project impacts or those impacts would be mitigated to an acceptable level. Consultation with affected Tribes and SHPO would take place prior to development of inventory and mitigation plans.

## **3.7 Cumulative Effects**

### **3.7.1 Vegetation**

This analysis will examine the effect of the proposed action together with other actions that affect shrub steppe habitat conditions including wildfire, prescribed burns, juniper cutting treatments, and livestock grazing permit renewals. The focus will be on the following effects:

- Cumulative Effect 1 (CE 1): Maintaining the shrub steppe dominated communities threatened by the eastern expansion of juniper.
- Cumulative Effect 2 (CE 2): Reducing juniper's overall distribution within the Owyhee Sage-grouse Planning Area (OSGPA) and, within the larger 9.7 million acre Owyhee Uplands.

Three spatial scales will be used in this analysis:

- Eastern Expansion Zone - The 1<sup>st</sup> spatial scale consists primarily of the shrub steppe dominated communities in the early stages of juniper expansion along juniper's eastern expansion zone (Map 3). This area encompasses 221,610 acres and will address CE 1.
- Juniper Occurrence Zone - The 2<sup>nd</sup> spatial scale is a broader scale which contains the 1<sup>st</sup> spatial scale plus the more juniper dominated landscapes within the Owyhee Sage-grouse Planning Area (OSGPA)(Map 3). This area encompasses 1,098,100 acres and will address CE 2.
- Owyhee Uplands - Finally, CE 2 will be expanded to include a 3<sup>rd</sup> spatial scale consisting of the 9.7 million acre Owyhee Uplands, which includes portions of southwest Idaho, southeast Oregon, northeast California, and northwest Nevada (Map 4) (Smith 2005).

No clear boundary exists between the shrub dominated communities within juniper's eastern expansion area, and the more juniper dominated landscapes to the west. However, these vegetative differences are reflected at the coarse scale by the various Fire Management Units (FMUs) that were developed for the Boise District Fire Management Plan (US BLM 2005) to reflect differences in juniper distribution, fire regimes, fuel types, etc. Juniper distribution within the OSGPA occurs primarily in three FMUs. The proposed project area is contained in the 203,610 acre Upper Castle Creek FMU which generally represents the eastward expansion of western juniper. This area consists primarily of shrub steppe communities with juniper dominating only 5.7% of its landscape. An additional 18,000 acres (which represents a portion of the 30,000 acre Battle Creek Allotment Juniper Cut that occurred outside this FMU in the adjacent Riddle FMU) are included in this analysis area. This 221,610 acre area will therefore serve as the 1<sup>st</sup> spatial scale to analyze the first cumulative effect—*maintenance of the shrub steppe dominated communities threatened by junipers eastern expansion.*

Most of the juniper within the OSGPA occurs within the Northern/Silver City FMU (Northern FMU) and Juniper FMUs which comprise 876,500 acres, and have 35% and 45% respectively of their landscape dominated by the various stages of juniper woodland. These FMUs plus the Upper Castle Creek FMU, a total of 1,098,100 acres, serve as the 2<sup>nd</sup> spatial scale and will address CE 2—*Reducing junipers overall distribution within the OSGPA.* Within this area, juniper occupies approximately 480,000 acres (Roth 2004). The remainder of the area consists primarily of shrub steppe with no or minimal juniper present. This same CE will then be addressed at the larger (3<sup>rd</sup>) landscape of the 9.7 million acre Owyhee Uplands.

The time scale for the analysis will cover the period between 1981 through 2006, with projections made through 2014. Although wildfire records go back to 1957, documentation of past treatments before 1981 is fragmented and incomplete. Determining the treatments on various private lands during this time period for such a large area is difficult. Individuals that have conducted prescribed fire and cutting activities on private lands were consulted to document past treatments. Tracking such actions beyond 1981 provides little insight in assessing cumulative effects. The effects of past actions on the landscape merely delay succession for a period of time with their effects diminishing in time as succession occurs. A description of the current state of the environment inherently includes the effects of past actions and serves as a more accurate and useful starting point for a cumulative effects analysis than attempting to establish a starting point by “adding” up the described effects of individual past actions. The importance of “past actions” is to set the context for understanding the incremental effects of the action alternative

and is included in this analysis. The time scale for foreseeable projects goes to 2014 which is the expected life of the proposed project.

Actions Addressed – The primary actions affecting maintenance of shrub steppe habitat and juniper distribution include wildfire, juniper treatments, and livestock grazing.

Actions associated with European settlement within the last 130 years, have reduced wildfire’s extent on the landscape, resulting in increased juniper density where it occurred naturally and an expansion of juniper into areas where it previously did not occur. These actions include:

- Cessation of burning by Native American,
- Intensive livestock grazing which reduced fine fuels needed for carrying fire,
- Fire suppression activities,
- Construction of roads and other fire breaks which limited fire size.

At the same time, prescribed burns, cutting efforts, and periodic natural fires may have helped limit juniper’s expansion and slowed the conversion from shrub steppe to juniper woodland.

Burkhardt and Tisdale (1969) estimated that western juniper occupied approximately 400,000 acres in SW Idaho in 1969. Recent remote sensing work by (Roth 2004) currently estimates 480,000 acres in the same area. (These figures may underestimate the actual amount of juniper because they do not include juniper areas within the Douglas fir vegetation types.) An additional 335,000 acres have the potential to become dominated by juniper. In 2002, Miller sampled the ages of 5,000 junipers along 20 miles of transects across the juniper woodlands of Owyhee County. He observed that 95% of all juniper were less than 135 years old (Miller 2004 Boise District Public Meeting).

