

Klamath River Canyon Vegetation and Road Treatments Environmental Assessment #OR-014-08-02

PROJECT TITLE/TYPE: Klamath River Canyon Vegetation and Road Treatments

PROJECT LOCATION: Upper Klamath River Canyon (See Map 1)

BLM OFFICE: Klamath Falls Resource Area, Lakeview District

CONFORMANCE WITH APPLICABLE LAND USE PLANS

This proposed action is subject to the following land use plans:

- Klamath Falls Resource Management Plan and Environmental Impact Statement Record of Decision (1995)
- Draft – Upper Klamath River Management Plan and EIS (2003)
- Vegetation Treatment on Bureau of Land Management (BLM) Lands in Thirteen Western States FEIS and ROD (1991)
- Supplement to the Northwest Area Noxious Weed Control Program FEIS and ROD (1987)
- Integrated Noxious Weed Control Program EA #OR-013-93-03 (1994)
- Lakeview District Fire Management Plan – Phase 1 (1998)
- Rangeland Reform '94 FEIS and ROD (1995)
- Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington (1997)

INTRODUCTION

The project analysis area is located within and adjacent to the Klamath River Canyon in southern Oregon (see map 1). In 1994, the Klamath River from J.C. Boyle Powerhouse to the California/Oregon state line was designated a wild and scenic river based on outstandingly remarkable values (ORVs), including: recreation, wildlife, fish, prehistoric, historic, scenic quality, and Native American traditional use. These values were identified in the “Final Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study” completed in 1990. Most of the project analysis area was also designated by the Bureau of Land Management (BLM) in the Klamath Falls Resource Area’s 1995 Resource Management Plan/Environmental Impact Statement (KFRA RMP/EIS 1995) as an Area of Critical Environmental Concern (ACEC). This ACEC encompasses 5,205 acres and the designation extends laterally from rim to rim the length of the river from the J.C. Boyle Powerhouse to the California/Oregon state line. The objectives for the ACEC are to maintain, protect, or restore historic, cultural, scenic, fisheries, and wildlife populations and habitat (KFRA RMP/ROD 1995).

The vegetative communities in the proposed area are an extension of the warm, dry chaparral of northern California, mixed with plant communities of the east slope of the Cascades and Sierra Nevada provinces (USDI BLM 2003, 44). The major plant communities are identified as conifer forest and woodland, dense oak woodland, open oak woodland and dense brush (see Table 1).

Table 1. Plant community acreage by ownership.

Plant Community	Total Acres in Analysis Area	BLM Acres in Analysis Area
Conifer forest and woodland	3,911	2,732
Dense oak woodland	676	607
Open oak woodland	1,862	1,218
Mixed shrub	1,250	982

The conifer stands within the project area are generally mixed Ponderosa Pine (*Pinus ponderosa*)-Douglas fir (*Pseudotsuga menziesii*) stands with lesser amounts of Incense Cedar (*Calocedrus decurrens*), Sugar Pine (*Pinus lambertiana*), and White Fir (*Abies concolor*). The oak stands within the project area consist of Oregon white oak (*Quercus garryana*) as the dominant tree with California black oak (*Quercus kelloggii*) being a minor component. The mixed shrub community is found throughout the planning area and consists of shrubs, forbs, and grasses. The most common shrub species are birchleaf and curleaf mountain mahogany (*Cercocarpus montanus* and *Cercocarpus ledifoliosus*), wedgeleaf ceanothus (*Ceanothus cuneatus*), greenleaf manzanita (*Arctostaphylos patula*), poison oak (*Toxicodendron diversilobum*), deerbrush (*Ceanothus integerrimus*), serviceberry (*Amelanchier arborea*), snowberry (*Symphoricarpos albus*), rabbitbrush (*Chrysothamnus nauseosus*). The predominant forbs include Puget balsamroot (*Balsamorhiza deltoidea*), mountain dandelion (*Agoseris retrorsa*), and yarrow (*Achillea millefolium*) while the prominent grasses are cheatgrass (*Bromus tectorum*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and needle grass (*Nassella viridula*). Many of the species that represent the mixed shrub community also inhabit the other vegetative communities as ground cover and understory.

Since European settlement, several factors have allowed changes in the vegetative communities to occur. Native American subsistence burning has been eliminated, heavy grazing has occurred in certain areas, and active fire suppression has occurred within the project area (USDI BLM 2003, 45). Historically, in the conifer forest/woodland communities the estimated fire return interval is 10 to 20 years. In the oak woodland communities the fire return frequency is estimated to be shorter at 5 to 15 years (USDI BLM 2003, 99). The change in fire frequency has resulted in an altered vegetative landscape. The oak stands have transitioned into overstocked stands of stunted oak trees while the conifer stands have transitioned into stands with an extremely dense understory and an accumulation of downed logs and other woody debris and dead material. There have been very few larger fires in the canyon in recent history. However, there have been 20 documented lightning ignitions within the Klamath River Canyon from 1990 to 1999 (ODF as stated in USDI BLM 2003, 99).

PURPOSE AND NEED FOR ACTION

Purpose

- Transition the vegetative communities toward their historical structure by reintroducing fire to plant communities that developed with fire as an integral part of their evolution
- Reduce the hazardous fuel load in the Klamath River Canyon
- Increase Initial Attack effectiveness on wildland fires
- Create a more open and productive oak woodland
- Manage roads so as to not contribute to water quality problems, cultural site damage, noxious weed dispersal, or riparian/wetland degradation (USDI BLM 2003, 130)

- Reduce road density in riparian reserves to meet objectives of the Resource Management Plan (RMP)

Need

The need for the proposed vegetation treatment project is to protect and enhance the Outstanding Remarkable Values (ORVs) scenic quality and wildlife - for which the Wild and Scenic Klamath River was designated, reduce the risk of high intensity wildfire, reduce the risk of insect attacks on forest, reestablish native vegetation, and improve wildlife habitat.

The proposed vegetation treatment project is needed to enhance the oak woodland habitat in the planning area and benefit those wildlife species associated with the habitat (see Figure 1). Many species of wildlife are associated with large oak trees, the mast (acorns) they produce and the cavities they provide. Species such as the acorn woodpecker, wild turkeys, black-tail and mule deer, western blue bird, western wood peewee, savanna sparrow, and gray squirrel (Vesely and Tucker 2004). For the oak stands this would have the long-term benefits of producing larger oak trees and would move the oak community towards a more open oak woodland and oak savannah habitat and ultimately increase acorn production. Trees with inverted vase-shaped crowns typical of dense forest stands produce fewer acorns than those with columnar or mushroom shaped crowns typical of more open areas (Peter and Harrington 2002).



Figure 1: Dense, Small Diameter Oak Stand

The proposed vegetation treatment project is also needed to reduce the overall fuel loading in the canyon (see Figure 2). Throughout the 20th century, fire suppression has effectively eliminated fire from the landscape. Due to this suppression, conditions became favorable for numerous small trees, shrubs, and other vegetation to become established (Hessburg et al. 1995; Lehmkuhl et al. 1994 in USDI BLM 2003, 100). This additional biomass has caused an increase in crown and ladder fuels which contribute to the risk of a stand replacing fire (Huff as stated in USDI BLM 2003, 100). The targeted species to be reduced in fuels reduction treatments are Douglas-fir, incense cedar and white fir in the conifer stands and western juniper (*Juniperus occidentalis*), ponderosa pine, wedgeleaf ceanothus (*Ceanothus cuneatus*), greenleaf Manzanita (*Arctostaphylos patula*), and other brush species in the proposed oak stands. Additionally, the use of prescribed fire will continue over time to maintain and enhance the oak woodland and mixed conifer forest. Such treatments would increase suppression efficiency by decreasing wildland fire intensity, lowering spotting potential, and increasing retardant penetration of the canopy (see Figure 3).



Figure 2: Heavy Fuel Load in Conifer Stand



Figure 3: 2007 Chute Fire During Initial Attack

The proposed road treatments are important land management actions within the Klamath River Canyon and are needed to help attain Aquatic Conservation Strategy objectives while ensuring that the ORVs are not diminished as a result of poor road management (USDI BLM 2003, 130). The location and condition of the road network to and within the canyon has significant land management effects on water quality and habitat quality (USDI BLM 2003, 72). Further, the actions would help meet RMP objectives to reduce road density by closing minor collector and local roads in areas where water quality degradation or other road related resource problems have been identified (KFRMP 1995, 72).

DESCRIPTION OF ALTERNATIVES INCLUDING NO ACTION AND PROPOSED ACTION

No Action

The Bureau of Land Management Handbook recommends the inclusion and analysis of a no action alternative. Under the no action alternative, management activities considered in this project would not occur. Activities proposed in and adjacent to the analysis area that have been analyzed and approved in other NEPA documents would still occur such as fuel reduction treatments, routine road maintenance, forest inventory and surveys, and fire suppression. Selection of the no action alternative would not change land allocations or the direction the BLM has to manage these lands.

Proposed Action

The types of actions being proposed under this alternative are vegetation treatments including oak and conifer thinning and prescribed burning and road treatments including water crossings, maintenance, closures and construction. All of the actions described under this alternative are proposed to be implemented over a period of several years. Further, all actions proposed within this project are designed to minimize impacts through implementation of the Project Design Features and Best Management Practices in Appendix A.

Vegetation Management and Prescribed Burning

Vegetation management of both oak and conifer stands and prescribed burning are being proposed as part of the action alternative (see Table 2). The areas planned for treatment within the analysis area are displayed in Map 2.

Table 2. Proposed Vegetation Treatment Actions

Proposed Action	Type	Estimated Acres
Thinning	Oak Thinning	600 acres
	Conifer Thinning	161 acres
Prescribed Burning	Pile Burn and/or Underburn in Treated Areas	761 acres
	Underburn Only	2,545 acres

Prescribed Burning

The area proposed for prescribed burning only within the project area is approximately 2,545 acres. Ignition would occur under prescribed conditions designed to create the desired intensity to meet vegetation management objectives (see Figure 6). Additional applications of fire will occur to complete the fuels treatment. Prescribed fire includes preparation of the burn area, planned ignition, and minimal mop-up. Burn area preparation includes construction of fire line, improvement of existing trails and scattering of existing fuel. Ignition of the units would be completed through a combination of personnel on the ground using drip torches and aerial ignition with helicopter support. Aerial (helicopter) support may also be necessary for holding purposes. Other heavy equipment use would be limited to the road system which is minimal within the canyon and the proposed project area.



Figure 6: Late Winter Prescribed Fire in Oak Stand

A Prescribed Fire Burn Plan has been developed with the objectives, prescriptive parameters for burning, and safety issues for the proposed burn. The overall objective of the burn would be to have a light to moderate intensity burn and to create a mosaic of burned and un-burned vegetation within the unit. This would break up the continuity of the fuels and create a mosaic of young and mature vegetation within the units while reducing risk of high intensity wildfire.

The primary objectives for the prescribed burn units are:

- Reintroduce fire into areas in which fire has had a profound biological influence on ecosystem composition, structure and function. Fire has played a major role in the early development and maintenance of plant associations in South Central Oregon.
- Restore sustainable function and structure to plant communities that would improve forest health in fire adapted ecosystems. Restoring the sustainable function and structure would include restoring forest composition from fire intolerant species to fire resistant species.

- Reduce major losses of sustainable ecosystem resources from catastrophic wildfire, which results from heavy fuel loadings and vegetation change that developed with fire suppression. Reduce the potential for severe high-damage, forest over story/stand replacing fires
- Reduce overall fire management costs by reducing the number of large acreage multi-burn period fires.
- Reduce the number and type of suppression resources needed in extended attack and project fire situations. The number and type of initial attack (IA) resources would remain unchanged. The BLM fire planning process would recognize the changes in the amount of area burned, fire intensity and adjust IA resources.
- Foster the transition of the canyon’s vegetative communities toward their historical structure.
- Reduce the presence of invasive weeds.
- Reestablish native vegetation.
- Enhance woodland oak habitat.

Specific environmental parameters are necessary to implement a prescribed fire. Therefore, it may take several years to be within the “window of opportunity” where those environmental parameters are met and the prescribed burning can be completed.

Oak Thinning and Prescribed Burn

Oak thinning is being proposed to occur on approximately 600 acres within the analysis area. The areas proposed for treatment include both open and dense stands of Oregon white oak with a lesser component of California black oak (see figure 7). These stands would be thinned using a chainsaw with an average spacing of 25 feet between leave trees. The cut material would be lopped, piled, and partially covered. The piles would be burned at a later date after they have cured, generally in late fall or winter. Those trees greater than 12 inch diameter at breast height (DBH) would be reserved from cutting.



Figure 7: Pretreatment Oak Stand



Figure 8: Post-Treatment Oak Stand

No commercial utilization is planned for the cut material due to the small size and the location within the river canyon. However, it is anticipated there would be some personal use for firewood.

In order to achieve and maintain the results of a more open growing oak woodland, subsequent treatment would be necessary. These proposed treatments would consist of applying broadcast prescribed fire to the oak thinning units after the initial cutting to eliminate the oak sprouts and to

maintain open growing conditions for the remaining oak trees. The prescribed fire objectives would be consistent with those described above in the prescribed burn section.

