Decision Memorandum on Action and for Application of:
Categorical Exclusion 516 DM2, Appendix 1, 1.12 – Hazardous Fuel Reduction
(PLAN CONFORMANCE AND CATEGORICAL EXCLUSION DETERMINATION)
Bureau of Land Management (BLM)

Project Name:	West Boundary Fuels Reduction and Rangeland Restoration	**CX Log #:**	OR-014-CX-06-01
Location:	T38S, R14E. Sections 31 and 32; T39S, R14E, Sections 4 and 5. Adjacent to the N.E. shore of Gerber Reservoir		
BLM Office:	Lakeview District , Klamath Falls Resource Area	**County:**	Klamath County, Oregon

DESCRIPTION OF THE PROPOSED ACTION (INCLUDING PURPOSE AND NEED)
The dual purposes of the proposed project are to 1), reduce hazardous fuels and the risk of wildfire(s), and 2), improve rangeland habitat for a variety of values including restoration of historically occupied sage grouse (*Centrocercus urophasianus*) habitat. The action consists primarily of cutting, piling and burning invasive western juniper (*Juniperus occidentalis*) generally less than 130 years old. All junipers greater than 24 inches diameter at breast height (DBH), and smaller junipers with old tree characteristics such as wildlife cavities, dead tops, hollow boles, large lower limbs, or gnarled growth form would be reserved from cutting. (See Appendix D, Characteristics of Old Juniper.)

In addition to the benefits listed above, this project will also benefit Bald Eagles (*Haliaeetus leucocephalus*). The area proposed for treatment includes some large old ponderosa pine (*Pinus ponderosa*), which are the preferred trees for nesting bald eagles in this area, although there are no eagle nests within or immediately adjacent to the project area. Some of these large pines had the junipers within their drip lines felled approximately 10 years ago in order to reduce competition for water and nutrients and to protect the pines (potential future nest trees) from wildfire by eliminating the juniper ladder fuels. Some of these felled junipers are still laying under the pines, and this project provides an opportunity for these old juniper stems to be removed or piled and burned (see Appendix A Wildlife Project Design Features).

This project consists of two units totaling 768 acres. Work would be performed with mechanized equipment and by hand with chainsaws. Juniper treatment in riparian reserves would be performed in accordance with the Project Design Features described in Appendix F. The resource area hydrologist would visit the site to determine where hand cutting may occur within riparian areas. In the smaller unit cut junipers would be left scattered on the ground to provide shoreline cover for wildlife and to provide some protection from grazing/browsing for the shore line and near shore herbaceous vegetation. Along intermittent streams, some juniper may be cut by hand and left to provide riparian vegetation some protection from grazing/browsing. The areas to be hand treated would be determined by the Resource Area hydrologist prior to or during the unit layout phase of project implementation.

The interdisciplinary team reviewed this project against the Juniper Utilization Criteria (revised April 2006) and determined that low juniper density, range conditions and access problems reduced the feasibility of commercially utilizing the cut material. Cut material will be made available for personal use firewood for one year.

All lands proposed for treatment have been surveyed for cultural resources. All sensitive cultural sites shall be avoided. All lands proposed for treatment have been surveyed for special status plants and noxious weeds. Special status plant sites will be marked on the ground and either buffered within the units or excluded from the units. Weed sites would be treated as discussed in the Mitigation Measures section below (see Appendix B Weed Mitigation Measures).

Some live juniper trees may have been used as living posts during fence construction in this area. All such trees would be retained live and intact. Any fences damaged by operators in performance of this project work would be repaired immediately.

IMPLEMENTATION DATE
This project is expected to be implemented fiscal years 2006 and 2007.