The expansion rate of juniper varies with site productivity, preburn juniper density and maturity, percent juniper mortality within a burn perimeter, the amount of unburned juniper islands, the adjacency and age of unburned juniper, whether follow-up cutting treatments occurred following fire, the home range of juniper-berry eating birds, etc. In the juniper dominated portions of the Northern and Juniper FMUs, Bunting et al. (2002) estimated an average juniper expansion rate of 5% per decade in the absence of wildfire.

**Cumulative Impacts to Vegetation in the Eastern Expansion Zone**

Wildfire: Approximately 3,100 acres have burned from 1981 through 2006 (Table 1). Based on an average of 120 acres burned/year, an additional 840 acres of wildfire could be expected to occur during the next 7 years.

**Table 1.** Summary (in acres) of wildfires, prescribed burns, and mechanical treatments within the Eastern Expansion Zone between 1981 - 2006, and foreseeable actions within the next 7 years.

	Historic (1981 through 2006)			Future (2007 through 2014)			Total Acres
	Public	State	Private	Public	State	Private	
Wildfire all ownerships	3,100			870			3,700
Prescribed fires	5,000		2,600	4,000	200	500	11,800
Juniper Cutting	40,020			35,000	25		75,045
<b>Total Acres</b>	<b>48,120</b>		<b>2,600</b>	<b>39,600</b>	<b>225</b>	<b>500</b>	<b>91,045</b>

**Prescribed Fires and Juniper Cutting:** From 1981 through 2006, approximately 5,000 acres of public and 2,600 acres of private land have been prescribed burned (Table 1). Juniper cutting treatments include 10,000 acres within the Pixley Basin Project Area from 2003-2006, approximately 20 acres of past fire wood cuts, and 30,000 acres in the Battle Creek Allotment between 2002 through 2005.

**Foreseeable actions:** In addition to this 33,000 acre proposed cutting action, future actions may include approximately 2,000 acres of mechanized treatments to restore the sagebrush steppe communities in denser serial juniper stands located north and east of the Mud Flat Administrative Site, a 4,000 acre prescribed burn and cut in the Long Tom Creek Area, a 200-acre State Land burn in the Bennett Creek Area, and 25 acres of juniper cutting in the Sam Noble Springs Area (Table 1).

The grazing allotments for this area include portions of East and West Castle Creek, Battle Creek, and Pole Creek allotments. They are all scheduled to undergo the Standards and Guidelines Assessment process this year (2007) for renewing 10 year grazing permits.

**Summary for CE1:** Shrub steppe habitats (sage brush, mountain mahogany) would be maintained over the short and long term by removing approximately 90% of the seral juniper on 91,045 acres (40% of the area) through wildfire or juniper treatment projects.

Increased diversity and productivity of perennial herbaceous species and improved sensitive plant species habitat would be indirect cumulative benefits of actions in the area. The proposed action adds to this effect on approximately 2,300 acres (where dense juniper with canopy cover >5% would be removed) or 1% of the 221,610 acre Eastern Expansion Zone. Grazing permit renewals should result in slight to moderate long-term improvements in Watersheds (Standard 1), Native Plant Communities (Standard 4), and Sensitive Species (Standard 8) in areas where standards are not currently being met (US BLM 1997).

Similar benefits would be expected for the No-Action Alternative; however, only 58,000 acres or 26% of the area would be maintained due to past and foreseeable treatments and wildfires.

**Cumulative Impacts to Vegetation in the Juniper Occurrence Zone**

**Wildfire:** Since 1957, only 4% of the Juniper, and 16% of the Northern FMUs have been burned by wildfire, with approximately 39,100 acres burned in the entire Juniper Occurrence Zone between 1981 through 2006 (Table 2). Based on an average of 1,500 acres burned/year, an additional 10,500 acres of wildfire could be expected to occur during the next 7 years.

**Table 2.** Summary (in acres) of wildfires, prescribed burns, and mechanical treatments within the Juniper Occurrence Zone since 1981 and foreseeable actions and wildfires within the next 7 years.

	Historic (1981 to present)			Future (2007-2014)			Total Acres
	Public	State	Private	Public	State	Private	
Wildfire all ownerships	39,100			10,500			49,600
Prescribed fires	28,000	11,000	6,300	10,510	450	500	56,760
Juniper Cutting	45,570	1,400	2,100	36,600	25		85,695
<b>Total Acres</b>	<b>112,670</b>	<b>12,400</b>	<b>8,400</b>	<b>57,610</b>	<b>475</b>	<b>500</b>	<b>192,055</b>
Total Acres Historical Actions: <b>133,470</b>				Total Acres Future Actions: <b>58,585</b>			

Prescribed Fires and Juniper Cutting: Approximately 28,000 acres have been prescribed burned on public land (US BLM 1999b), 11,000 acres prescribed burned on state lands by the Idaho Department of Lands, and 6,300 acres burned on private land (Tables 2 and 3). Cutting treatments include 1,000 acres identified in the 1999a Owyhee RMP, 4,550 acres in the Boone Peak and West Antelope allotments in 2005, 1,400 acres cut on state lands, and 2,000 acres cut on private lands between 1981 through 2006.

Foreseeable actions: Approximately 8,100 acres of various foreseeable projects are anticipated (Table 3) in addition to those discussed in the Eastern Expansion Zone section above.