Conifer Thinning and Prescribed Burn

Approximately 161 acres of conifer thinning treatment is also being proposed (see Map 2). The conifer stands proposed for treatment are commonly located in riparian zones, lower slopes, and benches. The conifer community in the canyon is predominately mixed ponderosa pine-Douglas-fir stands with lesser amounts of incense cedar (see Figure 9). The stands proposed for treatment generally exhibit an extremely dense understory, as well as accumulated logs and other dead material (USDI BLM 2003, 99-100). These characteristics make the conifer stands susceptible to stand replacing fires and insect attacks (USDI BLM 2003, 100). These stands would be thinned using chainsaws. The cut material would be lopped and then piled either by hand or with the use of a rubber-tracked tractor (see Figure 10). The piled material would be burned at a later date after it has cured, generally in late fall or winter. The proposed activity would thin trees that range from 1 inch to 12 inch DBH. Trees outside of this range would be reserved from cutting, as well as, sugar pines of any size. The proposed thinning would result in an average spacing of 25 feet by 25 feet. No commercial utilization is planned for the cut material due to limited material and the location within the river canyon. However, there may be some collection of firewood, particularly for use at the Upper Klamath River Campground.



Figure 9: Pretreatment Conifer Stand



Figure 10: Post-Treatment Conifer Stand

In an effort to achieve the objectives of this project, subsequent treatment would be necessary. These proposed treatments would consist of applying broadcast prescribed fire to the area. This treatment would further reduce fuel loading, particularly fine dead fuels. Additionally, maintenance type prescribed burning is proposed to help lower future environmental impacts by reducing the need for subsequent thinning. The prescribed fire objectives would be consistent with those described above in the prescribed burn section.

Road Treatments

Several forms of road treatments are being proposed under the action alternative (see Table 3). Map 3 illustrates the different proposed road treatments and their respective locations.

Table 3. Proposed Road Treatment Action

Proposed Action	Type	Total Units
Water Crossings	Steel Culvert (Round)	2
	Natural Ford	6
Closure	Block, Obliterate, Decommission	1.38 miles
Maintenance	Spot Rock	3.21 miles
Construction	Build Spur Road	.045 miles

Water Crossings

A total of eight water crossings are being proposed for treatment (see Map 3). Two of the water crossings proposed for treatment would require the installation of a 36” round, steel culvert. The proposed action for the remaining six water crossings would consist of the creation of a natural ford. This treatment would consist of reshaping sections of road and installing cobble and gravel size rock to armor the stream bottom. Improving stream crossings helps to reduce diversion of hydrologic flow paths, ensuring hydrologic connectivity, and mitigating for road-related resource damage (USDI BLM 2003, 134).

Closure

Approximately 1.4 miles of existing roads are proposed for closure (see Map 3). Closure of these roads would consist of obliteration, decommissioning, or blocking. The roads proposed for closure are all user created roads that run adjacent to existing main roads. Numerous roads within the canyon are developed by visitors, not maintained and are thought to have led to decreased riparian and aquatic habitat quality, and damage to significant prehistoric and historic sites and Native American traditional use areas (USDI BLM 2003, 130). The proposed closure of these roads will further protect the ORVs within the canyon, and, the reduction of road density within the riparian reserve supports the objectives outlined in the RMP.

Maintenance

Maintenance is being proposed to occur on approximately 3.2 miles of road within the canyon. The maintenance would be in the form of spot rocking. The maintenance would be focused on those areas where vehicle passage is impaired by rough conditions or where resource damage is associated with a particular portion of road (USDI BLM 2003, 131). This type of maintenance is particularly important because of the reduction for erosion potential and subsequent sediment loading.

Construction

A spur road consisting of approximately .045 miles (240 feet) is proposed to be constructed. This spur road is intended to reduce ongoing resource damage resulting from off road travel. The newly constructed spur road would replace a longer existing road that would be closed as a result of this action (Map 3). Additionally, the segment of newly constructed road would be shorter than the total amount proposed road closures. New road construction proposed in riparian reserves will result in a net reduction of road density in riparian reserves as recommended in the draft Klamath River Management Plan (USDI BLM 2003, 131).

AFFECTED ENVIRONMENT

Vegetation/Botany

Special Status Plant Species

Only one systematic survey for botanical resources has been conducted in a portion of the project area. An early season survey focused on one Bureau sensitive species, Greene's mariposa lily (*Calochortus greenei*), was conducted in 2005. There is a documented site within the Klamath Canyon just over the state line in California, although no new sites were found as a result of this survey.

Several sites of red root yampah (*Perideridia erythorrhiza*), a Bureau sensitive species, have been mapped within the project area. However, these locations were submitted by a third party and will need to be verified by agency personnel.

Noxious Weeds

Although no systematic surveys for noxious weeds have been conducted during the appropriate season for identification, several noxious weed species and numerous populations have been documented within the project area. Species include yellow starthistle (*Centaurea solstitialis*), meadow knapweed (*Centaurea pratensis*), St. John's wort (*Hypericum perforatum*), Russian knapweed (*Acroptilon repens*), Himalayan blackberry (*Rubus discolor*), and poison hemlock (*Conium maculatum*).

Wildlife

The BLM Special Status Species Policy designates special status species into two categories: sensitive or strategic. All of the BLM Special Status Species being analyzed for the proposed project are designated as Bureau Sensitive. Bureau Sensitive species are generally the species which are restricted in their range and have natural or human-caused threats to their survival. A complete list of the Bureau's special status species is kept at the Klamath Falls Resource Area office. Additionally, the Fish and Wildlife Service prepared a list of birds that are of conservation concern in 2002. The purpose of this list is to identify the bird species (beyond those already listed under ESA) that are of the highest conservation concern and that are in need of conservation action (FWS 2002). The bird conservation region used in this analysis is region 5. The purpose of both of these designations is to protect, manage, and conserve the species so that management actions do not contribute to the need to list any of the species as threatened or endangered. This EA will consider those species displayed in Table 4 (following page) that may be affected by this project.

Northern Spotted Owl

There are no spotted owl nest territories and no designated critical habitat within the project area. The closest nest territory is above the canyon rim on the eastern portion of the project area approximately ¼ mile from the boundary. This territory was part of a five-year telemetry study which defined the home range and core area of the pair. No portion of their home range or core area overlaps the project area. The project area does contain suitable habitat for the northern spotted owl. As part of the development of the Klamath Falls RMP habitat was classified as suitable or dispersal habitat. The project area contains approximately 1,620 acres of suitable habitat and approximately 674 acres of dispersal habitat.

Table 4. List of species associated with the habitat types occurring in the analysis area that may be affected by the project actions.

Type	Common Name	Scientific Name	Status	Key Habitat Association within the KFRA	Comments
Bird	Northern Spotted Owl	<i>Strix occidentalis caurina</i>	Threatened	Foraging- Mature/Late Successional Mixed Conifer Nesting – Mature/Late Successional Mixed Conifer	No known nest territories within the Project Area.
Bird	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Sensitive	Foraging – Open Water Nesting – Large Conifer	Two Known Territories within Analysis Area
Bird	White-headed Woodpecker	<i>Picoides albolarvatus</i>	Sensitive FWS BCC	Foraging - Large Ponderosa Pine Nesting – Large Snags	Documented within the Analysis Area
Bird	Lewis's Woodpecker	<i>Melanerpes lewis</i>	Sensitive FWS BCC	Foraging – Oak Woodlands Nesting – Large Snags	Documented within the Analysis Area
Bird	Northern Goshawk	<i>Accipiter gentilis</i>	FWS BCC	Foraging -Mature Mixed Conifer Nesting – Mature Mixed Conifer	May occur in the Analysis Area
Bird	Flammulated Owl	<i>Otus flammeolus</i>	FWS BCC	Foraging -Open Mixed Conifer Nesting - Snags	Likely occurs in the Analysis Area
Bird	Rufous Hummingbird	<i>Selasphorus rufus</i>	FWS BCC	Foraging – Nectar producing flowers Nesting- Understory shrub or low in conifer trees.	Documented within the Analysis Area
Bird	Olive-sided Flycatcher	<i>Contopus cooperi</i>	FWS BCC	Foraging – Edge and Openings Nesting- Mixed Conifer	Documented within the Analysis Area
Bird	Osprey	<i>Pandion halieatus</i>	None	Nesting – Large Snags Foraging – Rivers, Lakes, Reservoirs	Documented within the Analysis Area
Mammal	Pallid Bat	<i>Antrozous pallidus</i>	Sensitive	Roosting – Primarily caves. Rocks with some	Likely occurs in the Analysis Area
Mammal	Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Sensitive	Roosting/Maternal Colony – Caves	Documented within the Analysis Area
Mammal	Fringed Myotis	<i>Myotis thysanodes</i>	Sensitive	Roosting – Primarily caves, rocks but may use large snags	Likely occurs in the Analysis Area
Mammal	Black-tailed deer	<i>Odocoileus hemionus</i>	None	Foraging – Browser (Shrubs, forbs, grass) Cover- mixed conifer forest/ shrub cover	Project Area is considered Critical Deer Winter Range
Reptile	Northwestern Pond Turtle	<i>Actinemys marmorata marmorata</i>	Sensitive	Nesting – 100m from waters edge – Open, flat herbaceous vegetation Foraging/basking- Open slow moving water/ rocks/logs	Documented within the Analysis Area
Terrestrial Mollusk	Evening Fieldslug	<i>Deroceras hesperium</i>	Sensitive	Moist forest in low vegetation, litter, debris, rocks	Likely occurs in the Analysis Area
Terrestrial Mollusk	Chase Sideband	<i>Monadenia chaceana</i>	Sensitive	Talus and rock slides, dry conifer and oak woodlands	May occur in the Analysis Area
Terrestrial Mollusk	Modoc Rim Sideband	<i>Monadenia fidelis</i> ssp. Nov.	Sensitive	Talus Slopes	May occur in the Analysis Area
Aquatic Mollusk	Scale Lanx	<i>Lanx klamathensis</i>	Sensitive	Spring influenced large lakes and streams	Documented within the Analysis Area
Aquatic Mollusk	Klamath Rim Pebblesnail	<i>Flumicola</i> sp. Nov. 3	Sensitive	Small cold springs with cobble substrate	Documented within the Analysis Area

Bald Eagle

Two bald eagle territories exist within the project area including Pony Express and Klamath River Canyon. The Pony Express territory has one known nest that is located on BLM managed lands. The nest is not within a proposed project unit, but is less than ¼ -mile from a proposed oak thin unit and a proposed prescribed burn unit. This territory and the subsequent known nest have been active since 2000 and has produced 5 young as of the 2006 nesting season (Isaacs and Anthony 2007). The annual nest monitoring for occupation and reproduction determined this nest produced two young in 2007. The Klamath River Canyon bald eagle territory has a total of four known nests. Three nests occur on private land and one nest is on BLM managed land. None of these nests occur within the proposed project but the three nests on private land are within a ¼-mile of a proposed oak thin unit and a proposed prescribed burn unit. These nests are all near the top of the river canyon. The Klamath River Canyon territory has been active since at least 1979 and produced 42 young in that time (Isaacs and Anthony 2006). The annual monitoring for occupation and reproduction determined this nest produced one young in 2007.

Northwestern Pond Turtle

An extensive herpetological inventory study was performed on the Klamath Falls Resource Area within the analysis area in 2000 and 2001. The results of the study in the Klamath River Canyon found a total of 67 northwestern pond turtle observations consisting of 35 turtles in 2000 and 32 in 2001 (pers comm.Roninger 2002).

Osprey

One osprey nest exists within the analysis area and two nests are directly adjacent. The two adjacent nests are 0.35 miles and 0.85 miles from the analysis area border. Although the two adjacent nests do not fall within the analysis area, it is expected that the analysis area is used for foraging. The Osprey population appears to be stable on the Klamath Falls Resource Area at this time.

Recreation

The major recreational activities occurring in the analysis area include whitewater boating, fishing, camping, and hunting. Activities such as birding, photography, off-highway vehicle (OHV) driving, and horseback riding, also occur. The season of recreational use extends from April through November; peak use periods include the warm weather summer months (June-September) and weekends. Recreation facilities with some level of development include the Spring Island and Stateline River Access sites, the Klamath River Campground, and scattered primitive campsites that have picnic tables and fire rings. For more detailed information on recreation resources, see the 2003 Draft Upper Klamath River Management Plan (USDI-BLM, 2003).

Wild and Scenic River/ACEC/Scenic Resources

In 1994, the Klamath River Canyon, from 0.25 miles downstream of the Boyle powerhouse to the Oregon-California state line, was designated into the federal Wild & Scenic Rivers system. The Klamath canyon was designated in recognition of a number of Outstandingly Remarkable Values (ORVs); Recreation, wildlife, fish, prehistoric and historic cultural resources, scenic quality, and Native American traditional use. Under Wild and Scenic designation the BLM is directed to manage the area to protect and enhance the ORVs for which the river was designated.