PLAN CONFORMANCE
The proposed project has been reviewed and found to be in conformance with one or more of the following BLM plans, programmatic environmental analyses or policies:

Klamath Falls Resource Area Plans

- Klamath Falls Resource Area Record of Decision and Resource Management Plan (1995), as amended (1999)
- Integrated Weed Control Plan (IWCP) and Environmental Assessment (EA) OR-014-93-09

District and Regional Plans

- National Fire Plan (A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan) (2001)
- Klamath Interstate Habitat Management Plan (1982)
- Western Oregon Transportation Management Plan (1996; Updated 2002)
- Vegetation Treatment on BLM Lands in Thirteen Western States FEIS and ROD (1991)
- Supplement to the Northwest Area Noxious Weed Control Program FEIS and ROD (1987)
- Lakeview District Fire Management Plan – Phase 1 (1998)
- Wildland and Prescribed Fire Management Policy (1998)
- Emergency Fire Rehabilitation Handbook (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)
- Standards for Land Health for Lands Administered by the Bureau of Land Management in the States of Oregon and Washington (1998)
- Interior Columbia Basin Strategy (2003)
- National Sage-Grouse Habitat Conservation Strategy (2004)
- Greater Sage-Grouse Conservation Strategy and Assessment for Oregon, Draft (2005)

LIMITATIONS
There are a number of limitations on the use this hazardous fuels reduction CX. The project:

(a) Shall not exceed 1,000 acres for mechanical methods (crushing, piling, thinning, pruning, cutting, chipping, mulching, and mowing) and shall not exceed 4,500 acres for prescribed fire,
(b) Shall be conducted in wildland-urban interface or in condition classes 2 or 3 in fire regime groups I, II, or III outside the wildland-urban interface,
(c) Shall be identified through a collaborative framework as described in A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan,
(d) Shall be conducted in accordance with BLM and DOI procedures and applicable land/resource management plans (refer to Plan Conformance section above),
(e) Shall not be conducted in wilderness areas or where it would impair the suitability of WSA’s for preservation as wilderness,
(f) Shall not include the use of herbicides or pesticides,

(g) Shall not involve the construction of new permanent roads or other new permanent infrastructure,
(h) May include the sale of vegetative materials if the primary purpose is hazardous fuels reduction.

COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT

The proposed action is categorically excluded from further analysis or documentation under the National Environmental Policy Act (NEPA) in accordance with 516 DM2, Appendix 1, 1.12 (Mechanical Treatment/Prescribed Fire) if it does not meet any of the following Exceptions (listed in 516 DM 2, Appendix 2; IM No. OR-2002-130).

Will the proposed action meet the following Exceptions?

Exception	Yes No
1. Have significant adverse effects on public health or safety?	( ) (X)
2. Have adverse effects on such unique geographic characteristics or features, or on special designation areas such as historic or cultural resources; park, recreation, or refuge lands; wilderness areas; wild or scenic rivers; sole or principal drinking water aquifers; prime farmlands; or ecologically significant or critical areas, including those listed on the National Register of Natural Landmarks. This also includes significant caves, ACECs, National Monuments, WSAs, RNAs.	( ) (X)
3. Have highly controversial environmental effects (40 CFR 1508.14)?	( ) (X)
4. Have highly uncertain and potentially significant environmental effects or unique or unknown environmental risks?	( ) (X)
5. Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects?	( ) (X)
6. Be directly related to other actions with individually insignificant, but significant cumulative environmental effects? This includes connected actions on private lands (40 CFR 1508.7 and 1508.25(a)).	( ) (X)
7. Have adverse effects on properties listed or eligible for listing on the National Register of Historic Places? This includes Native American religious or cultural sites, archaeological sites, or historic properties.	( ) (X)
8. Have adverse effects on species listed or proposed to be listed as Federally Endangered or Threatened Species, or have adverse effects on designated critical habitat for these species? This includes impacts on BLM-designated sensitive species or their habitat. When a Federally listed species or its habitat is encountered, a Biological Evaluation (BE) shall document the effect on the species. The responsible official may proceed with the proposed action without preparing a NEPA document when the BE demonstrates either 1) a "no effect" determination or 2) a "may effect, not likely to adversely effect" determination.	( ) (X)
9. Fail to comply with Executive Order 11988 (Floodplain Management), Executive Order 11990 (Protection of Wetlands), or the Fish and Wildlife Coordination Act (water resource development projects only)?	( ) (X)
10. Violate a Federal, State, Local, or Tribal law, regulation or policy imposed for the protection of the environment, where non-Federal requirements are consistent with Federal requirements?	( ) (X)
11. Involve unresolved conflicts concerning alternative uses of available resources (NEPA section 102(2)(E)) not already decided in an approved land use plan?	( ) (X)
12. Have a disproportionate significant adverse impacts on low income or minority populations; Executive Order 12898 (Environmental Justice)?	( ) (X)
13. Restrict access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners or adversely affect the physical integrity of such sacred sites; Executive Order 13007 (Indian Sacred Sites)?	( ) (X)
14. Have significant adverse effect on Indian Trust Resources?	( ) (X)
15. Contribute to the introduction, existence, or spread of: Federally listed noxious weeds (Federal Noxious Weed Control Act); or invasive non-native species; Executive Order 13112 (Invasive Species)?	( ) (X)
16. Have a direct or indirect adverse impact on energy development, production, supply, and/or distribution; Executive Order 13212 (Actions to Expedite Energy-Related Projects)?	( ) (X)
17. Have a significant adverse effect on Migratory Landbirds (Executive Order 13186).	( ) (X)