**Table 3.** Foreseeable juniper control actions in the Juniper Occurrence Zone, outside the Eastern Expansion Zone.

Treatment	Treatment Type	Planned Initiation	Planned Acres	Allotment
<b>2007 Projects</b>				
ARS Upper Sheep Creek	Prescribed Burn	Sept 2007	60	East Reynolds Creek
Castlehead Lambert	Prescribed Burn	Sept 2007	2,500	Castlehead Lambert
West Antelope RX	Prescribed Burn	Sept 2007	500	West Antelope
Idaho Dept of Lands	Prescribed Burn	Sept 2007	250	State Land near West Antelope
Boone Peak	Lop and Scatter	June 2007	750	Red Mountain Past. 3A
<b>2008 Projects</b>				
Indian Meadows Rx Burn	Prescribed Burn	Sept 2008	3,200	Indian Meadows Noon Creek
Boone Peak	Lop and Scatter	June 2008	750	Red Mountain Past. 3A
Pleasant Valley	Lop and Scatter	10/1/2007	100	Pleasant Valley, Cottonwood Pasture
<b>TOTAL</b>			<b>8,110</b>	

Of approximately 95 allotments in the area, 20 have been issued new grazing permits and should be making progress toward meeting standards 1, 4, and 8. New permits should be issued on the remaining 75 allotments over the next several years.

Summary CE2: Past actions (wildfire, juniper treatments) have not kept pace with post-European juniper expansion (Miller et al. 2005). Since 1981, the majority of wildfires have occurred outside of juniper dominated areas. In the absence of wildfires, juniper dominated areas would be expected to expand from 480,000 acres to 504,000 acres between 2004 and 2014 (a 5% rate of juniper expansion per decade). Most of the foreseeable treatments (Table 3) would occur in the 480,000 acre juniper dominated areas and would affect less than 2% of that area. In the remainder of the Juniper Occurrence Zone (approximately 618,000 acres), the amount of wildfire and future treatments would help maintain sagebrush on 50,475 acres (58,585 acres of future actions in juniper occurrence zone – 8110 acres of actions in juniper dominated areas). Overall, the combination of treatments and wildfires (approximately 5% of the Juniper Occurrence Zone), would maintain juniper at its current levels.

Changes in perennial herbaceous species and sensitive plant species associated with shrub steppe habitats would be similar to those described for the Eastern Expansion Zone; however, because more treatment activities would occur in denser stands of juniper than in the expansion zone, the expected improvements would be greater. These improvements would occur over a relatively small portion (<2%) of the entire area. Impacts related to livestock grazing permit renewals would be the same as described for the Eastern Expansion Zone.

The No Action Alternative would not remove juniper within the 33,000 acre project area; therefore, the combination of treatments and wildfire would not be sufficient to maintain juniper at its current level, resulting in a loss of shrub steppe habitat over the long term.

### **Cumulative Impacts to Vegetation in the Owyhee Uplands**

The loss of sagebrush steppe landscapes from past and continuing juniper expansion within this region is well documented by Miller et al. (2005) and others and emulates the dynamics of juniper in southwest Idaho as described in the Juniper Occurrence Zone discussion above. For example within Eastern Oregon, Western juniper woodlands with more than 10 percent canopy cover increased from 456,000 acres in 1936 to 2.2 million acres in 1988 (Miller et al. 2005).

The cumulative effects of the Proposed Action together with past and foreseeable actions within this larger area would merely consist of a slight slowing in the rate of juniper expansion. The difference between the Proposed Action and No-Action would be barely detectible at this scale.

### **3.7.2 Wildlife/Special Status Animals**

In Owyhee County, cumulative effects of this project combined with past and future juniper control projects would probably slow the disappearance of sagebrush habitat but would not stop or reverse the trend. Within the Owyhee Uplands as a whole, habitat for juniper associated species is increasing at approximately 5% per decade as a result of ongoing juniper expansion (Bunting et al. 2002, p 13). Past control efforts within the last 20 years are well below that figure and therefore have not kept pace with the juniper expansion rate. See the discussion above for more detail on the cumulative effects to vegetation, which directly applies to cumulative effects for wildlife habitat. Increases in or protection of shrub-steppe habitat is beneficial for species dependent on that habitat: sage grouse, pygmy rabbits, brewer's sparrows, and others.

## 4 Consultation and Coordination

### 4.1 List of Preparers

The Environmental Assessment was prepared by the following Interdisciplinary Team:

Name	Title	Responsibility
John Biar	Assistant Bruneau Field Office Manager & District Rangeland Management Specialist	Assist with editing of the Final Environmental Assessment.
Mike Boltz	Rangeland Management Specialist	Reviewed document.
Karen Colson	Botanist	BLM Special Status Plant sections.
Mitchell Jaurena	Bruneau Field Office Manager	Assist with editing of the Final Environmental Assessment.
Steven Jirik	Fire Ecologist	Team Lead, Upland Vegetation sections.
Paul Makela	BLM Idaho State Office Wildlife Biologist	BLM Special Status Animals and wildlife habitat sections.
Matt McCoy	District NEPA Specialist	NEPA guidance.
Lois Palmgren	Archeology Technician	Cultural Resources sections.
Dianna Sampson	Geographic Information Specialist	Preparation of maps.
Paul Seronko	Soil Scientist	Soil/Watershed sections.
Helen Ulmschneider	Wildlife Biologist	BLM Special Status Animals and wildlife habitat sections.
Bruce Zoellick	Fisheries Biologist	Riparian Areas and Wetlands sections.
Judi Zuckert	Outdoor Recreation Planner	Recreation, VRM and Wilderness sections.

### 4.2 List of Agencies, Organizations, and Individuals Consulted

Owyhee County Sage-grouse Working Group  
Steve Bunting, University of Idaho  
Alan Sands, Nature Conservancy/Idaho Department of Fish and Game  
Dean Johnson, Southwest Region, Idaho Department of Lands  
Lowell Murdock, Southwest Region, Idaho Department of Lands—Retired

### 4.3 Public Participation

December 13, 2006, scoping letter sent to 48 interested public.  
March 21, 2007, presentation to the Owyhee County Sage-Grouse Working Group.  
May 29, 2007 pre-decisional EA sent to 48 interested public.

