Playa Habitat Rehabilitation
Environmental Assessment

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Chapter 1 – Introduction

This Environmental Assessment (EA) has been prepared for the Prineville Field Office's proposed **Playa Habitat Rehabilitation Project** juniper cutting and thinning. The EA is a site-specific analysis of potential effects that could result with the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" impacts could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a "Finding of No Significant Impact" (FONSI). A FONSI is a document that briefly presents the reasons why implementation of the proposed actions will not result in "significant" environmental impacts (effects) beyond those already addressed in Brothers/La Pine Resource Management Plan (1989). If the decision maker determines that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project.

A decision record (DR) may be signed following public comment on the EA to document the decision.

Proposed action

The proposed action is to conduct restoration work through manual juniper cutting and thinning (chainsaw) on no more than the 8,814 acres encompassed by the project area to improve sage-grouse habitat associated with playas.

Project location

The entire project area is located approximately 13 miles south of the community of Brothers within the ZX Allotment. The project area is east of Fox Butte Road, south of Nershall Road, north of the line between Deschutes County and Lake County, and west of Fredrick Butte Road except the eastern portion of the project area which is just east of Fredrick Butte Road. The western portion, totaling 6,593 acres, lies within T22S-R17E Sections 21-28, 32-36 and T22S-R18E Sections 19 and 30. The central portion, totaling 1,124 acres, lies within T22S-R18E Sections 15, 16, 21, and 22. The eastern portion, totaling 1,097 acres, lies within T22S-R19E Sections 28, 29, 32 and 33. See Map 1.

Need for action

The need for action is to address degradation of sage-grouse habitat due to encroaching juniper in areas associated with playas. The increased growth of juniper into the project area has caused an imbalance in the vegetative composition when compared to the ecological site

potential. An ecological site, as defined for rangeland, is a distinctive kind of land with specific physical characteristics that produces a distinctive kind and amount of vegetation. Each ecological site has a characteristic plant community, and has evolved with a characteristic fire regime. Fire frequency and intensity contribute to the characteristic plant community of the site.

In order to improve sage-grouse habitat, there is a need to remove juniper trees to restore shrub-steppe habitats. Sage-grouse are sagebrush obligates requiring large areas with a variety of sagebrush communities to meet life-history needs. The shrub-steppe communities in the project area are being invaded by western juniper. This invasion leads to the deterioration of shrub-steppe habitat and therefore deterioration of sage-grouse habitat. Juniper encroachment is one of the primary limitations to habitat and current range of sage-grouse in the Prineville BLM District (Hagen, 2005).

Playas are also an important feature for sage-grouse. Playas are "usually dry and nearly level lake plains that occupy the lowest parts of closed depressions, such as those occurring on intermontane basin floors. Temporary ponding occurs primarily in response to precipitation-runoff events" (Schoeneberger & Wysocki, 2008). Playas provide an important source of high quality forage. Sage-grouse adults and chicks depend on forbs found in wetlands, including playas, during the late growing season when upland sources have desiccated (Hagen, 2005). A playas ability to make a protein rich diet available longer in the year prolongs the need for sage-grouse to transition to a winter diet dependent on sagebrush. Research suggests chick survival rates lower with earlier transitions to fall/winter diets (Hagen, 2005) and chick survival has been identified as one of the greatest limiting factors for sage-grouse populations.

Removing junipers in the landscape surrounding playas would expand the total area of optimal habitat needed to meet life-history needs. A paired watershed study in Central Oregon looking at the effects of thinning young juniper found that water is released when trees are thinned, making it available as increased soil moisture, ground water, and/or spring flow (Deboodt et al., 2009). Water released from the proposed juniper cutting and thinning would be available to remaining shrub-steppe vegetation and associated playas. An increase in available water for playas could extend the duration of ponding, extending the duration of forage availability for sage-grouse.

Purpose of action (objectives)

The purpose of the project is to maintain or improve sage-grouse habitat that is associated with playas through the removal of encroaching juniper, with the following objectives:

- Maintain wildlife habitat and rangeland health through juniper control (Brothers/La Pine Resource Management Plan (RMP) and Rangeland Program Summary ROD pgs. 88-90).

- Retain large structure within the project areas to maintain visual characteristics, wildlife habitat diversity, and as represented by the ecological site potential (USDI, 1989, pg. 89); and
- Maintain or enhance visual quality through project design and layout by visually mimicking historical fire-induced patterned vegetation mosaics to blend with the surrounding landscape (USDI, 1989, pg. 90).

Relevant policies and plans

Brothers/La Pine Resource Management Plan (1989)

The proposed action is in conformance with the Brothers/La Pine RMP by meeting objective 4 to "Provide optimum habitat diversity for game and non-game wildlife species" (USDI, 1989, pg 12). The proposed action also follows the guidelines for juniper and shrub control projects (USDI, 1989, pgs. 88-89) and all the Standard Operating Procedures (USDI, 1989, pg. 90). Number five of the Standard Operating Procedures was amended by a District Plan Maintenance update in 2002, and the proposed action will comply with this amendment.

Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat (2005)

As a signatory to the Greater Sage-Grouse Conservation Assessment and Strategy for Oregon (Strategy) (Hagen, 2005) there is a need to fulfill the Prineville District's commitment to improve sage-grouse habitat (by implementing the guidance and goals outlined in the Strategy). The Strategy is intended to promote the conservation of sage-grouse and functioning sagebrush communities. The proposed action supports the following statements from the strategy:

- Page 66 states "The overarching habitat goals are to 1) maintain or enhance the current range and distribution of sagebrush habitats in Oregon, and 2) manage those habitats in a range of structural stages to benefit sage-grouse."
- Page 52 describes encroaching juniper as a threat to sagebrush habitats, and identifies the Prineville region as having the greatest amount of encroaching juniper in the sage-grouse range. The plan states "To maintain connectivity efforts will be required to rehabilitate acres lost to conversion of exotic weeds and grasses, juniper encroachment, and seedings within the extant range of sage-grouse."
- Page 58 states that within the Prineville District, sage-grouse "Current range and habitat is limited primarily by juniper encroachment." The proposed action would reduce the amount of suitable sage-grouse habitat within the Prineville District that is being limited by encroaching juniper.

Central Oregon Fire Management Services Fire Management Plan (2002) and Federal Land Policy Management Act (FLPMA)

Under the proposed action, the movement of this project area toward its ecological site potential would improve wildlife habitat and diversity, and assist in moving the areas toward fire cycles that could be maintained (USDI & USDA 2002 Central Oregon Fire Plan [Chapter 3, pgs 3-6] and FLPMA [Sec 102(43 U.S.C. 1701) (a) (8)]).

Issues

An issue is a point of disagreement, debate, or dispute with an action based on an anticipated effect. To be an issue, a concern must also be within the BLM's decision space. While many issues may be identified during scoping, only some are analyzed in the EA. The BLM analyzes issues in an EA when analysis is necessary to make a reasoned choice between alternatives, or where analysis is necessary to determine the significance of impacts. Significant effects are those that occur in several contexts (e.g., local and regional) and are intense (e.g., have impacts on public health or unique areas). For more information on significance, see pages 70-74 in the BLM NEPA Handbook H-1790-1.

The following issues were raised by the public or BLM staff, or both, and will be considered in detail in this EA:

Issue: How would the alternatives affect sage-grouse habitat?

Under the no action alternative sage-grouse habitat would continue to be limited by encroaching juniper. The proposed action would improve shrub-steppe habitat in turn improving optimum sage-grouse habitat. The associated playas are important brood rearing habitat. Availability of quality forage improves chick survival.

Issue: How would the alternatives affect deer and elk hiding cover in the project area?