The proposed action would not create adverse environmental effects or meet any of the above exceptions.

DOCUMENTATION OF RECOMMENDED MITIGATION
Note: Although none of the conditions for the above exceptions are met, the resources discussed are potentially affected. Mitigation measures and Project Design Features below are applied to prevent the adverse conditions discussed in the exceptions:

Exception No.	Can Be Mitigated	Cannot Be Mitigated	Mitigation Measures and/or Project Design Features
7	Yes	-----	All surveys have been completed. This project area contains numerous sites that will be avoided.
8	Yes	------	See Appendix A Wildlife Project Design Features
15	Yes	------	See Appendix B Weed Project Design Features

Additional soils quality mitigation:
Refer to Appendix E for PDFs and BMPs to be implemented to maintain soil quality.

Additional meadow/riparian area mitigation:
In order to protect meadow areas, heavy equipment and vehicles would not be driven or parked in riparian areas. Where treatment of encroaching juniper is needed along the edge of riparian areas, treatment with equipment shall not occur when the soils exceed 20% moisture content. Treatment along the edge of the lake will be done by hand - Refer to Appendix F for mitigation pertaining to fuels treatments within Riparian Reserves with No Listed Fish Species.

SURVEYS AND CONSULTATION
Surveys and/or consultation for special status plants and animals, cultural resources are complete. Appropriate fields are Initialed and Dated by responsible resource specialist in the table below:

Surveys	**Are Completed**	**Will Be Completed**	**Are Not Needed**
Special Status Plants	LW 5/12/06		
Special Status Animals	MDB 6/21/06		
Cultural Resources	TC 6/12/06		
Consultation	**Is Completed**	**Will Be Completed**	**Is Not Needed**
SS Animal Consultation	MDB 6/21/06		
Botanical Consultation			LW 5/12/06
Cultural Consultation	TC 6/12/06		

PERSONS AND AGENCIES CONSULTED
US Fish and Wildlife Service: Fuels Program Letter of Concurrence (# 1-10-06-I-0104 dated 3/27/06)
Klamath Tribes: As part of periodic discussions between BLM archaeologist and the tribes.

SUMMARY OF FINDINGS AND CX DETERMINATION
The proposed action would not create adverse environmental impacts or require the preparation of an environmental assessment (EA) or environmental impact statement (EIS). The proposed action has been reviewed against the criteria for an Exception to a categorical exclusion (listed above) as identified in 516 DM 2, Appendix 2, and does not meet any Exception. The application of this categorical exclusion is

appropriate, as there are no extra ordinary circumstances potentially having effects that may significantly affect the environment. The proposed action is, therefore, categorically excluded from additional NEPA documentation.