### 4.4 Tribal Consultation

Coordination with the Shoshone Paiute Tribes occurred during the monthly Wings and Roots Coordination Meetings. The Tribes were provided a draft of the EA on April 19, and a predecisional EA on May 17. They provided comments to BLM on June 21. Comments were addressed by BLM and the final EA was provided to them on August 16 before being distributed to the public. Copies of the pre-decisional EA and the final EA were also sent to the Shoshone Bannock Tribes.

# Appendices

## 4.5 Literature Cited

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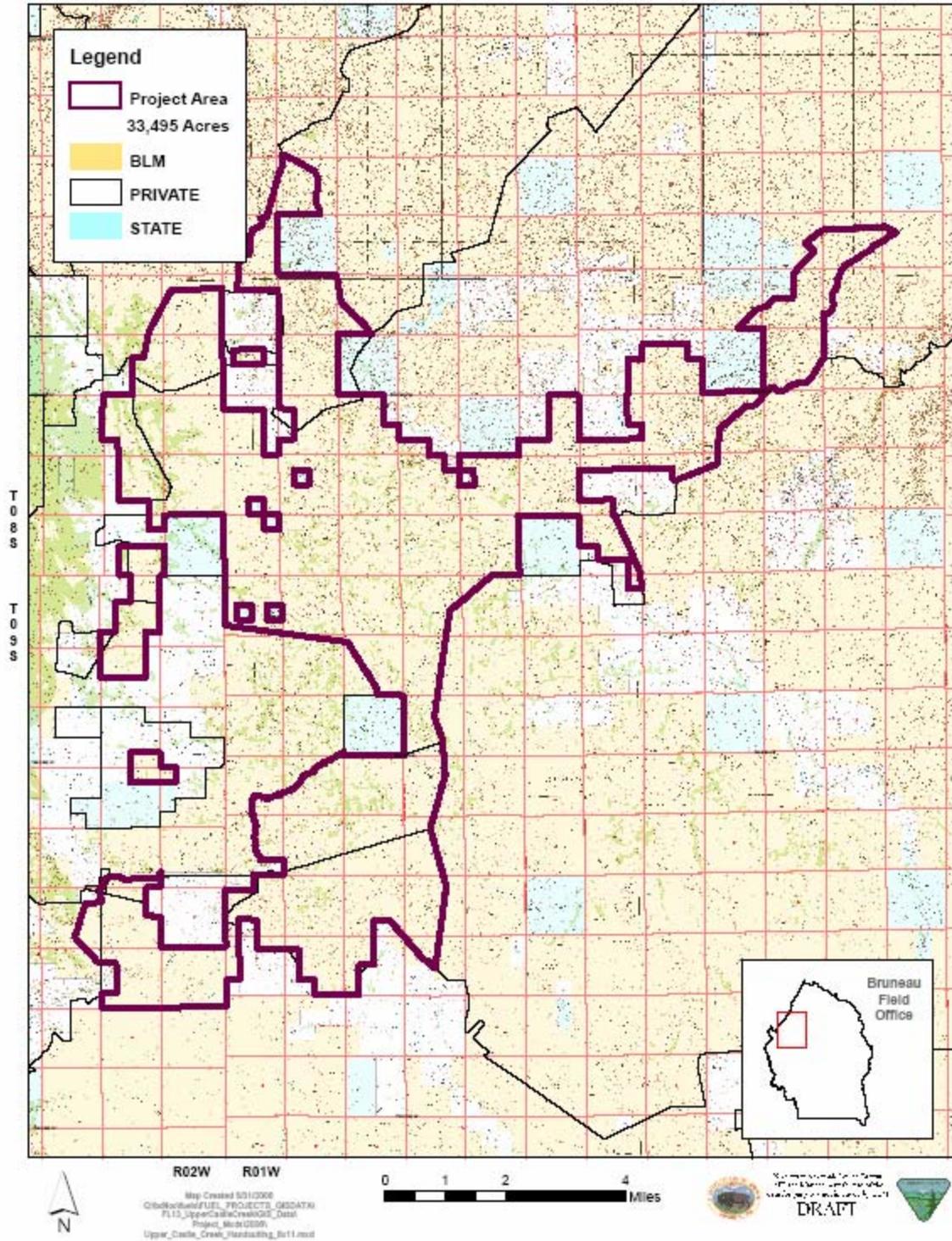
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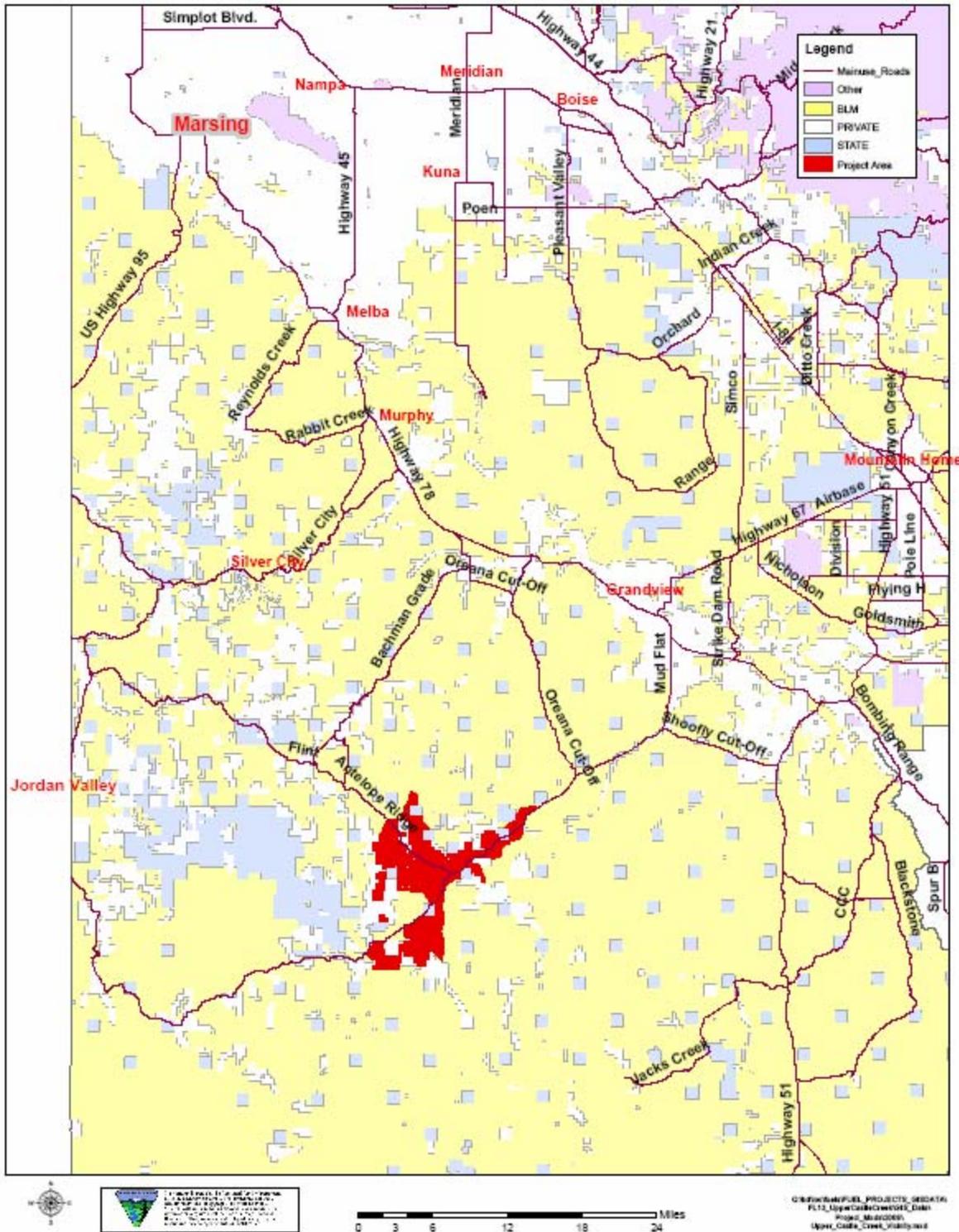
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## 4.6 Maps