The Upper Klamath River ACEC was designated with the Record of Decision for the Klamath Falls Resource Area in 1995. This boundary is from rim to rim of the canyon extending from the J.C

Boyle Powerhouse to the Oregon/California border. The ACEC itself encompasses approximately 5,205 acres of BLM administered lands. Within the boundaries of the ACEC there is approximately 2,504 acres of intermixed private lands. The relevant and important values for which the area was designated included natural processes, historic, cultural and scenic values; and fish and wildlife values (both populations and habitat). The natural process values include the unique plant communities associated with the river bisecting the Cascade Mountains, including the oak and mixed conifer communities.

The BLM manages scenic resources using the Visual Resource Management (VRM) program. All BLM lands are inventoried and managed in specific VRM classes. An assessment of landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modification is used to classify the scenic quality of an area. A VRM class rating is then made to manage the quality of the visual environment and to reduce the visual impact of management actions. The lands in the analysis area are classified and managed as VRM class II. Management objectives of VRM class II are for low levels of change to the visual/scenic resources of the affected landscape. Evidence of management activities may be seen by the casual observer but should not attract attention.

Cultural

Cultural resources within the project area are divided into three categories (1) prehistoric, (2) historic, and (3) current Native American traditional use. Prehistoric resources are associated with Native Americans and date before the time of contact with European settlers (A.D. 1850). Information about these resources is recovered through scientific archaeological investigations and oral histories. Archaeological surveys, excavations and artifact analyses have been conducted within the project area over the last 50 years. Over 100 prehistoric sites have been located within the Klamath River Canyon. Many of these demonstrate year-round intense prehistoric use of the canyon by Native Americans dating back to at least 5500 B.C. However, most of the sites were occupied from A.D. 900 to A.D. 1850 (Mack 1995). Site types include fishing, gathering and hunting camps, and pit house villages (pit houses are circular depressions reflecting a semi-terranean prehistoric house structure).

Traditional use by Native Americans of the upper Klamath River Canyon began before contact with Euro Americans and has continued into the present. Today, members of the Klamath Tribes and the Shasta Nation continue to use the canyon for spiritual purposes, hunting, fishing, gathering and other cultural activities.

Ethnographic accounts (Silver 1978; Spier 1930; Kroeber 1925; Gleason 2001) and artifacts recovered from sites within the project area indicate the area was used by a variety of cultural groups and at different times. These groups were the Shasta Nation of northern California, the federally recognized Klamath Tribes of the Klamath Basin and the Takelma of the upper Rogue River. Common to all of these tribes was the use of winter pit house villages, hunting and fishing camps and a subsistence pattern in which anadromous fish; acorns; large and small mammals and various plants were major parts of their diet.

Historic resources date after A.D. 1850 and are more than 50-years old. In the project area, these resources are associated with early stagecoach and freight travel, early ranching and logging activities. The earliest European explorers in the canyon area were the members of Peter Skene Ogden's Hudson's Bay Company expedition of 1826-27 (Beckham 2006). Thirty years later (1856) Mart Frain, a noteworthy local figure, followed the river northward from the mining town of Yreka,

California, to the Klamath Basin. Later, in 1888, he settled for a time in the canyon to raise his family. Remains of the Frain Ranch still exist.

Settlement and ranching started in the 1860's when one of the first settlers, A.M. Johnson, homesteaded near the Klamath Hot Springs in California (Hessig 1978). Settlement increased after the construction of the Topsy Road in the 1870s (Beckham 2006). The Topsy Road parallels the river. When it was opened in 1875, it provided for wagon and stage travel between Yreka and the Klamath Basin. To accommodate overnight travel, several stage stops, such as the Way Ranch, Frain Ranch and Overton Station, were established along the route.

The Klamath River Canyon also played a major role in the logging operations of the vicinity. The first commercial cutting of the timber occurred in 1888 near Kerwin Ranch. Logs were floated in the river to a mill at Pokegama (later Klamathon), California (Helfrich 1966).

There are forty-four known sites on public lands within the analysis area. Sites will be protected via project design prior to implantation of each proposed action.

Hydrology

The Klamath Canyon analysis area is located in the Klamath River-John C. Boyle Reservoir Fifth Field Watershed in the Upper Klamath River Sub-basin which contains approximately 100,250 acres. There are several perennial springs located within the proposed project area which may be affected by road treatments and burn/thin areas. Perennial streams in the proposed project area include spring fed segments originating from steep basalt dominated areas and flow into historic river terraces. Riparian reserves would be established along the Klamath River and intermittent streams following RMP guidelines (see Appendix B). Riparian reserve widths on perennial water bodies would equal two site potential trees, or approximately 240 feet for the Klamath River and one site potential tree, or approximately 120 ft. for the intermittent streams. The streams in the analysis area are "properly functioning", as indicated by connectivity, channel characteristics, and riparian vegetation. There is connectivity between the stream channel, riparian area, floodplains, and upslope areas. In addition, the channel shape and gradient appear to be appropriate for the landform. The vegetation in the riparian reserve for the intermittent stream is comprised of riparian and upland plant communities. The riparian areas are adjacent to the stream and are functioning, with a variety of riparian vegetation present, including willows, rushes, and Douglas spirea. The streamside vegetation is providing adequate shade to the stream. The ephemeral streams in the analysis area are located in draws and have water flow only during high precipitation events. Vegetation adjacent to ephemeral streams is similar to the surrounding upland forest types, with sparse to no riparian vegetation. Several road segments identified for treatment under this EA intercept flow paths and are contributing to erosion and sedimentation resulting in poor hydrologic function.

Fisheries/T&E

The upper Klamath River is inhabited by 10 native fish species. Three species of concern are redband trout which is the primary game fish in the Klamath River, Lost River sucker (federally and state listed endangered species), and shortnose sucker (federally and state listed endangered species). Other native species include Klamath smallscale sucker, blue and tui chub, Klamath speckled dace, sculpin species, and lamprey species.

At least fourteen exotic species are found in the river and associated reservoirs including: yellow perch, fathead minnows, and largemouth bass. The dams along the Klamath River affect the distribution of these fish species throughout the Klamath Basin. Until fish runs were halted in 1910

by the construction of the Copco Dam (located in California) the affected area was a passage for anadromous fish, such as, salmon, steelhead, and Pacific lamprey. Anadromous fish would migrate and spawn in various tributaries. Since 1910 five more dams have been built along the upper Klamath River.

Fisheries is one of the outstanding values that earned the Klamath River its designation as a Wild and Scenic river. Management concerns deal with the endangered Lost River and shortnose suckers as well as the special status Klamath redband trout.

The proposed project area supports numerous ephemeral, and spring fed perennial drainages. Most of the drainages do not support fish due to the steep gradient canyon walls which limit distribution, or migration into adjoining streams. Fish species that do enter these drainages are limited to areas below or in close proximity to the Klamath River floodplain due to the steep canyon.

Wildland Fire and Fuels Management

The Klamath River Canyon vegetation is a very diverse assemblage of plant communities. The Biophysical Settings (BpS) identified within the project area are California Mixed Conifer and Northern California Garry Oak. The conifer forest overstory consists mainly of Douglas fir, sugar pine, ponderosa pine, and incense cedar. The oak woodland overstory consists mainly of the dominant Oregon white oak and lesser amounts of California black oak and western juniper. The National Fire Fuel Laboratory (NFFL) fuel models represented include 2 (grass understory), 9 (hardwood & pine litter), and 10 (Douglas-fir litter).

Lightning caused fires within the Oregon portion of Upper Klamath River Canyon have occurred at a rate of approximately two per year since 1990 (Oregon Department of Forestry). Under a natural fire regime, California Mixed Conifer has primarily short-interval (e.g., 10-20 yr) surface fires with occasional mixed severity and replacement fires (e.g., 30-100 yr intervals) (Barret et al. 2004). The Northern California Garry Oak has primarily short-interval (e.g., <10 yr) surface fires (Shlisky 2003). Both are classified as Fire Regime I due to their short mean fire return interval.

Since European settlement, several factors have allowed changes in the vegetation to occur. Native American subsistence burning has been eliminated and heavy grazing and active fire suppression has occurred in the area. Despite evidence of historic fire within the project area, there is no evidence that any significant wildfire has occurred within the last hundred years. The resulting additional biomass has caused an increase in crown and ladder fuels, which have contributed directly to the lethal effects of recent fires in the southwest Oregon area. Based on these conditions found within the conifer stands, the First Order Fire Effect Model predicts >95% mortality of the trees in a wildfire. This is a significant departure from the historic fire regime. In the current condition, a wildfire in the oak woodlands would be expected to cause top-kill and resprouting. This would likely maintain the undesirable overstocked, stunted state.

The canyon is currently classified as Condition Class III, reflecting its high departure from the natural regime. The fire regime has been substantially altered from its natural (historical) range. The risk of losing key ecosystem components is high. The fire frequency has departed from natural frequencies by multiple return intervals. Dramatic changes have occurred in potential fire intensity and severity. Stand structure and composition has been substantially altered from their natural (historical) range. Invasive exotic species have become established.

The Klamath River Canyon is one of the most wildfire susceptible locales within the Klamath Falls Resource Area. This is due to the poor access and egress for suppression forces, the steep terrain, local weather, heavy fuel loading, and continuous light flashy fuels. Once established, the extreme slope and typical erratic wildfire behavior make containment of a wildfire inside the canyon unlikely.

Air Quality

Air quality is a sensitive issue in the Upper Klamath Basin primarily because of the existing relatively clean air. Potential air quality consequences are important for the preservation of high quality visual values for the region. Clean (clear) air is also an important quality with respect to this plan, because of the role it plays in maintaining the Scenic values attributed to the Klamath River Canyon.

Air pollutants are emitted from a variety of sources in the Basin including woodstoves, open burning, industrial plants, and internal combustion engines. Woodstoves contribute greatly to particulate matter during the winter. Agricultural and forestry burning operations are significantly sources in the fall. With the emphasis on reducing risk of wildfire, fuels reduction projects using prescribed fire are also becoming a more common source of pollutants that can contribute to reduced air quality.

The incised nature of the river canyon results in restrictive topography that can trap air until winds can move it out. Because of the lower elevation, smoke and dust generated outside the planning area can contribute to poorer air quality within the canyon and be evidenced as a haze. This typically could occur in the mornings after cooler downdrafts carry the smoke or dust particles down into the canyon over night. Pollutants introduced locally within the inversion layer may follow the drainage flow, but will likely stay within the stable inversion layer. During the daylight hours, when the sun warms the local topography, air adjacent to the surface warms and rises and can break down the surface inversion and ultimately results in an upslope flow. Predominant winds are westerly to northwesterly, however, wind direction fluctuates greatly from the north, south and more rarely from the east as weather “fronts” move through the area.

National Ambient Air Quality Standards (NAAQS) were established by the 1963 Clean Air Act and subsequent amendments to protect the public health (primary standards) and public welfare (secondary standards) from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. In 2006, EPA revised the 24-hour NAAQS for PM_{2.5} downward from 65 to 35 µg/m³. If the particulate matter for NAAQS is exceeded, the EPA is required to designate the area as a “nonattainment” area.

On March 22, 2007, the EPA issued The Treatment of Data Influenced by Exceptional Events (EPA 2007) to integrate the public policy goals of, 1) using fire to restore healthy ecosystems, and 2) mitigating the impacts of air pollutant emissions on air quality and visibility. The Exceptional Events Rule was written to ensure that prescribed burns needed to protect the natural ecosystem would not result in “nonattainment” status.

Planned prescribed fires would be consistent with the Clean Air Act and the Oregon Smoke Management Plan (OAR Chapter 629, Division 48).

Livestock Grazing

The west portion of the proposed treatment area (approximately all BLM land downriver from and including T41S, R6E, Section 3) is within the boundaries of the Ward Pasture of the Edge Creek Allotment, #00102. The remaining land above this is not considered to be within a designated grazing allotment. The authorized grazing use for the Ward Pasture is 43 cattle from May 1 to July 15 which is 107 AUMs (Animal Unit Months). The Ward Pasture also includes lands outside of the canyon rim to the north of the proposed treatment area.

There are some range improvement projects that have been constructed within the proposed treatment areas. There is a livestock enclosure fence around a portion of Hayden Creek in T41S, R5E, Section 1. A portion of a pasture drift fence is located in T41S, R5E, Section 12, NW,SE. Intermittent gap fences are located along the canyon rim in T41S, R5E Sections 1 and 11. A pasture drift fence is also located to the west of Rock Creek in T41S, R6E, Section 9.

A Rangeland Health Standards Assessment was completed for the Edge Creek Allotment in 2000. All of the Standards were either being met or making significant progress towards being met. Current livestock grazing management was not a significant factor in areas where Standards were not currently met. A copy of the Assessment can be found in the grazing files in the Klamath Falls Resource Area office.

Private Lands and Utilities

The private lands within the ACEC boundaries are primarily owned and managed by PacifiCorp. No treatment is proposed for those private lands. The J.C. Boyle Powerhouse and two powerlines are in the vicinity of the proposed treatments. One, a 69 kilovolt line, is owned by Pacific Power and Light and serves the Powerhouse (OR24416), and the other, a 230 kilovolt line, up above the rim of the canyon, is a trans-state transmission line owned by PacifiCorp (OR17364).