Juniper cover affects deer and elk habitat in two primary ways: 1) juniper provides visual screening thus increasing habitat security, and 2) at high densities juniper competes for resources and can limit forage availability. The proposed action would reduce hiding cover, but reduction in the amount of juniper occupation in the project area would be expected to increase the production of forage species, and subsequently allow wildlife more abundant forage.

Issue: How would the alternatives affect areas with wilderness character?

Evidence of vegetation treatment projects can be visible for years, potentially affecting the naturalness of an area in the short term.

Issue: How would the safety of people who use the area for recreation be affected by the alternatives?

There are concerns that the proposed action of cutting down trees and leaving the material on site would make the area susceptible to dangerous fires. Under the no action alternative there are concerns that high densities of juniper trees would create conditions conducive to high-intensity crown fires.

The following issues were raised by the public or BLM staff, or both, but would not be considered in detail in this EA:

Issue: How would the alternatives affect old growth juniper?

This issue was not considered in detail because no old growth juniper would be cut under the proposed action, and would not be affected by either alternative.

Issue: How would the alternatives affect cultural resources?

This issue was not considered in detail because mitigation measures are in place such that there would be no effect on these resources.

Issue: How would the alternatives affect special status plants?

This issue was not considered in detail because mitigation measures are in place such that there would be no effect on special status plants.

Chapter 2 – Proposed action and alternatives

Alternative A, no-action

Juniper control would not occur under the No Action Alternative. This alternative would retain all young juniper trees within playas, shrub-steppe communities and old growth juniper communities. The objectives stated in the purpose and need would not be achieved under the No Action Alternative.

Alternative B, proposed action

This alternative would involve the manual cutting and thinning (chainsaw) of young juniper trees 18-inches dbh (diameter at breast-height) and less that do not express old growth characteristics across the project area (See Map 1). Old growth characteristics include trees with main trunks and/or large branches parallel to the ground which can be twisted; these trees tend to have abundant lichens attached to them; and the trees do not have the typical "cone" shape of younger trees, they have large spreading, irregular shaped crowns that are often rounded or flat topped. In locations where more water is present, some trees greater than 18-inches dbh would be thinned due to the ability of young trees to grow rapidly. All young juniper trees would be cut from shrub-steppe plant communities and young juniper would be thinned in old

growth juniper woodland plant communities. No old growth juniper would be cut. The project area covered by this EA is 8,814 acres.

The proposed action alternative would comply with the Brothers/La Pine RMP by following the guidelines for juniper and shrub control projects (USDI, 1989, pgs. 88-89) and all the Standard Operating Procedures (USDI, 1989, pg. 90).

Standard Operating Procedure five has been amended by a District Plan Maintenance update to read as follows:

The Prineville District's Policy for rest from livestock grazing after a vegetation treatment/manipulation or wildfire is: Vegetation treatments/manipulations (including prescribed burns, seedings, juniper cuttings, chainings, weed treatments, etc.) and wildfires shall be rested from livestock and feral horse grazing for the first full year through the second growing season immediately following the event. This rest period is generally necessary for vegetation recovery and/or establishment and may be adjusted by the interdisciplinary team assigned to the project and approved by management.

The interdisciplinary team has determined that no vegetation recovery rest period or re-seeding is needed after the proposed actions. Current grass and shrub densities are relatively close to desired levels identified in the ecological site guides. Removing the juniper would increase the vigor of these plants. Grazing use within the established grazing system is not expected to retard the increased distribution or vigor of these plants.

Following treatment, the project area may be opened for roadside salvage of cut trees, under permit, for a variety of uses such as firewood and fence poles. Salvage activities would be limited to areas immediately adjacent to roads, and vehicles would be restricted to designated existing roads.

In addition, under the proposed action BLM contract and cooperator cutting activities would be subject to the following requirements:

1 Cutting activities would not proceed until such time as wildlife, botanical, and cultural resource clearances are completed. Any recommendations therein would be followed. Any resource of concern identified in the clearances to be at risk from the project activities would be protected from damage or disturbance.

2 Trees near any facility (such as fences and roads) would be directionally felled to avoid damaging or interfering with the function of these facilities.

3 No old growth, culturally significant, or dead or dead-topped juniper would be cut. Old growth characteristics include trees with main trunks and/or large branches parallel to the ground which can be twisted; these trees tend to have abundant lichens attached to them; and the trees do not have the typical “cone” shape of younger trees, they have large spreading, irregular shaped crowns that are often rounded or flat topped.

4 Trees with particular historical significance (survey trees, blaze trees, juniper structures, etc.) would be retained.

5 Trees with paint, signs, blazes, or fences attached to them would not be cut.

6 Any human remains, cultural and/or paleontological resources (historic or prehistoric or vertebrate fossil site or object) discovered as a result of project implementation shall immediately be reported by telephone to the authorized officer. All project activities in the immediate area of such discovery shall be suspended until written notification is issued by the authorized officer. An evaluation of the discovery would be made by the authorized officer, in consultation with a qualified cultural resources specialist, to determine appropriate actions to prevent the loss of significant cultural or scientific values.

7 Trees containing raptor size nests or cavities would not be cut.

8 All known or newly located raptor nests would have seasonal restrictions applied.

9 Juniper cover would be retained in key areas, such as along rock outcrops; in wildlife movement corridors; or areas that have other values important for wildlife. These specific areas would be identified in the clearance process.

10 A BLM Wildlife Biologist would be notified if pygmy rabbits (or their burrows), ferruginous hawks, raptors, sage-grouse or goshawk nests or individual birds, are discovered prior to or during treatment activities. The biologist would determine appropriate measures necessary for species; and treatment activities adjusted accordingly.

11 Treatment activities would commence no earlier than July 15.

12 In the event of catastrophic alterations of existing juniper cover (such as could result from a large wildfire); planned cutting acreages could be reduced to a level necessary to meet project objectives and mitigation requirements.

13 Contractors or other project entities would be given a noxious weed information pamphlet; be required to ensure their vehicle and equipment were checked for weed matter prior to entering the project area; and be requested to report any weed discoveries in their work areas. Any weed sighting information would be forwarded to the BLM Rangeland Management Specialist.

14 Cutting activities would be scheduled to minimize compaction and rutting to road surfaces.

15 Existing roads would provide vehicle access to cutting areas. No new road or trail construction would be authorized in connection with this project.

16 BLM contracts/cooperator agreements would include a provision for stump heights no greater than 10 inches, except in areas with wilderness character (See #26).

17 All vegetation manipulation actions would be consistent with the BLM's Visual Resource Management criteria. Treatments would be designed to achieve a "mottled" appearance through the following actions:

- Feathering treatment area edges by leaving scattered, dispersed trees of varying heights and densities.
- Cutting areas that could attract attention would be designed to resemble the form, line, color and texture of the landscape.
- Using irregular thinning unit boundaries, dispersing trees and slash, and retaining a variety of tree ages in order to promote a mottled appearance.
- Retaining sufficient trees on all topographic crests (such as ridge tops of basalt rim lips), and other areas (such as road cuts or old mining escarpments) necessary to maintain visual values and scenic quality.

If during the course of layout work, motorized vehicle-caused resource damage sites (such as mud-bogging or trash dumping sites, or user-created trails through critical habitats or other sensitive areas) were discovered, the BLM recreation specialist would be consulted concerning whether or not slash treatment should be applied on the site; and if so, actions would be taken accordingly.

Access to existing camping and related recreation sites would be retained.

Some limited salvage of cut juniper trees would be allowed in suitable designated portions of the project for use as firewood, fence posts, rails, hobbywood, etc.

Woodcutting would be allowed with a BLM-issued permit on a request basis only.

Woodcutting permits would be issued with a map and rules designed to protect roads, soil, and vegetation.