Map 1. Proposed Upper Castle Creek Juniper Hand Cutting Area.



Map 2. Upper Castle Creek Vicinity Map.





Map 4. Owyhee Uplands.



District (Field Office)	All Acres	Percentage
Elko Field Office	1,383,357	14.28%
Winnemucca Field Office	203,278	2.10%
Twin Falls (Jarbidge Field Office)	887,004	9.15%
Boise (Bruneau Field Office)	1,563,776	16.14%
Boise (Owyhee Field Office)	1,455,649	15.02%
Vale (Jordan Field Office)	2,302,000	23.75%
Vale (Malheur Field Office)	1,895,644	19.56%
<b>Total</b>	<b>9,690,707</b>	<b>100.00%</b>

From: Smith (2005)

## 4.7 Consolidated Response to Comments

A number of comments were received during the scoping process. Comments are shown in italics with BLMs response below:

*1. We have strong concerns about how BLM may categorize “invading” vs. non-invading trees, and “historic range”. The “historic range” has been much influenced by post-settlement grazing continuing up until the present day, promiscuous burning, and wood cutting for fuel and other purposes. How have you determined such effects here?*

All of the trees proposed to be cut possess characteristics of invading trees. They are less than 135 years old and have; a conical shape, good terminal and lateral growth, open, actively expanding tree canopy, the branches show an absence of crown lift, potential berry production is low, potential tree recruitment is high and the shrub layer is intact. Trees exhibiting old growth characteristics will be flagged and not cut. Whether or not juniper grew on this site historically is immaterial. The issue now is controlling juniper that is invading sage-grouse habitat. This action, cutting juniper to maintain or enhance sage-grouse habitat, is in conformance with the Bureau of Land Managements current land use plan (Bruneau Management Framework Plan).

*2. BLM must fully consider the impacts of ongoing livestock grazing and trampling impacts, climate change and global warming in any vegetation manipulation that it undertakes.*

Livestock specific concerns are beyond the scope of this simple hand cutting project and will be addressed in the Standards and Guides Assessment Process for the East and West Castle Creek Allotments which will occur this year. BLM has no information on whether juniper cutting contributes to global warming and climate change, but believes that the proposed actions contribution if any would be negligible due to the extremely small amount of carbon released into the atmosphere from pile burning on a small portion of the area. Since most of the felled juniper would remain on site, the carbon would remain tied up in the juniper debris and would released slowly over time.