ENVIRONMENTAL IMPACTS

The following descriptions of the No Action Alternative and the Proposed Action assume the combined relevant effects of all past actions. It is not necessary to individually identify or catalog these past actions as the description of the affected environment incorporates all those actions. For the cumulative effects analysis the description of resulting impacts is the cumulative effect of all past, present and reasonably foreseeable actions. Reasonably foreseeable future actions are assumed the same for the No Action as well as the Proposed Action.

The potential environmental impacts resulting from the alternatives relative to critical resource values are evaluated below. The results are summarized in Table 5. If the critical resources are affected by the proposed actions, the impacts are described in detail along with other resource impacts following the table. In a few cases, there are impacts from specific actions that are highlighted as a cumulative effect.

Table 5. Critical resource values impact summary.

Critical Element/Resource Value	Affected		Critical Element/Resource Value	Affected	
	Yes	No		Yes	No
Air Quality	X		T & E Species	X	
ACEC/RNA's	X		Wilderness		X
Cultural Resources		X	Wild & Scenic Rivers	X	
Farmlands, Prime/Unique		X	Hazardous Wastes		X
Floodplains		X	Water Quality		X
Native American Cultural/Religious Concerns		X	Wetlands/Riparian Zones		X
Low Income/Minority Population		X	Noxious Weeds	X	

Vegetation/Botany

Special Status Plant Species

No Action

Special status species are expected to continue to exist without change, barring some type of catastrophic event like a wildfire. This alternative proposes no new actions within the project area, therefore, there would be no added effects to special status plant species.

Proposed Action

Red root yampah is the only special status plant species documented within the project area. Red root yampah habitat is seasonally wet meadows that do not support oaks or conifers. Therefore, it is unlikely that thinning with chainsaws and prescribed fire would affect this species. Additionally, red root yampah is part of a plant community that is adapted to periodic fire. Therefore, if the prescribed fire burns red root yampah populations, the affect may be positive on the size and vigor of the population.

Vegetation treatments were performed in the analysis area during 2007. The cumulative effects of these actions are already considered when describing the affected environment. Approximately 186 acres of BLM administered lands were treated with oak thinning and approximately 8 acres were treated with prescribed fire. The piles remaining from the oak thinning were too wet to burn at the target date and subsequently are planned to be burned in October/November of 2008.

Noxious Weeds

No Action

Current populations of noxious weeds are expected to continue to exist with some minor spread due to wildlife, livestock and human spreading of seeds. The no action alternative proposes no new actions that would produce the disturbed conditions under which noxious weeds have a competitive advantage relative to native plant species, nor activities that would have the potential to introduce or spread noxious weeds. Therefore, this alternative would not increase the potential for the introduction and/or spread of noxious weeds beyond the current situation.

Proposed Action

Thinning with chainsaws and prescribed fire are unlikely to produce the disturbed conditions under which noxious weeds have a competitive advantage. However, vehicles and equipment and project activities have the potential to introduce noxious weeds from outside the project area and to spread noxious weeds within the project area. Project design features for prevention of the introduction and spread of noxious weed seeds and plant parts would reduce the potential for the dispersal of these species into and within the project area (See Appendix B) and thus the overall impact on habitats within the canyon are expected to be minimal.

Wildlife

No Action

The current management will continue to provide habitat but the density of vegetation and hazardous fuels loads would likely gradually increase. In those areas with higher than average fuel loading there would be a continued and increasing risk of a high intensity wildfire that could ultimately be stand replacing which would reduce both the quality and quantity of habitat for the most species present in the analysis area. Lewis' woodpecker would be one species that would likely benefit in the short-term due to increased snag creation if a high intensity wildfire were to occur.

The current habitat conditions would be maintained in the short-term and would continue to provide for these species as it currently does. The no action alternative would have no immediate measurable effects on any of the species or their habitat analyzed in this document except for changes created by natural events.

Proposed Action

Special Status Bird Species

The proposed action does have the potential to add minor incremental effects on habitat and have minimal impacts on several species of birds including northern goshawk, flammulated owl, olive-sided flycatcher, and rufous hummingbird. Most of the potential impacts associated with these species are impacts stemming from disturbance related to the project activities. The short-term disturbance due to the proposed project activities would occur during implementation but would end after the initial cutting and burning took place. Most activities from the proposed actions would occur outside of the primary nesting season for these special status birds. The proposed actions will occur in October through April which would be prior to or after these species have started or concluded nesting for the year. The primary nesting period for these species is mid-May through August. Therefore, additional impacts to these species beyond the no action alternative that would result from disturbance but are expected to be minimal.

Impacts to the nesting and foraging habitat that these birds depend on would be minimal but slightly higher than the no action alternative. The flammulated owl nests in snags, the northern goshawk and olive-sided flycatcher use mature conifers and the rufous hummingbird nests in the understory and lower branches of evergreen trees (Marshal et al 2003). No existing snags are planned to be cut unless required for safety (OSHA requirements) and only small diameter (< 12 inches) green trees would be felled. Therefore, nesting habitat for the flammulated owl will remain intact. There is a small portion of mature conifer proposed to be treated, however, no trees greater than 12 inches are trees would be cut. Therefore, the northern goshawk and olive-sided flycatcher's nesting habitat would not be impacted by the proposed activities. Project activities would be performed outside the primary nesting period mid-May to August for migratory birds which would mitigate the impacts to this species.

The northern goshawk depends mostly on small birds and mammals (Marshall et al 2003) for their diet which are not expected to be impacted by the project activities. The flammulated owl, olive-sided flycatcher, and rufous hummingbird, all depend on insects for their diet with the exception of the rufous hummingbird that also uses nectar from flowering plants. Therefore, impacts on these birds prey species are not expected due to project activities. Further, the indirect impacts stemming from the fire treatment associated with project activities could also prove to be positive for the rufous hummingbird due to enhanced shrub flowering. Currant and other important nectar producing shrubs are well adapted to fire and sprout vigorously after fire (USDA FEIS).

Northern Spotted Owl

No known northern spotted owl nests sites exist within the analysis area. Therefore, there would be no direct impacts to the northern spotted owl as a result of the proposed project activities. There is also no designated critical habitat within the project area therefore there would be no impacts to critical habitat. However, since some spotted owl suitable habitat exists within the analysis area, there is potential for modification of northern spotted owl suitable habitat as a result of the proposed project. Table 6 displays the percentage of suitable habitat that could be impacted from activities. However, the proposed treatments would not necessarily alter the habitat negatively (reduce its effectiveness) or change it from one type of habitat to another. The burning treatment proposed within the analysis area could result in a simplified forest structure. Structure from shrubs, small trees, and down woody debris is an important component that is part of the nesting, foraging, and dispersal habitat. Several steps (see PDF's) will be taken in an effort to reduce impacts from the proposed project activities. A mosaic burning pattern would be planned within the burn units with the goal of achieving a pattern of burned and unburned. Current levels of coarse woody debris and snags would remain intact leaving a diversity of small tree and shrub species that would retain habitat structure. Leaving islands of shrubs to act as cover would reduce the overall impacts to the prey base and habitat structure. No spotted owl suitable habitat will be downgraded from the proposed action due to the project design features included in the proposed action.

Table 6. Percentage of nesting, foraging, and dispersal habitat that may be potentially impacted within the analysis area.

Habitat Type	Within Analysis Area (acres)	Proposed for Treatment (acres)	Percentage of spotted owl habitat treated
Nesting	278	85	31 %
Foraging	1342	980	73 %
Dispersal	674	209	31 %

White-headed Woodpecker

The white-headed woodpecker occurs mainly in open ponderosa pine or mixed conifer forests dominated by ponderosa pine (Marshall et al. 2003). This species is highly associated with large diameter ponderosa pine trees used for foraging and nesting. The white-headed woodpecker depends mostly on pine seeds for consumption, in fact, pine seeds are the most important food item in Oregon for this species (Marshall et al. 2003). However, the woodpecker does also use invertebrates and sap as part of their diet; neither of which are expected to be impacted through project activities.

No additional impacts above the no action alternative associated with nesting and foraging would be expected. Only small diameter thinning is proposed within conifer habitat and the burning should not impact this woodpeckers nesting or foraging habitat.

Lewis's Woodpecker

Lewis's woodpecker is highly associated with oak, and subsequently, oak is an important part of this woodpecker's life cycle (Marshall et al 2003). The proposed treatment is designed to increase both the size and mast production of the oak trees by thinning the small oaks and maintaining the larger oaks. The proposed project would have long-term beneficial effects to the oak habitat used by the Lewis's woodpecker that would not be realized under the no action alternative. This would occur by increasing the mast production for foraging and retaining large oaks and decaying ponderosa pines for nesting. There is little risk of impacting Lewis's woodpecker by losing forage production since the oak treatments are designed to maintain all oaks greater than 12 inches and only thin the smaller oaks. Since the older larger trees are being retained there is also little risk that a reduction of nesting habitat would occur for this species. The amount of oak woodland proposed for treatment is approximately 33% of the available oak woodland habitat (see Table 7). This leaves the majority of oak woodland habitat within the analysis area available for use by Lewis's woodpecker. Daytime activities associated with the proposed project may cause disturbance but only in the short-term.

Table 7. Proposed oak woodland treatment percentage.

Oak Woodland Vegetation Treatment		
BLM Acres in Analysis Area	Proposed Oak Thinning Acres	Percent Proposed for Treatment
1,825	600	33 %

Bald Eagles

Bald eagles are susceptible to disturbance during the courtship, nest building, egg laying, nesting stage and fledgling period. Generally, this time frame is from January 1st through August 15th in this area. The proposed action would incorporate seasonal restrictions, January 1st -August 15th for activities within ¼ mile or ½ mile line-of sight. These restrictions (listed in the PDFs in Appendix A) would reduce or eliminate disturbances that may affect bald eagles and reduce the risk of nest failure or nest abandonment during this time period. The PDFs that would be used as part of this project have been used in past management activities within the Klamath Falls Resource Area and monitoring has shown them to be effective. Further, the PDFs are consistent with the Resource Management Plan guidelines (KFRMP 1995, 38) and the Bald Eagle Recovery Plan.

Bald eagle nesting or foraging habitat would not be affected from the proposed action and thus would be the same as the no action alternative.

Bats

The proposed action would have minimal impacts on the bats or their associated priority cave, mine, and rock crevice habitats. Prescribed burning and oak thinning are proposed within the vicinity of a known bat roosting cave. A 250-foot protection buffer would be established around the cave to provide protection from disturbance (KFRMP 1995, 40) therefore the effects would be similar to the no action alternative. Townsend's big-eared, Pallid and Fringed Myotis bats are also sometimes found using cavities in snags as roosts. Under this action, there are no plans to impact the snag roosting habitat, and thus, this habitat should remain intact. Therefore, the main impact for these species would be direct impacts resulting from short-term disturbance due to the proposed actions. This disturbance would end at the completion of project activities.

Osprey

The proposed action is not expected to impact the osprey. The foraging habitat of the osprey within the Klamath River Canyon occurs exclusively within the river and that habitat is not planned to be

affected. One osprey nest is located directly within a proposed broadcast burn area. Mitigation measures including building fire line around the nest tree and clearing brush around the nest tree will be implemented to ensure that the nest tree is not harmed by the proposed burn. Ospreys are most susceptible to disturbance during the courtship, nest building, egg laying, nesting stage and fledgling period. This time period ranges between May 1st and August 1st. The proposed fire line building, clearing around the nest tree and the burn would occur outside of the nesting season between October 1 and April 31st. These PDFs that are incorporated into the project will reduce or eliminate those disturbances that may affect ospreys.

Reptiles

The timing of the proposed activities will occur primarily during the over wintering/nesting period for pond turtles. Pond turtle nesting habitat generally occurs in open areas with good sun exposure, typically south or southwest, that is dominated by grasses and herbaceous vegetation, with few shrubs or trees close by. Nests are typically within a 100 m of the water body. Impacts to nesting habitat are expected to be minimal because the riparian reserve and its associated vegetation would not be purposely targeted for burning. No ignitions will occur within the riparian reserve area however the fire will be allowed to creep into the riparian reserve area (PDFs Appendix A).

Over wintering habitat of the northwestern pond turtle within the Klamath River Canyon is largely unknown. However, two types of over wintering habitat are used, terrestrial and aquatic (D.A. Reese and H. Welsh 1997). For terrestrial over wintering habitat there could be a loss of leaf litter, consumption of logs, and increased solar radiation from the prescribed fire. The effect of increased solar radiation could be beneficial to the turtles because fire suppression has increased the distribution and cover of coniferous trees (Hays et al. 1999). There should be no effect on those turtles that depend on the aquatic habitat for over wintering. There would also be no effect to basking sites or the aquatic habitat used by turtles.

Impacts to individuals may occur from the proposed burn however the project activities would not likely affect the population dynamics because of the small amount of turtle habitat that would be affected. Additionally, the proposed burn would be planned to be a cooler burn which would mitigate some of the potential impacts. The northwestern pond turtle population appears to be fairly stable within the analysis area. Therefore short-term impacts on individual turtles would not be expected to negatively effect the local population.