Vehicles used for woodcutting would be required to stay on existing roads. No new access roads or trails would be constructed.

No green leave trees or snags would be cut by woodcutters.

Branches and tops from cut trees would be lopped and scattered in open bare areas by woodcutters.

Cut trees would be directionally felled away from old growth juniper trees.

In areas identified as having wilderness character:

- A 300 foot untreated buffer would be left on all existing motorized travel routes.
- BLM contracts/cooperator agreements would include a provision for trees to be flush cut at ground level.

The interdisciplinary team considered the use of prescribed fire in place of manual cutting and thinning of young juniper or as a post treatment option to reduce fire hazards, but decided not to include prescribed fire in the proposed action. The team decided that when using fire as a tool for habitat restoration, effects are best analyzed at the landscape level. Since this plan is limited to areas surrounding playas, landscape level effects of prescribed fire could not be adequately analyzed within the scope of this EA.

Chapter 3 – Existing environment

This chapter describes the resources that are present, or potentially present, and which may be affected by the proposed action or no action alternative. The existing condition is the combination of the natural condition and the effects of past actions undertaken by the BLM and private entities. This section forms the baseline for comparison of the effects of the alternatives under consideration.

Topography and Soil

The project area is generally flat having representative slopes ranging from 0-5% in the majority of the project area. A small portion of the project area has slopes up to 15%, and 21 acres of North Butte that falls in the project area has a representative slope of about 40%.

Soil parent material in the proposed project area is primarily volcanic and has evolved over time to a variety of soil textures. In general, soils in the project area are classified using soil taxonomy in the order of Mollisols and suborder Xerolls (the driest of the Mollisols) (Brady 1990). There are approximately 13 different soil series in the project area ranging in depth from shallow (10-20 inches) to very deep (60-80+ inches). The playas in the project area are depositional areas that are represented by very deep soils. There are 16 playas (or portions of playas) in the project area totaling 434 acres. The areas surrounding the playas are mostly shallow (10-20 inches) to moderately deep (20-40 inches) soils.

On average, runoff is slow with the water erosion hazard (susceptibility of the soil to erode when cover is not present) ranging from slight to moderate. Playas and areas with an ashy sandy loam surface texture (2,126 acres) have moderate water erosion hazard; the rest of the project area (6,688 acres) has a low water erosion hazard. However, the increase in western juniper throughout the project area during the last century has increased the problem of erosion related to the change in vegetation and composition.

Vegetation

The project area is composed of shrub-steppe, and old growth juniper plant communities. Shrub-steppe communities historically do not support stands of old growth juniper. These communities are higher producing sites than old growth juniper communities; therefore, they support a denser shrub and herbaceous component that will carry fire. As a result, shrub-steppe communities historically were frequently subjected to fire which would remove young juniper from the site.

The vegetation in the project area is dominated by a grass/forb/shrub mix with large areas of juniper over story of varying density and age class. Grasses include Idaho fescue, bluebunch wheatgrass, Thurber's needlegrass, Sandberg's bluegrass, prairie Junegrass, and bottlebrush squirreltail. Shrubs include mountain and basin big sagebrush, low sagebrush and rabbitbrush. The dominant tree is juniper. There are also playas scattered throughout the project area. These sites are seasonally ponded depressions on the landscape. They are dominated by silver sagebrush. Grasses include Nevada bluegrass, mat muhly, Douglas sedge, and spikerush. These sites also support high forb cover.

The shrub-steppe communities in the project area are generally dominated by young juniper. Old growth juniper communities in the project area are also being invaded by young juniper. The increase in the number and distribution of young junipers creates a more continuous over story of juniper in the project area as compared to historic conditions. Due to the ability of juniper to out-compete understory (shrubs and bunchgrasses) vegetation, ecological sites in the project area are declining in productivity and stability.

No special status plants or noxious weeds are known to exist in the project area. Prior to any cutting activities a botanical clearance would be done. If any special status plants or noxious

weeds are identified all recommendations from the botanist would be followed.

Wildlife

There are no federally listed threatened, endangered or proposed species, or habitat designated "critical" or "essential" within the project area. Because these species and their habitats do not occur in the project area there would be no concerns associated with the proposed action to these species, so they will not be discussed further in this analysis.

The project area contains habitat for a variety of wildlife including BLM designated Sensitive Species such as sage-grouse, and species of local interest such as deer, elk and pronghorn. Additionally, there are numerous migratory songbirds, raptors, bats and small mammals that use habitats within the project area. Shrub-steppe habitats and juniper woodlands are the two primary habitats within the project area. Additionally, there are 16 playas, or portions of playas, that provide some wetland conditions. Recent assessments rated the ecological conditions of these playas from fair to good. These plant communities provide for the various life needs of wildlife (e.g., feeding, reproduction, and cover).

A lack of fire in the project area has allowed juniper encroachment into shrub-steppe habitats and an increase of juniper density within old growth juniper woodlands. The increasing juniper within shrub-steppe habitats alters the habitat condition making it less suitable for shrub-steppe dependent species. Most of the shrub-steppe habitat in the project area is dominated by young juniper which compromises the condition of the plant community and altering the structural suitability for sagebrush obligate species. However, juniper provides suitable conditions for a variety of wildlife. For example, juniper provides cover for deer and elk, nesting opportunities for western bluebirds and common flickers, and food (berries) for Townsend's solitaire and American robins.

Special Status Species

SAGE-GROUSE

The greater sage-grouse (*Centrocercus urophasianus*) is a BLM designated sensitive species and occurs in the project area. Sage-grouse have been the focus of attention because of declining population numbers and suitable habitat across its range. According to Hagen (2005), while Oregon sage-grouse numbers have declined over the long-term for which data are available (1957-2003), State-wide spring population trend was relatively stable for a shorter assessment period (1980-2003) and populations have been on the increase in most areas since the mid 1990s. However, the Prineville BLM District population has continually declined during the assessment period. The reasons for these losses likely are the cumulative effects of habitat loss and degradation, changes in predator control methods, and increases in human disturbance.

Juniper expansion has increased by nearly two-fold in sage-grouse range (from 1.6 to 3.3 million acres), much of which has occurred in the Prineville region. To maintain habitat connectivity,

efforts will be required to rehabilitate acres lost to juniper encroachment within the range of sage-grouse (Hagen, 2005).

Seven sage-grouse leks are located within four miles of the project area. Radio telemetry work on the Prineville District found 80 percent of sage-grouse nest locations were within four miles of leks. Sage-grouse often use playas for breeding (leks) and this study also identified playas as a water source sought out by sage-grouse. Sage-grouse adults and chicks depend on high quality forage (e.g., forbs) in wetland habitats, such as playas. Playas can play an important role in brood rearing because these moist sites produce high protein forage after forage in the uplands has dried out.

Encroaching young juniper is negatively affecting the suitability of some nesting habitat because junipers provide perches for predators (raptors) and junipers are outcompeting desired shrub, grass and forb plants.

OTHER SENSITIVE SPECIES

Other BLM designated sensitive species that occur in the project area include: pygmy rabbit (*Brachylagus idahoensis*); Townsend's big-eared bat (*Corynorhinus townsedii);* spotted bat (*Euderma maculatum);* fringed myotis (*Myotis thysanodes*), and pallid bat (*Antrozous pallidus*).

Pygmy rabbits are most closely associated with tall sagebrush and loose soils which are not abundant in the project area. They feed on tall sagebrush leaves throughout most of the year and in the summer their diet also includes grass. Pygmy rabbits would not be a concern for this project because sage brush would not be negatively affected. The proposed action would improve the ecological condition of shrub-steppe habitats by removing competition from encroaching juniper.

The bat species listed above are not a concern for this project because snags and old growth trees that provide potential roosting habitat would not be cut. These species are habitat generalists using both juniper woodlands and shrub-steppe habitats and are not dependant on young juniper trees.