*3. How will removal of trees affect site conditions, and what will grow in their place? Will removal result in a hotter, drier, more desertified site prone to cheatgrass infestation? How will this cause increased cheatgrass? White top and other weed infestation and spread be limited?... What areas where trees will be cut currently contain any cheatgrass, white top, or other weeds? What areas are “at risk” to cheatgrass and weed infestation with new disturbance, or removal of shade?*

Removing juniper would result in increased perennial grass cover and density. The amount of increase expected would be relative to the current juniper cover that is suppressing the understory. Since the nature of the proposed project is pre-emptive, with a goal of removing predominantly younger, encroaching juniper, before they adversely affect sagebrush-steppe vegetation, significant increased perennial grass cover would not be expected throughout most of the area. However, in limited areas with denser juniper concentrations, larger increases in perennial grass cover would be expected. For example, recent studies by Bates, Miller and Svejar (2006) found that cutting treatments on a site dominated with 100 juniper trees per acre resulted in five fold increases in perennial grass density six years after cutting (from 2 plants per square yard in 1991 to 10-12 plants in 1997).

Cheatgrass currently occurs in small patches around water troughs, salt licks, some livestock loafing areas, and other limited disturbed sites within the project area, but does not expand into healthy high elevation shrub steppe communities. Where juniper is removed in or near these disturbed sites, cheatgrass may temporary increase for a few years before it is replaced by native perennial species. This would be expected to occur on less than one percent of the project area.

Since 2000, 18 locations of whitetop, 2 of Russian nap weed, and 1 occurrence of scotch thistle have been found on the proposed project area. These infestations are treated and monitored annually. Additional inventories will be conducted before cutting treatments occur. Appropriate treatments will follow monitoring.

*4. The other factor is the development of the elaborate and tremendously harmful Ant Hill Well pipeline and trough system – this has greatly extended the levels of use and the time period of livestock use in the Mahogany sananna country. As mitigation for this action, we ask that BLM identify specific areas of significance to pygmy rabbit and sage grouse here and close off water to troughs in the vicinity. This will provide reference areas, to some degree, to gauge cattle effects on post-treatment recovery. It will also allow recovery of understory vegetation in areas where trees are cut to be jump-started, and better provide health and vigorous native understories and healthy microbiotic crusts to better prevent juniper returning.*

These concerns are outside the scope of this project. Because of the scattered nature of the generally younger junipers in the treatment areas, pre and post treatment effects of livestock on the removal of these would be difficult if not impossible to evaluate. The suggestion of a reference area may be more appropriate in the context of the S&G process, but is not reasonable in the context of this particular action.

*5. Please carefully identify age class of trees here. Please carefully detail the current site conditions – including loss or sparsity of larger-sized understory grasses and other factors.*

Ninety three percent of the project area is in the early transitional stage from shrub-steppe to juniper woodlands. In this stage juniper generally makes up less than 5 percent of the ground cover. In seven percent of the area juniper is in the mid transition stage where cover ranges from 5 to 20 percent. In both cases the majority of the trees are less than 100 years old. Detailed understory site conditions will be analyzed in the Standards and Guides Assessment Process.

*6. Not all juniper should be cut in any one area. A wide variety of avifauna – ranging from woodpeckers that peck “trapline” holes into juniper trunks to mountain bluebirds – use the western juniper of the Owyhee plateau.*

The main objective of the project is to maintain and enhance existing sage-grouse habitat which is undergoing juniper expansion, as identified in the draft Range-wide conservation strategy, 2006 Idaho sage-grouse plan, and 2000 Owyhee Local Working Group plan. Leaving large numbers of juniper trees would negate the purpose and need of the project. However, we do not intend to cut (fell) all the juniper on the landscape. Trees that would not be cut (felled) include: old growth trees, trees housing large raptor nests, trees housing artificial nest boxes, and trees which contribute to the visual resource values found adjacent to the Owyhee Upland Back Country Byway.

*7. Many of the junipers here have bluebird boxes on them. How will you deal with these? We urge you to minimize cutting/not cut trees with boxes or in the immediate vicinity of boxes. Other trees in the vicinity of box trees may provide perches used by bluebirds.*

BLM is not proposing to cut (fell) trees with artificial nest boxes in them. Many of these boxes occur along the Mud Flat road, or other roads, where some trees will be left for visual benefits, as well.

*8. What will grow in areas where juniper is cut, and how will livestock grazing and trampling disturbance be managed to minimize impacts? BLM must undertake linked changes in grazing management to maximize recovery of native shrubs, grasses, forbs and microbiotic crust. Please identify those actions here.*

Western juniper found within the project area is in the Phase I or early stage of succession. This means that juniper trees are present but shrubs and herbs are the dominant vegetation that influence the

ecological processes on the site. In other words the understory vegetation has not been negatively impacted by the low density of juniper commonly found throughout the project area. Because of this BLM does not expect the understory vegetation to change appreciably. If, however, future rangeland health assessments indicate that the area is not meeting the standards for healthy rangelands and determine that existing grazing management practices or levels of grazing use are significant factors in failing to achieve the standards and conform with the guidelines for grazing management then BLM will take appropriate action in accordance with the grazing regulations 43 CFR 4100 subsection 4180.

*9. What insect, fungal or other pests may increase as a result of cutting trees – perhaps attracted to sap or tree wounds? In Nevada, it is clear that cutting piñon pine may result in neighboring trees becoming infested with beetles or other problems. Has this been studied in junipers? How can such risks here be minimized? What diseases or insect problems are known in western juniper in Owyhee County? The best strategy may be to cut blocks, starting at one point, and not jump all over the place. That way, any infestation/insects that may be attracted to the sap of cut trees may not explode all over the area.*

As you suggest, we intend to implement the cutting efforts in blocks and move through the project area systematically. There is a bark beetle which has killed or topped individual juniper trees scattered through the Owyhees. BLM has been unable to find any information about these beetles, but our observations are that it does not affect large areas. We are unaware of any other insect, fungal disease or other pests that are negatively affecting juniper in the area. Piñon pine does not occur in the Owyhee Uplands.