Terrestrial Mollusks

The proposed action has the potential to impact both special status species terrestrial mollusks and their associated habitat. The chase sideband mollusk species is dependent upon rocky, talus areas and dry conifer and oak woodland habitats while the evening field slug is dependant upon moist forests in low vegetation, litter, debris, and rocks. Within the analysis area there is ample rock substrate and woodland habitat to provide structure and residual habitat for these species which may mitigate some of the potential negative impacts of the proposed burn. The vegetation treatments are proposed to be performed by hand and no heavy equipment would be entering the riparian corridor area where these species are generally found within 30 meters of perennial water (Duncan et al 2003). Further, the proposed burn would be performed in moist conditions and would be planned to be a low intensity, cooler burn. As a result, the majority of the understory structure upon which these species depend would remain in tact. There is a large amount of suitable habitat for these species within the analysis area and the mosaic pattern of the proposed activities could decrease the potential of negatively impacting these species on a population scale. The potential to detrimentally impact individuals of both of these species does exist under the proposed actions. However, both

species are well distributed across the landscape and these isolated activities would not be expected to impact this species on a population level.

Aquatic Mollusks

The proposed action would have minimal effects on the perennial seep and spring habitat within the analysis area (see hydrology analysis). The effects to the seep and spring dependent mollusk species of the Scale Lanx and Klamath Rim Pebblesnail would be similar. The habitats that these species depend on are generally contained within the seeps and springs themselves which would not be affected by the proposed treatment. Therefore, no adverse effects to the seep and spring habitat or the dependent aquatic mollusk species are anticipated to result from the proposed actions.

Black-tailed Deer

The proposed action is designed to enhance winter range for mule deer by continuing to provide cover and forage while increasing long-term forage by increasing mast (acorn) production. Oak thinning will increase mast production in the long-term while also providing new shoots for forage in those areas that are thinned. The variable spacing and the mosaic pattern of the areas proposed for thinning will continue to provide the necessary cover required for the deer in the analysis area.

The prescribed burning will decrease the risk of a stand-replacing fire plus provide for new forage growth of both shrubs and forbs. In general the use of prescribed fire that creates a mosaic of forage and cover can be beneficial to mule deer. Deer seem to prefer forage in burned areas versus unburned (USDA FEIS). Fire can rejuvenate and increase herbaceous plant material and increase forage for deer (USDA FEIS).

The proposed action would occur in winter range during the winter months. The cutting or burning would be focused on only specific units, thus a small portion of the actual winter range. No detrimental impacts are anticipated from the localized disturbance caused by the propose action.

Recreation

No Action

Recreational opportunities and facilities would not be directly affected under this alternative. Recreation access along portions of Topsy road would continue to be difficult due to extremely rough road conditions and multiple muddy sections. Muddy sections would continue to be unnecessarily wide with multiple road paths.

Proposed Action

Short term, temporary disturbances to recreationists from truck traffic, equipment noise, dust and smoke associated with treatment activities would be expected. Project design features and mitigation measures would minimize these short term disturbances. If vegetation treatments are successful in improving habitats and population numbers of various wild game species, there may be an improvement to the recreational hunting opportunity. Road treatments would provide enhanced access to Turtle camp and along Topsy road. Road treatments will likely generate an increase in recreation visitors on Topsy Road. However, given the remote and rugged nature of this road system, it is unlikely that recreation use will increase substantially. Roads targeted for closure should have limited negative effects on recreation users, as motorized access will be provided on other nearby roads. The decrease in motorized recreation traffic along the closed roads, including associated dust and noise, will serve to enhance the recreation experience for most visitors.

Wild and Scenic River/ACEC/VRM

No Action

This alternative would not directly affect the relevant and important values for which the Upper Klamath River ACEC was designated. However, the unique plant communities formed under the influence of periodic fires would continue to grow more dense in a way uncharacteristic of the historic condition. Eventually, with no treatments, many of the Wild and Scenic River values could be negatively affected by a wildfire burning in uncharacteristically heavy fuels producing intense fire behavior beyond the parameters of the natural fires that formed these communities. Current scenic resources would remain unchanged except for gradual changes as the forest stands age and additional trees die from insect or disease mortality. There is a possibility of a large scale, catastrophic wildfire, which could greatly affect long term scenic resources.

Proposed Action

The proposed action is designed to meet the objectives to enhance wildlife habitat and introduce fire to the ecosystem in a controlled manner. These actions would be expected to maintain or enhance the Wildlife and Scenic Quality ORVs of the Wild & Scenic river designation.

The proposed action would restore the oak and mixed conifer communities to a condition closer to the historic condition for which the ACEC was designated and introduce fire as an ecosystem process that would maintain these communities over time. In addition, thinned stands enhance sightseeing and wildlife viewing opportunities by opening up vistas that were not previously available. Therefore, the proposed action would restore and maintain the natural process values for which the ACEC was designated.

Cultural

No Action

Under the no action alternative, management for cultural resources would continue to conserve and protect known cultural resources within the project area as per Section 106 and 110 of the National Historic Preservation Act, 1966, amended 1992; and 36CFR Part 800. Incidental impacts from recreational use, riverbank erosion and wildfire could impact cultural resource and native use sites.

Proposed Action

No additional impacts beyond those that could occur with the No Action Alternative are expected with this alternative. Mitigation measures would be implemented to resolve conflicts between cultural resources and the proposed actions. The preferred mitigation technique is to practice avoidance of all sites during implementation of ground disturbing activities. In some instances, vegetation treatments would maintain, enhance or restore Native American traditional use areas. Reduction of road density reduces impacts to cultural resources from recreation use. The proposed road treatments keep the main roads accessible to Native Americans pursuing traditional use activities. Because this is a plan of action for multiple years, prior to each field season the project lead(s) will provide the Cultural Resource Management Division maps and descriptions of the proposed projects for the next year so that Section 106 of the National Historic Preservation Act can be fulfilled.

Hydrology

No Action

The effects from the no action alternative would include the impacts resulting from fire suppression, road maintenance and/or lack of road maintenance. Under this alternative the characteristics of the stand would be unaltered and stream shade would remain the same, but current fuel conditions would not be addressed and there would still be the risk for a high intensity wildfire to occur. A stand replacement fire can decrease stream shade through extensive loss of riparian vegetation and increase sediment input into the stream channels by devastating ground cover and decreasing slope stability. Furthermore, a high intensity fire can reduce future supplies of Large Woody Debris (LWD) to stream channels in the long-term. However, LWD falling into the channel could increase following wildfires in the short term depending on the severity of the fire. Routine road maintenance (grading, spot rocking and brushing) would continue and be designed to minimize effects on sediment input into stream channels.

Proposed Action

Potential negative effects on water resources due to the proposed action should be insignificant to minimal when PDF guidelines are followed (see Appendix A). Riparian reserves would be delineated in accordance with the PDFs, two site potential tree lengths surrounding perennial fish bearing streams and one site potential tree length surrounding intermittent streams. There is one perennial spring located within the proposed Big Bend Prescribed Burn. In concurrence with the PDFs, the spring requires a minimum riparian reserve to the extent of saturated soil, or the outer edges of riparian vegetation, or the extent of stable, or potentially unstable areas, depending on which criteria covers the greatest area. The location of the spring is at the foot of the slope within Unit 1 (see Map 2). In order to ensure the least amount of impact to the spring, points of ignition would be upslope or above the spring riparian reserve. Hand thinning and piling will keep soil disturbance (compaction, displacement etc.) low. This will prevent significant soil transport into drainages. Due to prescribed burning there may potentially be a short term rise in erosion with the loss of vegetation until new vegetation is established. The burn will take place in winter or spring when new vegetation can rapidly reestablish itself in the next growing season and keep erosion to a minimum. Existing flows are expected to remain unchanged because proposed treatments are limited to thinning, hand piling, and prescribed fire. Construction of piles for burning will not occur within 20 feet of the stream channels. There is no planned construction of roads or landings within the area proposed to be treated. Sediment transport from increased traffic during the time of treatment would be minimal. The required amount of hand crew and fire personnel needed for this proposed project is nominal and watershed impacts from this amount of increased traffic are negligible.

A total of eight water crossings are being proposed for treatment (see map 3). Two of the water crossings proposed for treatment would require the installation of a 36" round, steel culvert. The proposed action for the remaining six water crossings would consist of the creation of a natural ford. This treatment would consist of reshaping sections of road and installing cobble and gravel size rock to armor the stream bottom. Water crossings would be designed to reduce sediment transport and increase stream connectivity which is beneficial to the aquatic environment. The equipment work to dig out the bed for placement of the culverts or build the crossings and subsequent backfilling around the culvert will cause short term introduction of sediment to the channels. This increased sediment will temporarily reduce water quality, but the sediment will quickly be diluted and settle out.

Since the proposed project is the only foreseeable project planned within the ACEC, the impacts from that action are the only impacts that would need to be analyzed. The cumulative affects to the ACEC are no greater than those already analyzed under the proposed action. Cumulative effects of the proposed action over the entire watershed are expected to be negligible. The proposed treatment area comprises approximately 3.3% of the total watershed.

Fisheries/T&E

No Action

Under the no action alternative there would be increased potential for stand replacing fire. A stand replacing fire would remove the majority of vegetation within the proposed project area. Vegetation along the canyon within the proposed project area provides stabilization to the canyon slopes. Due to the high gradient slopes of the canyon any elevated loss of sediment stability could potentially result in an amount of sediment delivery into stream channels that is harmful to fish species. In the event of no future stand replacing fires within the proposed project area current conditions would remain unchanged.

Proposed Action

The proposed project area would be within Lost River sucker (*Deltistes luxatus*) and shortnose sucker (*Chasmistes brevirostris*) critical habitat. The proposed project includes thinning of oak and conifer stands as well as underburning throughout an approximate 5,000 acre segment of the Klamath River canyon between J.C. Boyle Dam and the California Oregon border (refer to Table 2). Typically impacts to fisheries would only occur due to activities occurring directly in Riparian Reserves. Riparian Reserves as defined by the KFRA RMP are lands along streams and unstable and potentially unstable areas where special standards and guidelines direct land use. The proposed project would take place over a period of several years in order to minimize impacts.

Conifer thinning accounts for only 161 acres of the proposed project area. Thinning of these stands can potentially cause soil disturbance which could lead to increased sediment loads for the short term until vegetation communities recover and stabilize the soil. In order to minimize the possibility of sediment contribution to the river, conifer stands will be hand cut. Piling will occur by hand or with a rubber track machine which reduce ground disturbance. In addition to low impact methods, the Klamath Fall Resource Area - Resource Management Plan or KFRA RMP (see Hydrology and Riparian Reserve Treatments and Table B below) highlights techniques for vegetation management when attaining fuels treatments within Riparian Reserves.

The majority of oak thinning sites within the proposed project are not within riparian reserves. Sites that do border riparian areas are subject to the same restrictions highlighted in appendix B which are designed to mitigate impacts. Oak thinning accounts for 1,070 acres of the proposed project area. The Oak stands will be hand cut and piled minimizing ground disturbance. Oak debris will be piled and burned according to the KFRA RMP guidelines this will mitigate negative impacts to riparian areas (see Hydrology and Riparian Reserve Treatments section below).

Underburning will be in accordance of KFRA RMP guidelines. Guidelines for burning depend on stream type, slope, and riparian vegetation (detailed below Table B). Underburning accounts for the majority of the proposed project area 2,545 acres. Burning will only occur during climatic conditions that favor a low intensity fire and will reduce the probability of a stand replacing fire. A stand replacing fire would have severe impacts to riparian areas because it would remove the greater part of vegetation within the canyon and greatly reduce sediment stability. Due to the high gradient

slopes of the canyon any elevated loss of sediment stability could potentially result in an amount of sediment delivery into stream channels that is harmful to fish species.

The treatment of eight water crossings would have minimal impacts on fisheries. The equipment work to dig out the bed for placement of the culvert and subsequent backfilling around the culvert will cause short term introduction of sediment to the channels. This increased sediment will temporarily reduce water quality, but the sediment will quickly be diluted and settle out. The projects would be designed to reduce sediment transport and increase stream connectivity which is beneficial to the aquatic environment.

By administering KFRA RMP guidelines in conjunction with low impact methods of vegetation treatments (hand cutting and piling) and spreading out proposed treatments over several years the project should have no long term negative impacts to the aquatic environment. By avoiding stand replacing fire the long term impacts would be beneficial to aquatic species.

Wildland Fire and Fuels Management

No Action

No action would mean that the dense stands of vegetation would not be thinned and ultimately could result in the potential fire intensity and severity increasing. Due to the active human and lightning ignition sources present and the difficult fire suppression environment, a wildfire within the Klamath River Canyon will inevitably escape initial attack. The loss of vegetation from any large wildfire and the impacts from suppression activities are potential negative impacts that could result from this alternative. Extreme wildfire that causes mortality in existing plants and soil sterilization can lead to noxious weed infestation, and may demand immediate attention for rehabilitation efforts.