Because there would be no concerns associated with the proposed action to these species, they will not be discussed further in this analysis.

Species of Local Interest

MULE DEER AND ROCKY MOUNTAIN ELK

Deer and elk are species of local interest and are emphasized in the Brothers/La Pine RMP. The project area is located within deer winter range, within the Wagontire Management Unit (ODFW) which is slightly below ODFW population management objectives (George, 2009-personal communication). However, the project is not located in crucial winter range identified in the Brothers/La Pine RMP.

Deer hiding cover assesses the amount of vegetation that contributes to hiding 90 percent of a deer at 200 feet from human view looking horizontally across a landscape. The definition of optimum deer hiding cover often used by BLM and ODFW as described in Thomas et al., (1978) includes a ratio of 40 percent hiding cover to 60 percent forage across the landscape, where cover patches are a minimum of 6.5 acres.

Approximately half of the 4,200 acres of shrub-steppe habitats in the project area has encroaching young juniper. The young juniper sometimes contribute hiding cover, however this cover is not continuous. In general, the young juniper is mostly scattered individual trees that are three to four feet tall and rarely greater than six feet tall, and where they provide cover it is provided by one to three trees located in a small cluster.

The increasing number of young juniper in 4,300 acres of old growth juniper woodlands within the project area is also providing an increased amount and moderately consistent pattern of hiding cover not historically provided by this plant community. Existing conditions provide approximately 25 to 35 percent hiding cover and without encroachment by young trees, the area would be expected to provide eight to 15 percent hiding cover. The condition of this hiding cover generally does not fit the definition of optimum hiding cover because this area has more widely spaced juniper which often occurs in small clumps and narrow stringers compared to patch sizes of 6.5 acres. Over half of the juniper trees within the old growth woodlands are young trees. Most of the denser stands of juniper that provides the more suitable cover is located in old growth juniper woodlands where young juniper has filled in the open spaces between the older trees.

RAPTORS

Ferruginous hawks soar over shrub-steppe and juniper woodlands and usually nest in isolated trees within shrub-steppe habitats. Golden eagles typically nest on cliff ledges but occasionally in large trees. They forage in a variety of habitat types and successional stages, preferring areas with an open shrub component that provides food and cover for prey (e.g. small mammals, birds, and newborn ungulates). There are no known ferruginous hawk or golden eagle nests within or immediately adjacent to the project area.

Ferruginous hawks, golden eagles, and other birds of prey use the project area but are not a concern because of the absence of nests and the increased amount of open habitat that would result from the proposed action. In addition, the proposed action would not cut any large older trees that could be suitable for nesting.

Because there would be no concerns associated with the proposed action these species will not be discussed further in this analysis.

Livestock grazing

The project area is all within the ZX Allotment (#5238) in the Prineville District. The ZX Allotment contains 76,498 public acres and 7,100 active Animal Unit Months (AUMs). There are eight pastures within the allotment. These pastures are grazed using a rest rotation grazing system. The season of use for the allotment is from March 1 to February 28. One permittee grazes the allotment. Management objectives for this allotment from the 1989 Brothers/La Pine RMP/ROD are: improve ecological condition, maintain or improve sage-grouse habitat, increase availability of livestock forage, and maintain or improve habitat for mule deer and/or pronghorn.

Fire & fuels

The juniper population occurs in a mosaic pattern across the project area. Some areas have few if any trees, while others have more dense populations of juniper. Historically, some areas were more prone to fire return than others, which has provided for a diversity of plant communities. Post settlement fire suppression efforts have increased juniper encroachment in the project area, interrupting the natural fire frequency of 0 to 35 years. As juniper has increased, key shrub and perennial grass species have declined in the project area. The understory plant species (shrubs and grasses) which provide the surface fuels that carry a fire from tree to tree have been diminished. This has altered fuel continuity and structure making it inadequate to carry fire except under extreme conditions.

Recreation

Hunting for pronghorn, deer and elk, camping and backcountry exploration are the primary recreation activities that occur in the project area; although hiking, photography, and wildlife viewing opportunities are available.

Hunting seasons start in late summer and continue through the fall. Camping is generally associated with hunting, although it occurs much of the year when the area is accessible and not too hot. Backcountry exploration usually occurs with four-wheel drive, or ATVs when accessible. Wet, muddy conditions generally limit this use in the spring.

Visual quality

Visual quality in the three areas proposed to have juniper cutting and thinning was rated as Visual Resource Management (VRM) Class IV in the 1982 BLM Brothers Grazing Management Environmental Impact Statement. Map 8 of that document identified the entire project area, totaling 8,814 acres, as having limited visual qualities in locations not sensitive to public land users.

According to BLM Visual Resource Inventory guidelines, the objective of VRM Management Class IV is to "… provide for management activities which require major modification of the

existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements…" (USDI BLM, 1986). The project area is within VRM Management Class IV and cannot be seen from U.S. highway 20.

Wilderness characteristics

BLM public lands in the vicinity of the project area were inventoried by BLM in 1979-1980 and again in 2008-2009 for wilderness characteristics. Qualities recorded during these inventories include a minimum size of 5,000 acres, the appearance of naturalness, opportunities for solitude, and opportunities for primitive unconfined recreation. The wilderness inventory reports are available for review at the Prineville District Office**.** The western (6,593 acres) and eastern (1,097 acres) portions of the project area were found not to contain wilderness characteristics. The recent re-inventory determined the central portion of the project area (1,124 acres) falls within a 13,807 acre block determined to contain wilderness characteristics. See Map 2.

The 13,807 acre block meets the minimum acreage requirement of 5,000 acres. The central portion of the project area (1,124 acres) falls within this block. It generally appears to remain in a natural appearing condition. This landscape is dominated by young and old growth juniper trees with topography that is undulating with low rolling hills and occasional playas. No manmade features were observed in this portion of the project area during the May, 2009 re-inventory of wilderness characteristics.

Opportunities for outstanding solitude are available in the larger 13,807 acre block, but are more limited in the central portion of the project area (1,124 acres) due to its location next to the north and west boundary roads, and limited topographic relief. Outstanding opportunities for primitive, unconfined recreation are available in other portions of the 13,807 acre block, but opportunities for hiking, hunting and other recreation opportunities on the 1,124 acre central portion of the project area are limited due to the close proximity to the north and west roads and limited topographic screening.

Archaeological resources

The physical setting of the proposed project area is situated within the High Lava Plains physiographic province. As such, the terrain consists largely of an arid rolling plain, with shallow, sandy soils, punctuated by occasional low basalt outcrops and shallow, dry lake basins. Although it is possible that sources of water may have been available in the past during periods of more effective moisture, currently, springs existing on Hampton Buttes, located approximately 5-11 air miles to the northeast, offer the nearest perennial source of water to the project area.

Evidence from past surveys suggests that Indian people have periodically visited the area for the purpose of resource exploitation for at least the past 8,000 years. Similarly, Euro-Americans entered the project area at the beginning of the 20th century to file land claims for homesteads. Given those considerations, it is likely that some open-air, prehistoric sites related to resource utilization and historic sites associated with the settlement era exist within the project area. However, the scarcity of perennial water and the severity of the landscape suggest that the density of such sites would be low.

Despite those considerations, prior to any cutting activities a cultural resource clearance will be done. Any recommendations therein would be followed. Any resource of concern identified in the clearances to be at risk from the project activities would be protected from damage or disturbance.