*10. Please mark all trees, or groups of trees, to be left. That way, decisions are not left up to cutters on the spot.* We plan to do this. It has been added as a standard operational procedure.

*11. Please make crystal clear if you plan to use this action/document/plan to manipulate sagebrush. We strongly oppose ALL manipulation of sagebrush in the Owyhee landscape, and urge retention of all stands of sagebrush. Please see Welch and Criddle 2003.*

This proposed project will not manipulate sagebrush.

*12. How will BLM minimize impacts to wildlife species? Cutting should not occur during nesting periods for migratory birds or when pygmy rabbit young are in shallow natal burrows. What avoidance period for all cutting activity will you follow?*

BLM does not believe the proposed action creates much disturbance to wildlife species. If we did not cut during the nesting period for migratory birds, there would be little of the season left to accomplish the project. These trees are generally so scattered that effects to nesting migratory birds would be minimal.

Occupied sage grouse leks would be the wildlife resource most sensitive to disturbance. However, no occupied leks occur in the cutting area. In the event that new leks are discovered, no cutting activities would occur within ½ mile of sage grouse leks before 10AM from March 1 – May 15. The likelihood of flushing a nesting hen and causing nest failure is low as is the chance of driving on a nest.

BLM believes that an avoidance period is not necessary for pygmy rabbits because the likelihood of stepping or driving over a natal burrow is negligible. Additionally, the chance of a burrow collapsing from being stepped on or by driving over by an ATV is low.

Off road travel associated with the juniper cutting treatments would be limited to ATVs as opposed to full size pickup trucks. Rabbit burrows occur in dense stands of big sagebrush. The tall stature of these shrubs discourages travel through them with ATVs. Along existing roads and trails, cutting crews will work on foot. Full size pickup trucks would be restricted to established roads and trails. The amount of wood gathering would be expected to be minimal since the juniper is sparse throughout most of the

proposed project area and consists primarily of smaller branchy trees which are not particularly desirable for fire wood.

We plan to conduct large hawk nest surveys in the project area, to identify nest trees and minimize the likelihood of project-related disturbance. Nesting trees will not be cut. BLM believes the likelihood of finding ferruginous hawk nests in this area is low, because of the higher elevation and rolling topography. If occupied nest are discovered, individualized buffers would be developed if necessary, and cutting within those buffers would be delayed until birds were fledged. Buffer width would depend on the lay of the land.

*13. Please provide a map of current sage grouse leks and sage grouse habitats in and near the project area. Likewise, please provide a map of pygmy rabbit habitat. How have sage grouse lek locations and lek attendance here changed over time?*

These data are available at the Field Office for your review. The project area is completely within key sage-grouse habitat or habitat mapped as “restore-conifer encroachment.” Historical data on lek attendance is largely lacking. The largest lek in the general area appears to have tripled in the last 10 years. We do not have an overall map of pygmy rabbit habitat at a fine scale. We do have maps of burrows located during surveys, which shows they are essentially found throughout the project area and the mahogany savannah in the taller denser mountain sagebrush.

*14. Have you conducted a current FRH assessment on the lands where the cutting would occur? If so, what are the results?*

BLM has started range health assessments in the East and West Castle Creek Allotments. The results will be summarized in the Rangeland Health Assessment scheduled for completion later this year.

*15. Have you conducted a current ecological site inventory study here? If so, what are the results?*

The last ESI inventory was conducted in the late 1970's. The inventory identifies the area to be in mid and late seral condition.

*16. Have you conducted current ecological condition studies that examine the condition of the understory of mahogany and other communities in relation to site potential? No. Vegetation surveys are very expensive. Instead, BLM has established monitoring sites which are read periodically to determine if the trend in the vegetation is toward or away from established Land Use Plan goals and objectives. This data will be compiled as a component of the S & G process.*

*17. How is this linked to the upcoming East Castle Creek decision making process for livestock grazing? As you know, we are EXTREMELY concerned about a proposal to graze domestic sheep near this area, due to the certainty of disease transmission to bighorns here.*

The two processes are unrelated.

*18. What vegetation manipulation activities have occurred, or may be planned, on private and state lands? This information is contained in the EA.*

*19. BLM should develop a range of alternatives that focus on post-cutting site enhancement, recovery, or restoration so that understories, young mahogany, young sagebrush plants, etc. can grow and recover with minimal livestock impacts. Greatly reduced utilization levels, strict browse levels, and retirement of troughs from the watering systems should be a key part of actions here. This should focus on measurable standards of use on grasses, forbs, shrubs that serve as triggers for livestock removal from pastures.*

*On shrubs such as bitterbrush and sagebrush and snowberry, and mahogany, livestock impacts (consumption, breakage) should be limited to 10% or less of current year's growth. What current levels of cattle use and breakage does your monitoring show occurs here at present?*

*Please provide Tables and analysis showing cattle actual uses and utilization/browse use across the affected pastures for the past 20 years. This is necessary to understand the levels of impact. Please also provide a current calculation of stocking rate/carrying capacity for all areas.*

This and most of the other livestock related livestock information you requested is unrelated to this project. This information will be compiled and interpreted during the year as part of the S&G Assessment Process, and will be made available when it is completed.

*20. As part of this project, ungrazed reference areas should be established to provide information on site recovery with or without cattle grazing and trampling use.*

BLM is unaware recovery is necessary. Changing livestock use before completing rangeland health assessments or other suitable monitoring data would be a violation of BLM policy.

Furthermore, removing livestock would not reduce the need to remove juniper to enhance sage-grouse habitat.