Proposed Action

Prescribed fires would generally improve habitat conditions by diversifying habitat structure, providing short-term improvement in forage palatability, and increasing the availability of herbaceous forage plants and thus meet the objectives of the project. Some habitat changes would result in adverse impacts to species reliant on large homogeneous blocks of vegetation types. Most vegetation types are dependent on fire return intervals that have been modified over the last century. Returning these habitats to historic fire interval levels, or management close to these levels, would generally increase the quality of habitat. Following treatment, there is still potential for low intensity wildfires to occur, but the possibility to control the fire during initial attack and keep catastrophic fire impacts low is increased with the proposed action.

Air Quality

No Action

Under the no action alternative, compliance with the Oregon Smoke Management Plan would continue. Air quality impacts are typically very localized and only result from vehicles stirring up dust and from campfire smoke. There is a gradually increasing potential for large wildfires, which would have limited-duration air quality impacts. Wildland fire is a stochastic event and smoke and particular matter cannot be anticipated.

Proposed Action

Air quality impacts would be slightly higher in the short term than the No Action Alternative because there would be an increase in vehicles and equipment used to implement the actions stirring

up dust. No additional impacts to air quality from campfire smoke over the No Action Alternative are expected because no measurable increase in recreation use is expected.

Total emission of PM_{2.5} is predicted to be 503 tons from the broadcast underburning and 431 tons from burning the thinning piles. Assuming 500 acres of maintenance broadcast burns would be accomplished annually, approximately 99 tons/year of PM_{2.5} would be emitted. Due to the ability to manage emissions from prescribed fire (through timing burns with projected weather patterns) the air quality goal should be met. This alternative has greater short-term impacts, but should have a lesser impact on air resources from wildfires in the long-term. Due to the relative isolation of the area and the predominant wind patterns for smoke dispersion, the probability of degrading any key airshed with this project is low. These local impacts would be transitory in nature and no long-duration smoke impacts are expected.

Prescribed burning would comply with the guidelines established by the Oregon Smoke Management Plan (OAR Chapter 629, Division 48). All ignitions will comply with direction in the Smoke Management Forecast and Instructions. Prescribed burning is not expected to affect visibility within nearby smoke sensitive Class I areas (Mountain Lakes Wilderness) during the visibility protection period (July 1 to September 15). Prescribed burning is not routinely conducted during this period primarily due to the risk of an escape wildfire.

Prescribed burning emissions are not expected to adversely effect annual PM_{2.5} attainment within Klamath Falls, or the Medford non-attainment area. Any smoke intrusions into these areas from prescribed burning are anticipated to be light and of short duration. Prescribed burning would also be planned during the fall, winter and spring months to reduce damage to the site from high intensity burning and to facilitate control of the units being burned. Smoke retained on site could be transported into portions of non-attainment areas if it is not dispersed and diluted by anticipated weather conditions, however, current avoidance strategies for prescribed fire assume that smoke can be lifted from the project site and dispersed and diluted by transport winds. Localized concentration of smoke in rural areas in northern California may occur.

Livestock Grazing

No Action

Currently there is no grazing within the project boundaries on BLM lands and no grazing is currently occurring on PacifiCorp lands. The No Action Alternative would not affect the current forage base for authorized livestock grazing in the Ward Pasture of the Edge Creek Allotment. There would also be no impact to the existing livestock management improvements within the allotment.

Proposed Action

The Proposed Action should have limited effects to the livestock forage within the Edge Creek Allotment. The proposed treatment areas contain a minor portion of the useable forage within the allotment. Most of the livestock forage is in more open meadows and along riparian areas where limited treatments are proposed. Thinning of the oak and conifer stands could provide a small increase in the available livestock forage over time if the grass species increase due to less competition from the tree and shrub species.

Felling of trees on fences or exposing fence wires to extremely hot fires could damage the existing livestock management improvements in the allotment if the Proposed Action is implemented. These impacts could be minimized by following Project Design Features found in Appendix A.

Private Lands and Utilities

No Action

Use and activities on private land would continue. The primary activity known to exist is recreational use of PacifiCorp lands around Frain Ranch. The utility companies would continue to use and maintain powerlines in the area. The potential for impacts to private land and to existing utilities from wildfire would remain the same.

Proposed Action

No direct impacts above those under the No Action Alternative would occur to private lands and nearby utilities. No treatment is proposed for the private lands. Treatments proposed adjacent to the private lands owned and managed by PacifiCorp would be coordinated with the company and local powerhouse operators. The burn plan will be written to include protection of PacifiCorp's power generating facilities and adjacent utilities. Any need to temporarily close the roads needed by PacifiCorp to access their operation would also be coordinated with the company and local powerhouse operators, but impacts to PacifiCorp's operation should be minimal to non-existent. The proposed activities, primarily the vegetation treatments, should actually aid long term in the protection of the adjacent transmission line from damage due to wildfires. The road and stream crossing actions would slightly improve access to private lands, but large increases in recreation traffic are not expected.

OTHER CUMULATIVE EFFECTS

This analysis considers the cumulative effects that have the potential to impact the Klamath River Wild and Scenic and ACEC values. Since these actions are designed to affect many different values, the overall effects are considered here. The proposed project is the only planned habitat treatment project in the Klamath River Canyon ACEC on BLM administered lands. The project activities covered under this environmental assessment are proposed to treat 3,306 acres over a five year period. No other vegetation management projects are proposed for the ACEC outside of normal fire suppression activities. The quality of the Wild and Scenic River and ACEC would be maintained for some values and improved for others with an overall resulting improvement in the Wild and Scenic River and ACEC.

The Federal Energy Regulatory Commission is in the process of determining whether to relicense PacifiCorp's Klamath River Hydroelectric Project. Two processes are proceeding concurrently; a settlement process and a traditional licensing process. Under the settlement process a "*Proposed Klamath River Basin Restoration Agreement*" has been developed that proposes removing existing dams. Under the traditional process the BLM, Lakeview District, has provided the Federal Energy Regulatory Commission mandatory conditions for PacifiCorp to operate the Klamath River Hydroelectric Project. It is likely that a decision based on either process would result in changes in river management, especially if the dams were removed, however, most of these changes would have little effect on upland resources. It is unknown at this time what decision would be made and thus what changes would occur. Despite this uncertainty, there would be little cumulative effect on upland resources with a decision on either process.

The RMP is in the process of being revised through the Western Oregon Plan Revisions. According to the alternatives presented in the Draft EIS (USDI 2007), there would be only minor changes in management direction for the Klamath River canyon, and these changes would not be sufficient to

add to or substantially alter the overall effects of activities proposed in this EA. The Western Oregon Plan Revisions, although reasonably foreseeable, are still in process and subject to change based on public comments and subsequent administrative remedies. They, therefore, provide insufficient information for meaningful consideration at this time (see *NAEC v. Kempthorne*, 457 F.3d 969, 979-80 (9th Cir. 2006) finding it lawful to consider the cumulative effects in the later broad-scale planning analysis).

Additionally, the purpose of this current proposal is to implement the existing Klamath Falls Resource Area Resource Management Plan. This EA has been prepared to determine if any significant environmental effects of the proposed actions are substantially greater than what has already been analyzed in the existing RMP's EIS. The EIS associated with the current Western Oregon Plan Revision effort contains a cumulative effects analysis that incorporates these implementation actions (projected to occur under the existing plan as the "No Action" alternative and possible ongoing actions carried forward into the action alternatives), in a manner appropriate to the land use planning scale. The Western Oregon Plan Revision EIS therefore serves as the appropriate vehicle for analyzing the cumulative effects of each land use alternative's management scheme. Any potentially cumulative effects of this proposal at the programmatic level that would be relevant to the proposed plan revision will be considered in that process.

PERSONS/AGENCIES CONSULTED

The BLM determined that the proposed action with all project design features incorporated "May Affect, Not Likely Adversely Affect" the northern spotted owl due to thinning and prescribed burning within suitable habitat. All spotted owl suitable and dispersal habitat would be maintained. No nest territories occur within and no spotted owl designated critical habitat occurs within the project area. The project "May Affect Not Likely to Adversely Affect" the Lost River and shortnose sucker. No in water work would occur and the proposed burning and thinning would not adversely affect water quality for suckers. The U.S. Fish and Wildlife Service concurred with this determination through the fuels programmatic consultation (81450-2006-0104).

Perry Chocktoot, Director of Culture and Heritage for the Klamath Tribes was consulted regarding this project, and no issues arose during this discussion.

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APPENDIX A – BEST MANAGEMENT PRACTICES/ DESIGN FEATURES

For units containing Nesting, Roosting and Foraging (NRF) habitat:

- Burn prescriptions will require proper fuel moisture and atmospheric conditions so adequate large woody debris will be retained for prey habitat
- General objective for burn would be to create a mosaic of burned and unburned habitat in the unit to maintain some habitat for prey production
- In NRF habitat maintain a diversity of understory brush (islands of undisturbed brush), while still reducing the continuity of the fuel
- In NRF habitat maintain visual screening along open roadways to minimize disturbance
- In NRF habitat, maintain the understory structure by retaining a diversity of the sub-merchantable understory conifer trees (Douglas -fir, white-fir, sugar pine, cedar, ponderosa pine). In mechanical treatment areas this would be done by site-specific designs described in the individual task orders. During prescribed fire activities the overall objective is to create a mosaic of burned and unburned areas. Ignition techniques and pull back on smaller trees may also be used to maintain the understory structure.

For fuel treatment units adjacent to or containing bald eagle nest sites:

No fuel treatments will be planned within the core area (as identified by a BLM wildlife biologist) of a bald eagle nest site during the nest season. Nesting season is considered January 1st – August 15th. The wildlife biologist may recommend adjustment of these dates if the young have fledged prior to Aug. 15th (usually the fledging date plus 2 weeks). The core area will consist of the withdrawn area around the nest and the disturbance area around the nest. Generally the disturbance area is considered ¼-mile or ½ mile line-of sight. This distance may vary depending on topography and site-specific information.

Smoke management will be planned in such a way to avoid adverse effects of residual smoke on nest sites adjacent to burn units.

A BLM wildlife biologist will be consulted about eagle use of the area before the fuel treatments are initiated to ensure the eagle situation is closely monitored.

A biologist/designee will monitor the nest area during the burns to ensure that objectives and PDFs are met (smoke management, fire intensity, etc).

In areas where prescribed fire activities are being planned, remove the brush, ladder fuels and large down woody debris within the dripline (approximately 30+ ft.) of the eagle nest trees and potential or identified perch/roost trees to reduce ladder fuel. The brush would be piled away from the nest and burned.

Fire activity will be reduced immediately adjacent to the nest trees during the broadcast burning of the area, personnel will be required to complete one or more of the following:

- Pull back of 10 and 100 hour fuels 30' from the base of the nest trees/ perch trees
- Construct fire line around the nest trees/perch trees.
- Use foam, water, or other retardants to protect the nest tree (foam would not be allowed if the nest tree is in a riparian zone).

- Ladder fuels would be removed from the drip line (30ft.)

Other Wildlife

Restrict management activity within ¼ mile of known nest sites between May 1st and August 1st (KFRMP 1995, 34).

When feasible minimize/avoid impacts to nesting migratory birds by implementing Best Management Practices as described in W.O. IM 2008-050 under Project Level NEPA Guidance.

Cultural

Prior to each field season the project lead(s) will provide the Cultural Resource Management Division maps and descriptions of the proposed projects for the next year so that Section 106 of the National Historic Preservation Act can be fulfilled.

Hydrology & Riparian Reserve Treatments

For units adjacent to or containing riparian areas or fish habitats:

Objectives of fuels treatments within riparian reserves (RRs) are: protection of vegetation and soils from catastrophic fire, (including overhead canopy for stream shading); restoration of riparian areas to the potential natural community for the site; increased productive vigor vegetation within the riparian areas; and retention and protection of coarse woody debris (CWD) and overhead cover for stream function and aquatic habitats.

Table A: Riparian reserve types and widths from the KFRA RMP

Riparian Reserve Type	Reserve Width (for each side of streams/wetlands)
Fish-bearing streams	At a minimum, the reserve width will include: <ul style="list-style-type: none"> ▪ Slope distance equal to the height of two site potential trees (240 feet); or, ▪ The stream channel and the area extending to the top of the inner gorge; or, ▪ The area extending to the outer edges of riparian vegetation; or, ▪ The 100-year floodplain; or, ▪ The extent of unstable or potentially unstable areas, whichever is greatest.
Perennial non-fish-bearing streams and Intermittent (seasonal) non-fish-bearing streams and Constructed ponds and reservoirs and Wetlands greater than one acre	At a minimum, the reserve width will include: <ul style="list-style-type: none"> ▪ Slope distance equal to the height of one site potential tree (120 feet); or, ▪ The stream channel (or waterbody/wetland) and the area extending to the top of the inner gorge; or, ▪ The area extending to the outer edges of riparian vegetation; or, ▪ The 100-year floodplain (for streams) or the extent of seasonally saturated soil (for waterbodies and wetlands); or, ▪ The extent of unstable or potentially unstable areas, whichever is greatest.
Wetlands less than one acre and Unstable or potentially unstable areas	At a minimum, the reserve width will include: <ul style="list-style-type: none"> ▪ The wetland and the extent of seasonally saturated soil; or, ▪ The area extending to the outer edges of riparian vegetation; or, ▪ The extent of stable or potentially unstable areas, whichever is greatest.
Lakes and natural ponds	At a minimum, the reserve width will include: <ul style="list-style-type: none"> ▪ Slope distance equal to the height of two site potential trees (240 feet); and, ▪ The body of water or wetland and the area to the edges of riparian vegetation; ▪ The extent of seasonally saturated soil; ▪ The extent of unstable or potentially unstable areas; whichever is greatest.
Springs	Reserve widths vary according to the size of the associated wetland (see above).
*A site-potential tree is defined as the average maximum height of the tallest dominant trees (200 years old or more) for a given site class. In the Thin Sheep Forest Health Treatments project area, the site potential tree height was determined to be 140 feet.	