Prepared By: Matt Broyles, Wildlife Biologist

Reviewed by: Klamath Falls Interdisciplinary Team

Approved By: (Signature)	Name: (signed by) *Heather Bernier*	Title: Acting Resource Area Manager	Date: 7/26/06

ADMINISTRATIVE REVIEW OPPORTUNITY

Appeal
Any party that is adversely affected and determined to be a party to the case, may appeal the implementation of the proposed action to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR Part 4. A notice of appeal must be filed in this office (at the address below) within 30 days of receipt of this decision. The appellant has the burden of showing that the decision is in error.

An appellant may also file a petition for a stay (suspension) of this decision during the time that the appeal is being reviewed by the Board pursuant to Part 4, Subpart B, 43 CFR Part 4.21. The petition for a stay must accompany the notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must be submitted to each party named in this decision, to the Interior Board of Land Appeals, and the Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. The appellant has the burden of proof of demonstrating that a stay should be granted.

Standards for Obtaining a Stay
Except as otherwise provided by law or other pertinent regulation, a petition for a stay of decision pending appeal shall show sufficient justification based on the following standards:

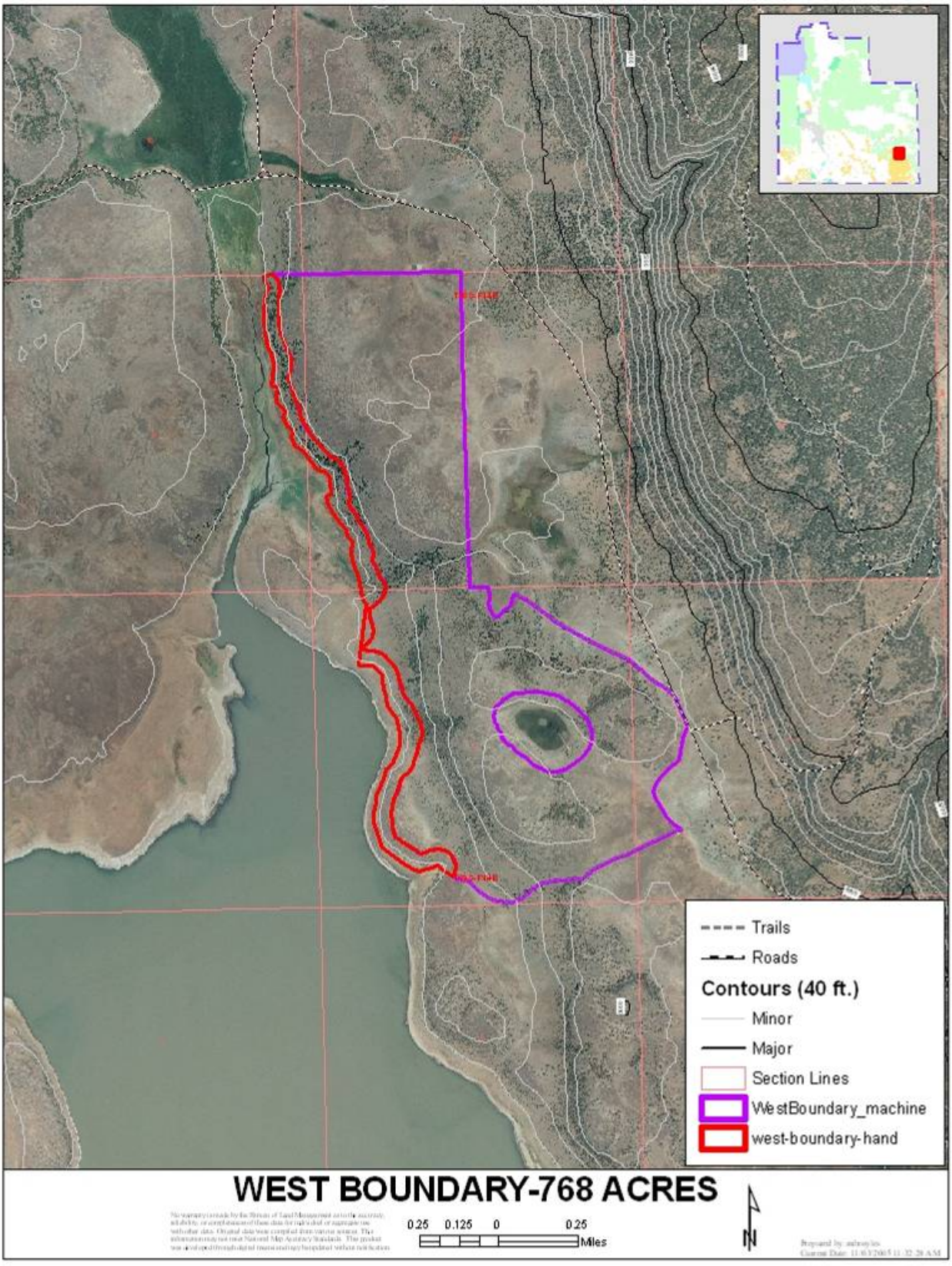
(a) The relative harm to the parties if the stay is granted or denied,
(b) The likelihood of the appellant's success on the merits,
(c) The likelihood of immediate and irreparable harm if the stay is not granted, and
(d) Whether the public interest favors granting the stay.