*21. Please incorporate our letters of comment and concern about the Pixley Basin project, as well as our Appeal, as part of the record on this action. The purposeful destruction of sagebrush and bitterbrush there was alarming – and now cheatgrass is growing in former big sagebrush, bitterbrush, and low sagebrush sites on many south and west aspects – as a DIRECT result of the agency stupidity of burning. What actions are you undertaking to enhance site recovery there, and deal with the cheatgrass infestation that we predicted and BLM fire people ignored? How much more land area was burned there than originally proposed?*

BLM disagrees with your assertions about the success of the Pixley Basin Project. Regardless, the case at hand proposes cutting (felling) not burning to control juniper and has different site characteristics than that of the Pixley Basin area. Therefore, comments or concerns regarding past actions at different locations concerning different resources do not apply to this project and are immaterial. With that said those comments have been incorporated by reference.

*22. How will you minimize motorized use in the cutting areas? These lands are laced with a very large number of roads due to livestock facilities such as the Anthill pipeline, ranchers not bothering to ride horses but instead driving to place salt, and other activities. Please also use this as an opportunity to inventory and close unnecessary roads that may be intruding into sage grouse or pygmy rabbit habitat or other important areas.*

The area of the proposed juniper cut is open to cross-country vehicle travel under current management. The closure of existing roads is outside the scope of this project, and route designation will be addressed separately as part of the Bruneau Land Use Plan. Standard operating procedures that restrict cross country travel associated with the proposed project are described in the EA.

*23. Species like the common bushtit rely on dense vegetation, including clematis and western juniper in the vicinity of streams in the Owyhee Front drainages. We urge you to conduct necessary surveys and identify bushtit, bluebird, and other important use areas, and avoid tree cutting there.*

Your statement implies that bushtit and bluebird habitat is in short supply and that cutting seral junipers will significantly reduce that habitat. Cutting juniper out of riparian areas will not reduce riparian habitat for bushtits. The Owyhee Uplands contain no shortage of bluebird habitat. This projects attempts to maintain habitat for sagebrush obligate species.

*24. One specific suggestion: if there is a large bare area at the base of trees, lop off some branches and place them there. That will increase moisture retention and shading on the site, and greatly increase chances of recovery of native vegetation rather than weeds.*

Branches would be piled at the base of cut trees and bare areas to avoid smothering existing vegetation.

*25. What other foreseeable projects are there – both in the Bruneau as well as on the Owyhee Front? We just reviewed some assessments from the Owyhee FO near the Bachman Grade – and they allude to burning being proposed – which of course will just result in cheatgrass and weeds as occurred in Pixley. All foreseeable actions must be fully explored. All direct, indirect and cumulative impacts must be assessed in an EA or EIS, depending on the level of significance all of these linked or foreseeable actions rise to.*

Please refer to the EA for past and foreseeable projects in the Bruneau and Owyhee Field Office. The need for juniper burning and cutting in the Bachman Grade area has been suggested in the allotment assessment. However, no proposed projects have been identified at this time.

*26. BLM is 40 years behind in management of the juniper encroachment and a multi-year project of hand cutting is not even an honest attempt at getting control of the situation... We support the idea of burning far and above any other kind of method.*

Please refer to the EA (2.3 Alternatives Considered but not Analyzed in Detail) on why broadcast burning was not incorporated into the proposed action.

*27. We do agree that there would be places that could be done with some hand cutting, but as we showed it only creates more of an ideal growing situation for the juniper. If the tree is not removed and allowed to remain on the ground it creates a protected growing bed for the seed.*

Any method used whether burning or mechanical is temporary in nature and merely sets back juniper encroachment for a number of decades (depending on the density and age of the junipers before treatment). Rarely does a single method (including prescribed burning) eliminates all encroaching juniper. Most burns are incomplete and require cutting after the burn if the objective is to remove all juniper. Burning does not kill all juniper seed on the soil surface resulting in new juniper seedling establishment following fire.

The existence of the old mahogany savannas and the impact fire would have on them eliminated the broadcast burning option as a viable alternative. Since most of the juniper trees in the project area are scattered, young (less than 30 years old) and not producing large quantities of seed, cutting the juniper trees is believed to be the most cost effective method for meeting the resource objectives.

*28. If you do the piling and burning method it will kill the ground where you have burned. Regardless of the time of year you burn that pile, it will have to be extremely hot to really burn it up and then the ground will have a hard time recovering.*

Recent studies by Bates and Svejcar (2006) dispute this claim. They found that perennial grass density and cover increased faster under burned debris than unburned debris, particularly Thurber's needlegrass and bluebunch wheatgrass. It appears that reduced light levels inhibit germination and/or establishment of some plants. Unburned debris tended to smother perennial forbs and grasses (except squirreltail) and reduce their establishment.

Direct impacts from slash pile burning, intense surface heating causing soil sterilization, would be minimal because slash piles in the Project Area are small and scattered. Total surface area affected would be less than 0.1 percent. There are adequate seed sources of native perennial plant species to allow rapid colonization of any localized areas that could become impacted.

*29. Perhaps some cutting could be beneficial (in the sparser areas). But we don't agree on leaving any tree lay or piling and burning.*

Since broadcast prescribed burning would not meet the purpose and need for this project in this area, cutting, lopping and scattering, or pile burning are the only other methods we know of. The proposed action includes making these cut trees available for fire wood where possible.

*30. The sage grouse do not particularly like big sage. To let it get out of control like the juniper is not benefiting the grouse. They need open spaces and healthy brush to survive. Just because the brush is there does not make it habitat for the sage grouse.*

BLM does not believe that the sagebrush is getting out of control. The densities of the mountain big sagebrush in this area are in the normal range for these sites. It occurs in a naturally patchy distribution with the sparser low sage in this area. Our observations are that grouse do use the patches of thick tall sage for nesting and hiding cover.