From the Klamath Falls Resource Area Resource Management Plan, "Riparian Reserves are lands along streams and unstable and potentially unstable areas where special standards and guidelines direct land use." Riparian areas, for the purposes of these PDFs are defined as lands adjacent to perennial and intermittent streams, springs, lakeshores, wetlands, and reservoirs. Riparian areas have vegetation and soil with physical characteristics showing permanent surface or subsurface water influence. Streams covered under these PDFs include perennial streams, (streams that generally flow year round) and intermittent streams (streams that generally run for at least 30 days per year and have a definable channel and evidence of annual scour or deposition). Wetlands are areas that are inundated by surface or ground water and support vegetation adapted for saturated soil conditions.

There should be an opportunity on a case-by-case basis to assess the affect of the buffer width on riparian areas and aquatic species and habitats.

Mechanical fuels treatments in riparian reserves:

- Hand treatments would be performed within the no-mechanical-entry zones to meet fuels management objectives.

Ignitions (using liquid petroleum products) within Riparian Reserves:

Ignition of broadcast fires should not occur within a minimum of 50 feet from the stream channel within the Riparian Reserves unless site specific analysis determines ignition is needed to attain Riparian Reserve objectives. The specific distance for lighting fires within the RR will depend on topography, habitat, ignition methods, fuel moisture, and ignition fuel type.

Ignition line location nearest the stream should be based on topography and ignition methods and should be sufficient to protect water quality, CWD, and stream overhead cover. No direct ignition of CWD directly touching the high water mark of the stream, or of CWD that may be affected by high flows, should occur. Where there is thick vegetative cover that extends out from the stream, ignition lines should be located in the forest stand, away from the stream to protect shading values.

Ignition lines near large open meadows, associated with the stream channels should be located at the toeslope above the meadow elevation as much as possible to protect meadow vegetation.

Increased ignition spacing from the stream should occur when igniting fuels on the lower end of the window of moisture content to protect CWD and overhead cover components.

Roads and temporary fire trail access in riparian reserves:

- No new permanent roads will be constructed within Riparian Reserves except where construction or re-alignment of road segments allows obliteration of existing road segments that are causing greater resource damage within Riparian Reserves. If possible, use new technology construction methods for building temporary roads into treatment units (including but not limited to wood chip constructed roads).
- Existing landings and roads within Riparian Reserves would be used only if replacing them with landings and roads outside the Riparian Reserves would result in greater overall disturbance to the Riparian Reserve or water quality. Use of existing roads and landings within the RR will be reviewed and approved by the resource advisor.
- Minimal or no grading of the existing roads will be done to maintain the existing ground cover and vegetation and to decrease sediment movement.

Chemical fire retardants in riparian reserves:

- No use of chemical retardants would occur within the full width of the riparian zone (per KFRA RMP.)
- In cases of escaped or wildfire control, soap based retardants may be applied to within 50 feet of a stream that contains water.

Streamside pumping sites:

- Pumping on small streams should not reduce the downstream flow of the stream by more than half the flow.
- If possible, avoid the construction of temporary pump chances. When necessary use temporary plastic dams to create chances and remove these dams when not actively pumping.
- All pumping located on fish bearing streams must have a screen over the intake to avoid entrainment of small fish.
- The pump intake should be suspended near the thalweg (deepest/highest quantity of flow) of the stream. Avoid placing pump intakes on the substrate or edges of the stream channel.

Post-fuels treatments for access roads and temporary fire trails:

- Install drainage dips, or water bars, in accordance with RMP BMPs to reduce surface run-off.
- A layer of duff (average of ½ inch after final burn) will be retained on roads.

Scenic/Visual Resources

- Cut stumps close to the ground (less than 4 inches)
- Use multiple prescribed fire treatments over time to maintain the desired character of the landscape and to limit the level of change at each treatment so that it does not attract the attention of the casual observer.
- Where possible, provide a mosaic of vegetative treatments along roadways, including providing openings and areas where visual screening is maintained.
- Minimize the use of tree marking paint in marking unit boundaries or other layout.
- Design vegetation and fuel treatment areas to have feathered, irregular edges and shapes. They should mimic naturally appearing shapes, forms, and textures of the surrounding landscape.
- Place burn piles in a manner to protect reserve trees from mortality during burn operations.

Protection of Range Improvements:

Fences

- During manual tree felling operations, trees will be directionally cut to fall away from fences. This includes allotment and pasture fences and enclosure fences around springs, water developments, and study sites.
- If trees do damage fence components including wires, posts, stays, clips, rock cribs, gates, or brace structures these will be repaired immediately.
- During mechanical tree cutting operations, trees will be directionally cut to fall away from fences.
- Cut trees will not be piled on or next to fence lines.
- Machinery will not physically contact fence components.
- If fences must be crossed to access cutting units, this should be done by cutting the wires between two posts and rolling the wire back. If livestock are present in the cutting areas these wires shall be temporarily reattached at the end of each days operation. At the

completion of cutting operations, the wires will be detached from the two posts, the wires will then be stretched and spliced together and then reattached to the posts.

- During prescribed burning operations, slash shall not be piled on or next to fence lines.
- If fences have wood posts, all necessary measures will be taken to avoid burning the posts including not piling slash near posts and pulling any concentrations of flammable material away from the posts prior to ignition.
- If any wood posts are burned, they will be immediately replaced with steel posts and the fence wires will be attached to the new post.
- If prescribed burning operations damages fence wires, these will be replaced.

Management Considerations for the Evening Fieldslug:

For populations on National Forest and BLM administered lands, during grazing, timber management, recreation, and other land management activities consider:

- Minimizing alterations in microsite characteristics, including management of areas large enough to moderate fluctuations in humidity and temperature.
- Maintaining existing cover by preserving dead and downed woody debris. Within habitats for these species an abundance of large woody debris may be necessary; the quantity naturally available for a given site could be determined by use of the DecAID model or other predictor of down wood amounts for the plant community.
- Protecting occupied rockslides and talus areas from road construction, quarrying, and other activities.
- Maintaining the canopy closure of trees within the habitat area to moderate fluctuations of temperature and humidity on the site.
- Maintaining the hardwood tree component (i.e., maples, cottonwood, red alder, aspen) and native plant diversity to provide a constant supply of logs, leaves, and leaf mold.
- Maintaining riparian areas according to ROD guidance (pgs. C30-C38) and, if necessary, increasing Riparian Reserve widths.
- Avoiding burning within occupied habitats and managing to minimize adverse effects of fire.
- Avoiding activities that would lower the water table at the site, thus reducing soil moisture below that required by the species, or possibly altering vegetative communities.
- Protection from grazing.
- Avoiding activities that would cause soil compaction. Litter and porous soil will provide cover and insulation against temperature extremes.

Management Considerations for the Chase Sideband:

Within species habitat areas, maintain a food supply of leaf and needle litter and fungi, within a cool moist environment during fall and spring active periods; and provide stable refuge sites used during dormant periods in summer and winter which provide constant hibernacula conditions as well as protection from fire and predators. This includes maintaining undisturbed talus and rock substrates, and managing the surrounding vegetative cover sufficient to maintain suitable environmental conditions and provide coarse woody debris and uncompacted forest litter. Due to the rarity of known populations, sites should be protected from wildfire events to the extent feasible, without degrading the current habitat condition such that the local population is lost.

Management Considerations for the Klamath Rim Pebblesnail:

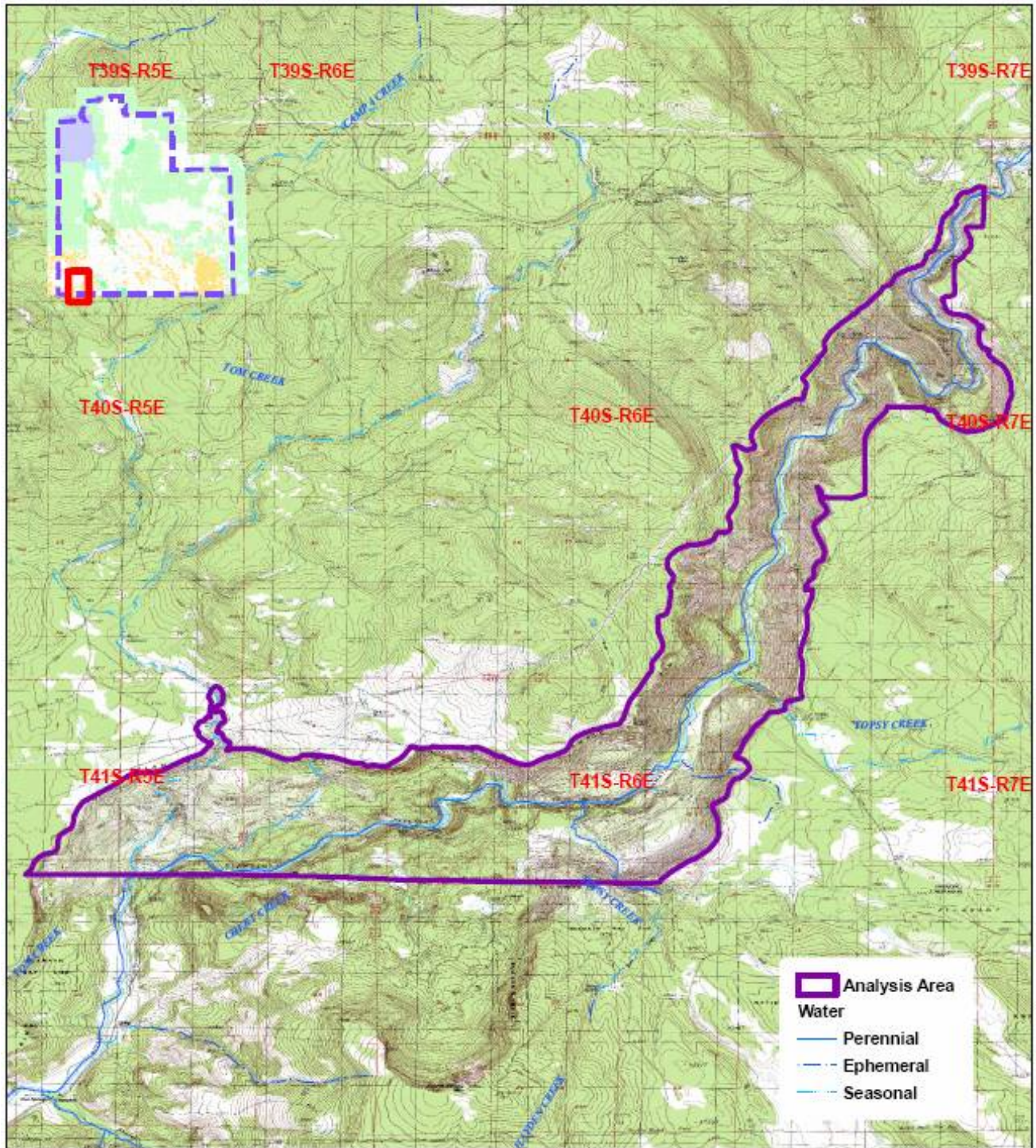
- Maintaining water temperatures below 18 C (65 F) to avoid thermal stress and ensure adequate availability of oxygen. (18 C represents the critical threshold for trout.)
- Maintaining dissolved oxygen levels at or near saturation levels.

- Maintaining and/or restoring native riparian plant communities that aids in maintaining cool water temperatures (i.e. below 18 C) by providing shade, reducing sedimentation impacts, and providing litter fall nutrients to energy pathways in the stream ecosystem.
- Avoiding or mitigating for activities that could significantly increase sedimentation, pollution, or potential for eutrophication of occupied sites (e.g., logging, grazing, mining, construction activities).
- Avoiding water diversions or other activities that may reduce water flow below levels necessary to sustain viable populations. This level should be determined on a site-specific basis, but these species generally need flowing water.
- Avoiding or mitigating for the construction of dams that could have the following negative impacts: submersion of cold springs, slowing of current velocities, lowering of dissolved oxygen, and increased sedimentation.

Cultural Resources

- Follow procedures for cultural protection and management outlined in the KFRA ROD/RMP (page 43), and protect identified sites by buffering.
- Follow procedures outlined in KFRA Clearance Protocol for Cultural Resources. The project lead will fill out a project request form during project development and prior to implementation.
- In accordance with guidelines and directives in the Klamath Falls Resource Area RMP, BLM regulations, and the National Historic Preservation Act, areas not included in previous archaeological surveys will be surveyed before any ground-disturbing action is undertaken.