Chapter 4 – Environmental effects

Soils

Under the no action alternative, no juniper cutting and thinning would occur in the project area. As the number and canopy cover of juniper increase in the area vegetative changes would be expected to occur. Shrub cover and deep-rooted perennial bunchgrasses are expected to decline because they are unable to compete with the juniper. Loss of the native understory vegetation in interspaces reduces organic inputs for soils, diminishes infiltration rates, and increases overland flow resulting in accelerated erosion (Miller et al., 2005). Erosion would be higher on the 2,126 acres identified to have a moderate water erosion hazard.

The proposed action would cut and thin young juniper in the project area. Reducing the juniper cover would maintain or improve the soil resource function by insuring adequate moisture for the deeper-rooted shrubs and perennial bunchgrasses. Increased vigor of shrubs and bunchgrasses reduces bare ground, and allows for more water infiltration to occur, increasing the effective moisture of the site and decreasing the runoff and erosion.

Under the proposed action vehicle travel would be restricted to existing roads to access to cutting areas. No new road or trail construction would be authorized in connection with this project; therefore cutting and thinning activities are not expected to have any impact on the soil resource.

Vegetation

Under the no action alternative no juniper cutting and thinning would occur in shrub-steppe or old growth juniper communities. Juniper competes with native shrub-steppe vegetation for water, sunlight, space, and nutrients (Barrett, 2007). In Central Oregon water is very limiting. Juniper canopies intercept rainfall preventing soil recharge and use by understory plants. Juniper also has the ability to transpire water during any month of the year. Conversely, native

shrubs, grasses and forbs are dormant from late fall through early spring; which is when Central Oregon receives most of its annual precipitation. In a healthy shrub-steppe community winter precipitation is stored in the soil for future use by the native vegetation. However, since juniper can use water any time of the year it inhibits soil recharge by using that water during the dormant period.

The majority of the shrub-steppe habitat dominated with young juniper is still in the early- to mid-phases of stand closure. These areas often support an understory of shrubs and herbaceous vegetation. This has implications for future changes that will occur within these habitats in the next 30 to 50 years. In the absence of disturbance or management, juniper seedlings will continue to establish and the majority of these landscapes will become closed woodlands resulting in the loss of understory plant species and greater costs for restoration (Miller et al., 2007).

Young juniper also competes with old growth trees and their associated understory. Under the no action alternative young juniper would continue to establish and compete with the larger old growth trees. Greater density and competition from young juniper would make large, old trees more vulnerable to damage/mortality from insects, disease, drought, and wildfire. Similar to the effects on shrub-steppe communities, higher densities of young juniper would displace understory shrubs, bunchgrasses, and forbs, resulting in reduced old growth woodland diversity. Higher juniper densities could create conditions conducive to high-intensity crown fire which would threaten the survival of old growth juniper.

Under the proposed action young juniper would be thinned in the project area. With the removal of encroaching juniper from the shrub-steppe and old growth juniper communities, resources such as water, nutrients, sunlight, and space would be made available to native shrubs and herbaceous plants. It may take several years following treatment to see a visible response (Miller et al., 2007).

Expected responses after manual cutting and thinning of young juniper include:

- Increased vigor and recruitment of shrubs, deep rooted perennial grasses, and forbs.
- Increased species diversity among deep rooted perennial grasses, and forbs.
- Improved ecological function on site by having a site with a variety of plants that contribute different amounts and type of litter, and have different rooting patterns and depths that aid in infiltration and percolation.
- Reduction of bare ground in the interspaces due to increased plant densities resulting in improved infiltration, reduced overland flow, and trapping of sediments resulting in less soil erosion.
- Increase the health and longevity of the remaining old growth trees.

Cutting and thinning young juniper in the project area would, to some degree, mimic the natural role of fire in the system. Shrub-steppe communities historically do not support stands of old growth juniper. These are higher producing sites than old growth juniper communities;

therefore, they support a denser shrub and herbaceous component that will carry fire. As a result, shrub-steppe communities historically were frequently subjected to fire which would remove young juniper from the site. Fire, though infrequent in old growth juniper communities, historically contributed to ecological diversity by creating variable tree densities and gaps in the woodlands.

Wildlife

No Action Alternative

The no action alternative would not directly affect wildlife because no project activities would be implemented. Because no new management activities would occur, risks for noise, human presence or other wildlife disturbance would remain unchanged. This alternative would allow the amount and distribution of young juniper located within shrub-steppe habitats and old growth juniper woodlands to increase over time and provide more juniper habitat for associated wildlife (e.g. deer, elk, Townsend's solitaire, common flicker, etc.) than the proposed action. However, shrub-steppe and old growth juniper woodland habitats would decline in ecological condition, negatively affecting wildlife (e.g., sage-grouse, sage sparrows, pronghorn, raptors, bats, etc.).

SAGE-GROUSE

The no action alternative would allow young juniper to continue to exist and increase in numbers and size within shrub-steppe habitats and expand into new areas resulting in a reduction in the amount and distribution of suitable shrub-steppe habitats for sage-grouse and other shrub-steppe dependant species. This alternative would maintain existing suitable perching habitats for raptors within shrub-steppe habitats and support the development of additional perching habitat. The no action alternative would also maintain high numbers of young junipers within old growth juniper woodlands reducing the suitability of available habitat for sage-grouse. Many of the old growth woodlands could provide some suitable habitat conditions for sage-grouse if there were fewer numbers of trees present because sagebrush plants die when juniper tree densities increase and dominate a growing site. The loss of sagebrush and increase in tree cover makes open juniper woodlands unsuitable for sage-grouse.

Juniper expansion plays a major role in the decline of optimum sage-grouse habitat. Expansion into lek sites provides hiding cover and perches for predators. Studies show higher predation at lek sites with encroaching juniper trees and less predation on the same leks after removing the trees (Commons et al., 1999). Leks have been abandoned when encroachment becomes too dense, and juniper expansion in sage-grouse habitat can also limit their movements, reduce connectivity between leks, and inhibit genetic exchange (Commons et al., 1999).

The no action alternative would not cut and thin young juniper located within and immediately adjacent to playa habitats allowing juniper to increase and expand in these areas. Encroaching junipers would be using water and nutrients that would otherwise be available to the playa and

associated vegetation. Continued juniper encroachment in and around playas would contribute to a decline in the overall condition of the playa habitat and would threaten the availability of the valuable source of forage that playas provide during the brood rearing stages of sage-grouse.

As juniper expands, the amount and quality of shrub-steppe habitat declines, affecting shrub obligate wildlife species (e.g. sage-grouse, pronghorn, sage sparrow, etc.). By retaining young juniper within shrub-steppe habitats, as identified in the no action alternative, the amount and density of young juniper would continue to increase and negatively affect shrub and grass communities, water resources, and associated wildlife.

The no action alternative would not improve habitat conditions for sage-grouse or contribute to the goals and objectives of the Greater Sage-Grouse Conservation Assessment and Strategy for Oregon.

MULE DEER AND ROCKY MOUNTAIN ELK

The no action alternative would maintain the amount and distribution of juniper hiding cover in 4,200 acres of shrub-steppe habitats and 4,300 acres of old growth juniper woodlands. In the long-term, this alternative would allow juniper to continue to expand, increasing the amount of hiding cover for deer and elk within shrub-steppe habitats and old growth juniper woodlands.

Because the no action alternative would retain the currently high numbers of young juniper within old growth juniper woodlands it would provide the opportunity for wildfire to burn at high intensity through the tree canopies of many of the young and older trees killing them. By not cutting and thinning young juniper located within old growth juniper woodlands this alternative would increase the opportunity for wildfire to burn and remove the current amount of existing hiding cover. Additionally, as these woodlands increase in number of young juniper trees, the older trees will become stressed and be vulnerable to premature death.