CONTACT PERSON

For additional information concerning this project, contact:

Matt Broyles, Klamath Falls Resource Area, 2795 Anderson Avenue, Building 25, Klamath Falls, Oregon 97603 or telephone: 541-884-2907.

Figure 1 – Map of Proposed Project Area



Appendix A – Pertinent Project Design Features (PDFs) From the 2006 Fuels Programmatic Consultation

The following list of Project Design Features (PDFs) is a partial listing of the PDFs used on the Klamath Falls Resource Area fuels program projects. These PDFs were developed through consultation with the US Fish and Wildlife Service (FWS) completed March 2006. This list includes only those PDFs pertinent to species federally listed as threatened, endangered, proposed, or candidates for such listing, and their habitats. Additional project design features are applied to each project on a case by case basis for the protection/management of other species of wildlife and other resources.

General Design Features:

- A wildlife biologist will approve the annual fuels reduction plan and fuels personnel will be informed about T&E concerns.
- For each selected fuels reduction unit, the wildlife biologist will provide input to the appropriate treatment and provide any T&E concerns associated with that unit.
- For each selected prescribed burn unit, a plan will be completed that details the preferred weather conditions, the range of conditions that will allow burning and the methods of control needed. Emergency and escaped fire conditions and control methods are also discussed.
- An annual monitoring report will be generated to inform FWS of the completed projects from the previous year and proposed fuel treatment projects for the upcoming year.

Situations that will trigger re-initiation or further discussions with FWS:

- If an eagle nest is occupied, then spring burning will not be allowed until site-specific discussions/consultations are completed with FWS.
- If a spotted owl is nesting in an area, then spring burning will not be allowed until site-specific discussions/consultations are completed with FWS on this matter.
- The need to construct fire lines directly adjacent to or crossing a stream occupied by fish, especially suckers.
- Emergency situations that go outside planned operations (e.g. escaped fire in eagle or owl areas, retardant spill near riparian zones, newly discovered nest sites near or in burn units). (FOR ESCAPED FIRE EMERGENCIES, CONSULTATION CAN OCCUR AFTER THE EMERGENCY RESPONCE ACTION).
- Re-initiation of consultation will occur concurrent with or after BLM takes Emergency action to contain a spill or escaped fire. The requirement to re-initiate consultation shall not preclude the BLM from taking immediate, emergency action to prevent additional resource damage resulting from an accident or escaped prescribed fire.
- If the level or rate of habitat modification or disturbance will exceed any of the levels described in the Biological Assessment (BA) and associated Biological Opinion (BO).
- If the project does not meet the criteria discussed in the BA or are beyond the scope of the PDFs.