APPENDIX B – PROJECT MAPS
 Map 1. Project Analysis Area Boundary



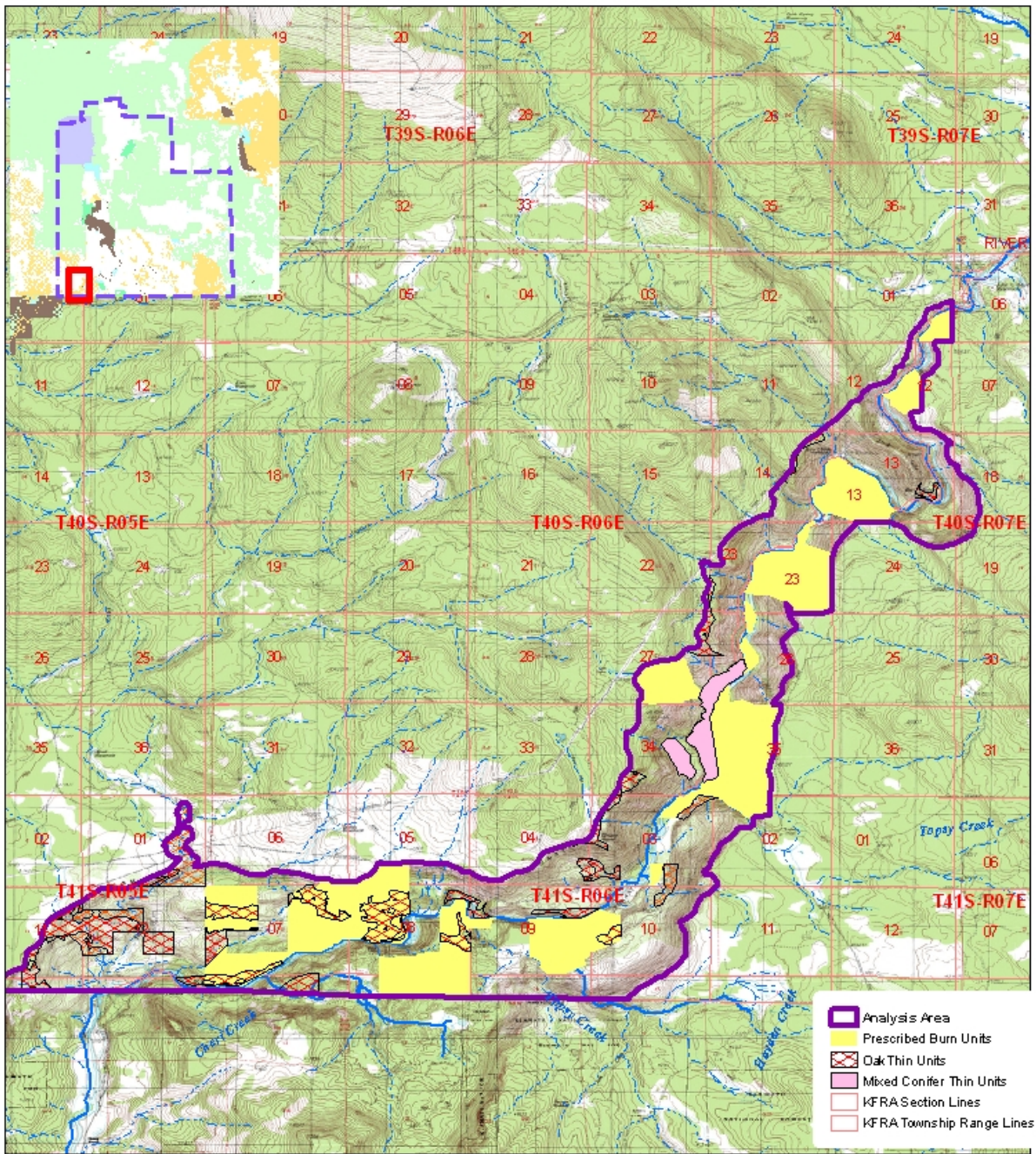
Klamath River Canyon Project Analysis Area



The accuracy is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

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Map 2. Approximate Treatment Unit Boundaries.



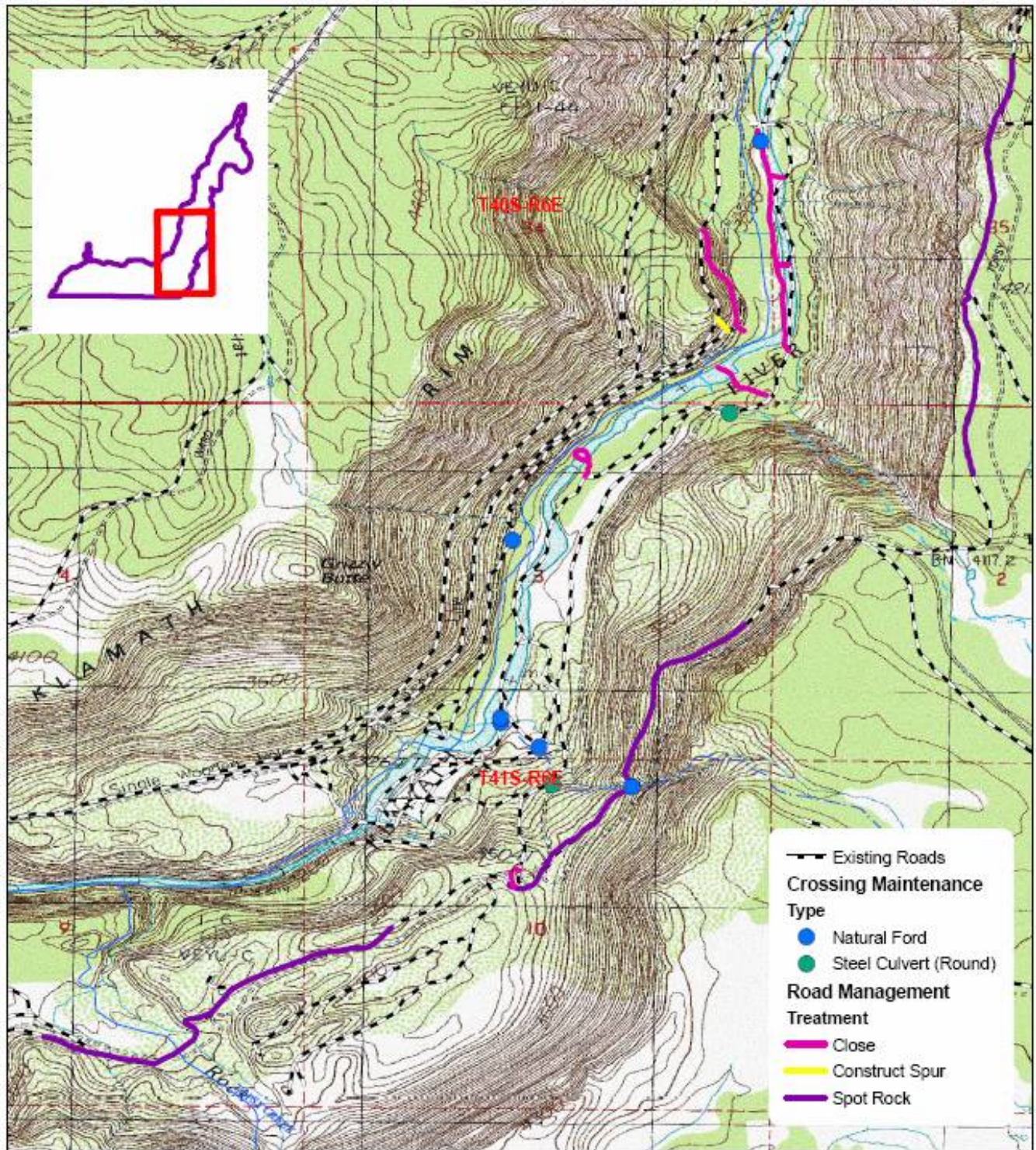
Klamath River Canyon Proposed Vegetation Treatments



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

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Map 3. Proposed Road Treatments



Klamath River Canyon Proposed Road Treatments



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)
for the
Klamath River Canyon Vegetation and Road Treatments Environmental Assessment
EA #OR-014-08-03

Introduction

The Bureau of Land Management (BLM), Lakeview District, Klamath Falls Resource Area (KFRA), has completed an Environmental Assessment (EA) to analyze a proposal to implement treatments within the Klamath River Canyon to address the following needs:

- protect and enhance the Outstanding Remarkable Values (ORVs) – scenic quality and wildlife – for which the Wild and Scenic Klamath River was designated
- reintroduce fire to plant communities that developed with fire as an integral part of their evolution to transition these communities toward their historical structure
- reduce the hazardous fuel load in the Klamath River Canyon to reduce the associated risk of high intensity wildfire and increase initial attack effectiveness
- promote forest health and enhance oak woodland habitat in the planning area to benefit associated wildlife species
- reduce road density in riparian reserves and manage roads to meet objectives of the Resource Management Plan (RMP)

The EA considered two alternatives:

No Action

Under the no action alternative, management activities proposed in the EA would not be implemented. Activities proposed in and adjacent to the analysis area that have been analyzed and approved in other NEPA documents would still occur such as fuel reduction treatments, routine road maintenance, forest inventory and surveys, and fire suppression.

Proposed Action

Actions proposed under this alternative consist of vegetation treatments (oak and conifer thinning and prescribed burning) and road treatments (water crossings, maintenance, closures and construction). Refer to pages 4-8 of the EA for a detailed description on the proposed action.

Findings

The proposed action and no action alternatives were analyzed for significant effects as per the Council on Environmental Quality (CEQ) Regulations - 40 CFR § 1508.27. The following criteria listed under 40 CFR § 1508.27(b) were considered and found to be not applicable to this action: significant beneficial or adverse effects; significant effects on public health or safety; effects on the quality of the human environment that are likely to be highly controversial; anticipated cumulatively significant impacts; highly uncertain or unknown risks; and precedents for future actions with significant effects.

The project analysis area is within an area designated as a wild and scenic river and an Area of Critical Environmental Concern (ACEC). The proposed actions are designed to enhance the Outstanding Remarkable Values (ORVs) for which the Wild and Scenic Klamath River was designated and meet management objectives for the ACEC. Other unique characteristics (Critical Elements of the Human Environment) listed in 40 CFR § 1508.27(b)(3) – prime or unique farmlands; floodplains; wilderness; and solid or hazardous waste – are not present and will not be affected.

The Klamath River Canyon is rich in cultural resources reflecting prehistoric, historic, and current Native American traditional use. Within the Klamath River Canyon, archaeological surveys, excavations and artifact analyses have been conducted over the last 50 years and over 100 prehistoric sites have been located. In regard to 40 CFR § 1508.27 (b)(8), no significant adverse impacts are expected to cultural, scientific, or historical resources. Although, incidental impacts to cultural resources (from recreational use, riverbank erosion and wildfire) could occur, mitigation measures, primarily avoidance, would be implemented to resolve conflicts between cultural resources and proposed activities.

There will be no significant impacts to any special status terrestrial species or habitat that has been determined to be critical under the Endangered Species Act [40 CFR § 1508.27 (b)(9)]. There is no designated critical habitat within the project area. Seasonal restrictions and other mitigations will serve to minimize potential impacts to sensitive species that are documented or suspected to occur within the project area. (Refer to discussion on pages 17-22 of the EA.)

As per 40 CFR § 1508.27(b)(10), this action conforms with all applicable Federal, State, and local laws and regulations. The action is consistent with Executive Order 12898 which addresses Environmental Justice. No potential adverse impacts to low-income or minority populations have been identified internally by the BLM or externally through public involvement.

Pursuant to Executive Order 13212, the BLM must consider effects of this decision on the National Energy Policy. There will be no known adverse effect on the National Energy Policy or on energy resources. Within the vicinity of the project area, energy producing or processing facilities include the J.C. Boyle Powerhouse and two powerlines owned by PacifiCorp. No treatment is proposed for the private lands. Treatments proposed adjacent to the private lands owned and managed by PacifiCorp would be coordinated with the company and local powerhouse operators.

Based on the analysis of potential environmental impacts contained in the environmental assessment, it is my determination that neither alternative analyzed constitutes a significant impact affecting the quality of the human environment greater than those addressed in the following:

- Final - Klamath Falls Resource Area Management Plan and EIS (FEIS), 1994
- Klamath Falls Resource Area Record of Decision and Resource Management Plan and Rangeland Program Summary, 1995 (KFRA ROD/RMP)

I have determined that this action will not have any significant impact on the human environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969, and an environmental impact statement is not required. I have further determined that the proposed action conforms to management direction from and will contribute to meeting the objectives of the Klamath Falls Resource Area Record of Decision and Resource Management Plan, as amended. Therefore, an Environmental Impact Statement, or a supplement to the existing RMP or Environmental Impact Statement, is not necessary and will not be prepared.

Signed: /s/ Donald J. Holmstrom
Donald J. Holmstrom, Field Manager
Klamath Falls Resource Area

Date: 5/16/08