Proposed Action Alternative

SAGE-GROUSE

The proposed action would remove all young junipers growing within 4,200 acres of shrub-steppe habitats thereby maintaining and/or improving the habitat conditions for sage-grouse and sagebrush obligate species. Additionally, this alternative would thin most young juniper trees from within old growth juniper woodlands increasing their suitability for sage-grouse such as for connectivity to other areas of suitable habitat. Additionally, the proposed action would decrease competition for resources (e.g., water, nutrients) between the younger and older trees.

The majority of the project area is used during the breeding and brood-rearing stages for sage-grouse. During these times sagebrush is primarily used for hiding cover, with forbs and insects making up a greater portion of the diet. Reduction of juniper would be expected to increase forbs and maintain and/or enhance shrub canopy cover.

Removal of young juniper in upland areas would reduce the amount of juniper competition and is expected to increase the amount of soil moisture available for desirable plant species. Seasonal playas in the project area would also benefit from this release of water and extend the duration of forage and water availability for sage-grouse and other wildlife.

MULE DEER AND ROCKY MOUNTAIN ELK

The proposed action would decrease the amount and distribution of juniper hiding cover located in 4,200 acres of shrub-steppe habitats. Additionally, this alternative would degrade the effectiveness of existing hiding cover located in 4,300 acres of old growth woodlands. Following the removal of most of the young juniper in the old growth woodlands, it is estimated that the area will provide eight to 15 percent deer hiding cover. In the long-term, this alternative would not allow juniper to continue to increase the amount of hiding cover for deer and elk within shrub-steppe habitats and old growth juniper woodlands. Removing young juniper from shrub-steppe habitats and creating a more open woodland condition could increase deer and elk vulnerability during the hunting season.

The proposed action would thin the currently high numbers of young juniper within old growth juniper woodlands decreasing the risk of wildfire burning at high intensity through the tree canopies of the older trees. In the short-term the slash created by thinning would maintain the risk of wildfire killing older trees, however, over time as the slash decomposes, the risk of high fire intensity would decrease.

Livestock grazing

Under the no action alternative, as juniper increases and the ecological site declines in productivity and stability, key perennial grass species would decline as they are out competed for soil moisture and nutrients by the increasing juniper. The reduction in the amount and quality of livestock forage available would increase grazing pressure on key grass species, causing their density to decline as effects of increased grazing pressure and competition from juniper are combined. Eventually a reduction of the livestock carrying capacity would be required for the pasture/allotment.

Under the proposed action, livestock grazing opportunity would remain static or improve. The amount and distribution of key perennial grass species would at worst remain static but would be expected to increase as the productivity and stability of the ecological site improves from the removal of juniper. Perennial grass plant health should improve because there would be more soil nutrients and moisture available for the plants.

Fire & fuels

Under the no action alternative no juniper cutting and thinning would occur in the project area. Fuel conditions would continue to be affected by the encroaching juniper. Understory

conditions would continue to deteriorate, further reducing the ability of the site to carry fire except in extreme conditions.

If a wildfire occurred unchecked under the no action alternative during extreme fire conditions (wind driven, high temperatures and low humidity) the area would burn, likely removing much of the understory and juniper population. The greatest intensity would be in areas where ladder fuels (shrubs, grasses and lower tree limbs) are present. These ladder fuels would provide an avenue for fire to enter the canopy layer, producing a crown fire.

Under less than extreme conditions, wildfire spread between or under the trees will be diminished due to lack of understory immediately beneath the tree canopy causing a lack of continuity of surface fuels. Some torching would be expected, with fire behavior moderating when temperatures cool during evening hours.

The proposed action would cut and leave juniper. Under the proposed action, juniper thinning would re-configure the fuel bed horizontally, by leaving residual bole wood and branches when trees are felled. Where there are fewer trees, cut trees will be some distance apart, thus the continuity of the fuels in a horizontal configuration will be broken up. Concerns for spread rates and intensity in these areas are low. However, some areas in the proposed project exhibit a higher concentration of trees (fuel), thus cutting and leaving has potential to create a more continuous fuel bed. In concentrated fuels, an unplanned ignition under high fire indices would increase the hazards of spread and increased fire behavior.

In the short term, there would be an increase in fire hazard for a one to two year period due to the increase in fine (1-hour) fuels, primarily consisting of red needles clinging to the branches of cut trees. Over time, unless fire indices are extreme, fire is less prone to carry through the fuels once the red needles have grayed and fallen away.

In the event of an unplanned ignition, more potential exists for increased fire spread and increased fire behavior (flame length and intensity) across the continuity of the down woody material left post treatment. This may create a more hazardous and complex fire to suppress for firefighters, due to the fuel bed configuration with increased spread and intensities. Access for suppression activities, should an unplanned ignition occur, may also be more difficult, due to barriers created by the down, horizontal tree boles. Fuel wood gathering would reduce some of the hazards along accessible roads.

Recreation

Under the no action alternative recreation activities would not be affected because no change in the landscape character is proposed.

Under the proposed action, the various recreation activities available in this landscape would not change due to the proposed action to thin young juniper trees. Visitors hiking or hunting in the landscape where juniper cutting and thinning occurred would see cut juniper trees in the

short term, but may not see them in the long term as these trees are either burned from wildfire, or decay over time. In the long term, changes in vegetative diversity resulting from juniper cutting and thinning may result in more diverse and abundant wildlife species, offering more opportunities for photography, wildlife viewing, and hunting.

Visual quality

Under the no action alternative, no change in visual qualities is proposed.

Under the proposed action, the primary effect of juniper cutting and thinning on visual quality would be a short term increase in the color contrasts between dead and live trees. Dead trees would have a period where needles were red in color before needles turn grey and fall off. This effect would diminish over the long term.

The texture of the landscape would not be affected, being mottled, or rough in areas uncut or cut. Increased vegetative diversity resulting from juniper cutting and thinning would increase visual quality over the long term and would help highlight the remaining old growth juniper trees in this landscape. Limited topographic relief and old growth juniper tree stands in the project area would help reduce visual color, line and form contrasts, and short-term visual effects of the proposed action.

Effects in the central portion of the project area (the 1,124 acres with wilderness characteristics) would be less than in the rest of the project area due to mitigation measures. Manual cutting and thinning of juniper would be less apparent in the mid and background of the landscape in the central portion of the project area and would not leave short and long term effects on visual quality in the foreground near roads, because no trees would be cut within 300 feet of existing roads. Requiring juniper tree stumps to be cut flush with the ground and meandering treatment boundary lines would avoid potential straight line treatment contrasts in areas with wilderness character. These mitigation measures are expected to reduce short term effects to visual quality and treatments are not expected to attract attention from the casual observer over the long term.

Wilderness characteristics

Under the no action alternative, wilderness characteristics such as naturalness, solitude and primitive recreation would be retained in all areas containing wilderness characteristics. The existing landscape would not be altered by juniper cutting and thinning.

Under the proposed action cutting and thinning of young juniper would reduce naturalness in the central portion of the project area (1,124 acres) in the short term. Cut juniper trees would be apparent in the short term. However, requiring juniper trees to be “flush cut” would reduce the evidence of cut junipers over the long term. Limiting motorized vehicle use to existing roads would also help protect naturalness by not creating new roads.

The 300 foot buffer next to roads that is excluded from treatment in areas of the project area containing wilderness character would also mitigate visual contrasts between cut and uncut landscapes, helping to retain the natural appearance of this landscape.

Over the long term, the cut young juniper trees would not contrast and would not be apparent or exist, as these trees turn gray or wildfires burn in this area. A natural appearing landscape would return and is expected to include a more abundant vegetative diversity of understory plant species.

Removing young juniper trees would increase open spaces within the juniper canopy, but is not expected to reduce opportunities for solitude in this area due to the amount of old growth juniper in the same area, which will still provide vegetative screening to avoid other visitors in the same area. Opportunities for primitive, unconfined recreation may increase over time, as vegetative diversity attracts more deer and elk, increasing hunting and viewing opportunities.

The remaining portion of the 13,807 acre block containing wilderness character would not be affected by the proposed action. Effects would be limited to the 1,124 acre central portion of the project area.

Cumulative effects

The cumulative effects analysis considers past, present, and reasonably foreseeable future actions that would affect the resources of concern. The analysis includes other BLM actions, other Federal actions, and non-Federal (including private) actions. The analysis of reasonably foreseeable future actions is not limited to those that are approved or funded. Reasonably foreseeable future actions are those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends.

The no action alternative would have the greatest potential for cumulative effects on shrub-steppe and old growth juniper plant communities when considered with actions on lands adjacent to the project area. Historic management in the project area has contributed to the disruption of the natural fire cycle. Historic improper livestock grazing which reduced fine fuels, changed plant community structure, and reduced competition from herbaceous species. This improper grazing in combination with active fire suppression led to juniper encroachment into shrub-steppe and old growth juniper communities. Without vegetation management juniper will continue to expand into these communities resulting in declined ecological condition.

Cutting and thinning of young juniper under the proposed action is expected to maintain or improve ecological condition of shrub-steppe and old growth juniper plant communities, and protect old growth juniper trees from insects, disease, and wildfire.

Juniper encroachment has been identified as the primary threat to sage-grouse habitat connectivity on the Prineville BLM District (Hagen, 2005). Without vegetation management projects to remove young juniper, juniper will continue to affect habitat connectivity. The BLM conducted three juniper cutting and thinning projects in 2008 in the vicinity of the project area. All three were wildlife habitat manipulation projects designed to improve sage-grouse habitat. A 454 acre juniper treatment was done by the Lakeview BLM District adjacent to the southern boundary of the western portion (6,593 acres) of the project area. On the Prineville BLM District, 1,000 acres of young juniper were manually cut and thinned (chainsaw) along the eastern boundary of the western portion (6,593 acres) of the project area, and 940 acres of young juniper were manually cut and thinned (chainsaw) approximately 0.5 miles southeast of the central portion (1,124 acres) and approximately 1.5 miles northwest of the eastern portion (1,097 acres) of the project area. The close proximity of existing projects to the project area adds to the connectivity of treated areas, thereby improving connectivity of improved optimum sage-grouse habitat. These juniper treatments also reduce the amount of hiding cover for deer and elk, resulting in increased risk to hunter harvest.

Both the Prineville and Lakeview BLM Districts have expressed intent to continue habitat restoration through juniper cutting and thinning in the vicinity of the project area. This would further connect optimum sage-grouse habitat and maintain or improve ecological condition. These juniper treatments would further decrease the amount and connectivity of deer and elk cover in the area. Multiple juniper cutting and thinning projects in close proximity to each other spatially and temporally could exacerbate the short term fuels risks and associated public safety concerns. When cut trees in the red needle phase are left on the ground they create a more continuous horizontal fuel bed, increasing hazards associated with an unplanned ignition. Multiple project areas in the red needle phase would facilitate fire spread over a larger area in the case of an unplanned ignition.

The 940 acre juniper cut and thinning located approximately 0.5 acres southeast of the central portion (1,124 acres) of the project area is located within the 13,807 acre block determined to contain wilderness characteristics. This cut and thinning still has wilderness characteristics, due to large old growth juniper trees remaining in a landscape where younger juniper trees were cut. Over time, the evidence of the young juniper trees and juniper stumps will diminish and is not expected to be apparent over the long term, especially if wildfire events continue in the area. Under the proposed action, another 1,124 acres (the central portion of the project area) would receive cutting and thinning of young juniper. As a result, wilderness characteristics would be affected in the short term on 2,064 acres of the 13,807 acre block. Effects on the central portion of the project area should be less than on the 2008 project area because additional mitigation measures have been added. A 300 foot untreated buffer along all roads would provide visual screening and stumps would be flush cut making them less visible. Long term, evidence of cut trees and remaining stumps would diminish and improved ecological condition and vegetative diversity would add to the naturalness of the area.

While it is accepted that some change in climate conditions will occur in the future, it is not possible to reasonably foresee the specific nature or magnitude of the changes. Climate change involves the concept of "carbon sequestration." Carbon moves continually between solid and gaseous states. Vegetative ecosystems fix carbon into a solid form from an atmospheric gaseous state during metabolism and growth, and release carbon back into the atmosphere as carbon dioxide (CO2) during decomposition. This conversion of carbon into a solid form is known as carbon sequestration. Vegetation sequesters (stores) carbon in a stable solid form as plant biomass (i.e., stems, branches, leaves, and roots). When vegetation dies and decomposes the carbon is released, thus perpetuating the carbon cycle. Decomposition can be either through slow microbial action, or rapid through combustion (fire). The amount of carbon stored at a site in the form of plant biomass reflects the net balance between carbon uptake and release. The biomass in the native shrub-steppe and old growth juniper communities within the project area represents long-term carbon storage, or a carbon "sink."

Human activities alter biological carbon sequestration and release through land management. Cutting and removing trees (or mortality by any means) ceases metabolic CO2 uptake and begins the lengthy decomposition process and release of CO2 back into the atmosphere. In the project area, the decomposition process naturally occurs over a period of many decades, or even centuries. Burning vegetation (e.g., through wildland fire) greatly accelerates the process of carbon decomposition. The chemical process of combustion combines biomass carbon with atmospheric oxygen to immediately release CO2 into the atmosphere.

Global climate change over time effects local temperature and precipitation patterns. Increases or decreases in available water and length of the growing season will affect the production capability of the native shrub-steppe and old growth juniper communities in the project area.

Chapter 5 – Consultation and coordination

Tribal, Federal, State and local governments

The BLM worked closely with representatives of the Oregon Department of Fish & Wildlife in Bend. On May 20, 2009 the BLM sent a letter to the Burns Paiute Tribe and the Klamath Tribes.

Public contact and notification

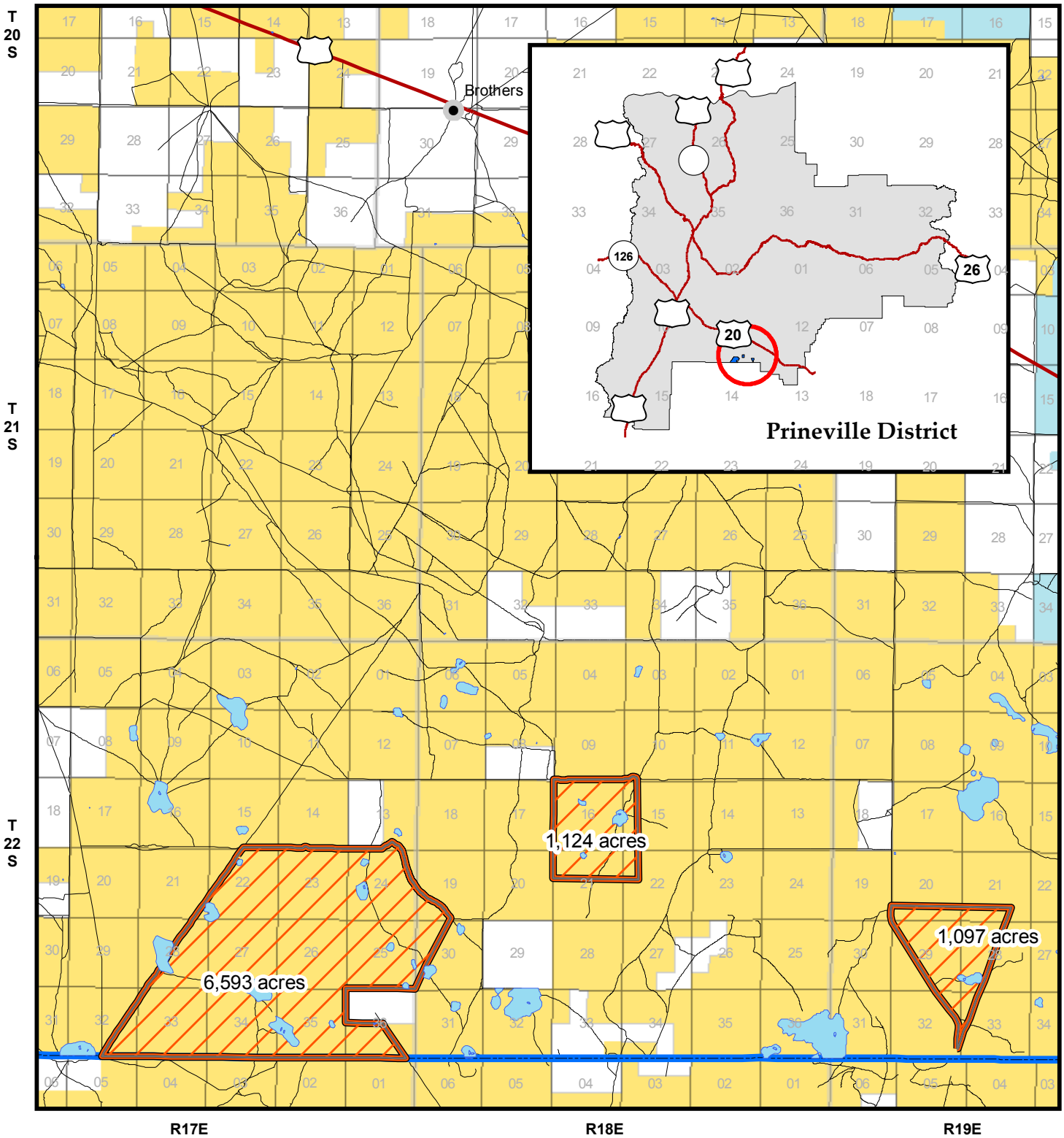
Notification letters have been sent to private land owners in the vicinity of the project area; Playa Project partners at the Oregon Department of Fish & Wildlife, U.S. Fish & Wildlife Service, and Oregon State University; the grazing permittee; and the Burns and Lakeview District BLM offices.

List of preparers Prineville BLM

Name	Title
Molly Brown	Field Manager, Deschutes Resource Area
Bill Dean	Assistant Field Manager, Deschutes Res. Area
Teal Purrington	Planning & Environmental Coordinator
Jennifer Moffitt	Natural Resource Specialist
Cassandra Hummel	Natural Resource Specialist - Wildlife
Berry Phelps	Recreation Planner
Janice Madden	Fuels Specialist
Don Zalunardo	Rangeland Management Specialist
Steve Castillo	Forester
Ron Gregory	Cultural Resources
JoAnne Armson	Botanist

Appendices

Appendix A. Maps



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Legend

- Playa Habitat Rehabilitation Project
- Playas
- Major Highway
- Road
- Prineville Dist. Boundary

Administered Lands

- Bureau of Land Management
- State
- Private/Unknown

N W E S

0 1 2 Miles

PRINEVILLE DISTRICT
Playa Habitat Rehabilitation Project
Environmental Assessment
DOI-BLM-OR-P060-2009-00036-EA
2009

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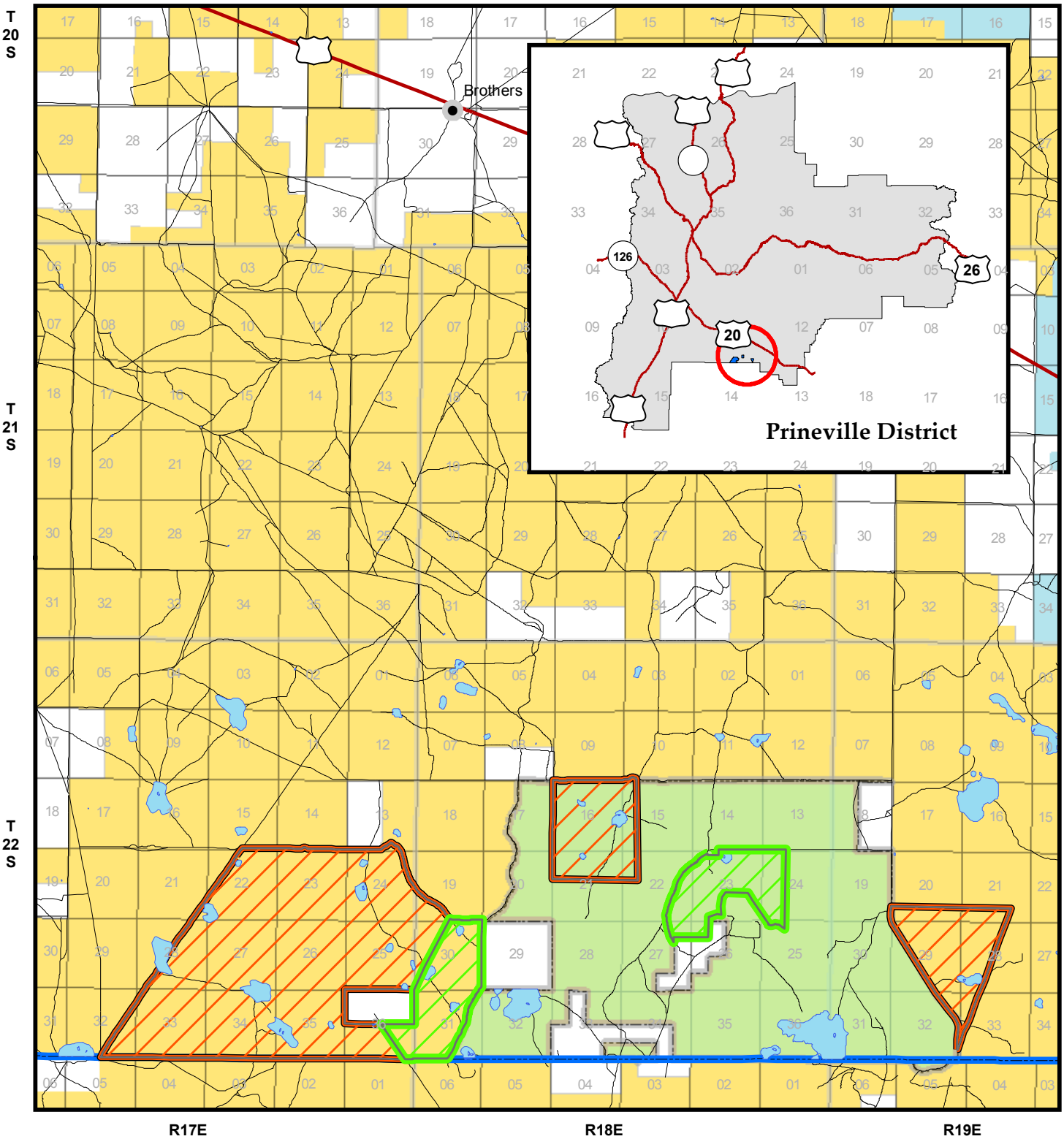
Created: 06/02/2009

Map 1: Playa Habitat Rehabilitation



Legend

- Wilderness Character
- Playa Habitat Rehabilitation Project
- Playas
- 2008 Juniper Cutting & Thinning
- Major Highway
- Road
- Prineville Dist. Boundary

Administered Lands

- Bureau of Land Management
- State
- Private/Unknown

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PRINEVILLE DISTRICT
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Created: 06/02/2009

Map 2: Areas Expressing Wilderness Character

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