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 the 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 adjust 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 active or possibly active 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 material within the dripline (approximately 30+ ft.) of the eagle nest trees and potential or identified perch/roost trees to reduce ladder fuel. Personnel will be required to complete one or more of the following:
    1. Pull back of 10 and 100 hour fuels 30' from the base of the nest trees/ perch trees
    2. Construct fire line around the nest trees/perch trees
    3. 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).
    4. Ladder fuels would be removed from the dripline (30ft.)
    5. "slashbust" or mow problem fuels.
- Fuel treatments can proceed in the core area, if no nesting has occurred by May 15. There is no documented bald eagle incubation initiation after May 1 in Oregon (Frank Isaacs, e-mail to Broyles June 13, 2005, on file at BLM. If the nest is occupied or spring burning is preferred because of excess fuel loading or to meet other resource objectives, then spring burning will not be allowed until site-specific discussions/consultations are completed with FWS on this matter.
- Aircraft used during prescribed fire operations would maintain a buffer >1/2 mile distance from the nest during the nesting season (this distance may vary if topographical features allow). No buffer would be necessary outside the nesting season. This 1/2 mile restriction would be waived immediately, if necessary, if the burn boss declares an escaped fire or if there is a need to waive the restriction for a medical evacuation.
- In cases when verifying nesting status is necessary prior to activities taking place, survey protocols used by Oregon Eagle Foundation annual bald eagle survey will be followed.

For units adjacent to or containing bald eagle roost sites:

- If no birds are seen roosting in the area, fuel treatments may be initiated and continue as long as the conditions are favorable. If bald eagles are using the area for roosting, the units would only be entered between 9:00 AM and 3:00 PM during the seasonal restriction period (Nov. 15-Mar. 15).
- Smoke management will be planned in such a way as to minimize effects of residual smoke on occupied or possibly occupied known roost sites adjacent to burn units (time of day and wind direction are factors to consider).
- A BLM wildlife biologist will monitor eagle use in the area before the fuel treatments are initiated to ensure that the eagle situation is closely monitored and that the action takes place under favorable weather conditions.
- In areas where prescribed fire activities are being planned, remove the brush, small trees, and large down woody material within the dripline (approximately 30+ ft.) of the potential (>20") or identified perch/roost trees to reduce ladder fuel. The vegetation to be removed would be "slashbusted" or cut and piled away from the nest tree and burned.

For units adjacent to or containing fish habitats or riparian areas (riparian reserves):

Fuel treatment objectives within the Riparian Reserves with sucker or bull trout habitat are to protect the overhead canopy from catastrophic fire and increase the productive vigor of trees and plants within the riparian areas. At the same time retain and protect the LWM and overhead cover important to stream function and aquatic habitats. The riparian zone buffer widths in the various PDFs below are not necessarily biologically based but rather used to set a minimum standard that both protects aquatic habitat and simplifies designing treatment units. In areas where a (for example) 50-foot boundary does not make practical sense, and some other boundary is more appropriate, there will be an opportunity on a case-by-case basis for the hydrologist and fisheries biologist to assess the effect of a potential "new" treatment boundary on aquatic species and habitats, and make recommendations accordingly.

Consultation requirements in emergency situations (escaped RX fire etc.):

Project design features listed above are meant to apply to planned operations, not emergencies. In the event of an emergency on a BLM operation, the BLM, its cooperators, and its contractors are authorized to take

emergency action to address the emergency situation without first consulting with the FWS. Emergency consultation may be necessary, but it can occur after the situation is under control.

DO NOT WAIT FOR CONSULTATION TO BE STARTED OR COMPLETED BEFORE TAKING NECESSARY ACTION TO ADDRESS AN EMERGENCY.

Appendix B
Weed Mitigation Measures

All vehicles and equipment will be cleaned off prior to operating on BLM lands. Removal of all dirt, grease, and plant parts that may carry noxious weed seeds or vegetative parts is required and may be accomplished with a pressure hose.

High concentrations of noxious weeds in the immediate area of mechanical operations shall be mowed to ground level prior to the start of project activities.

All equipment and vehicles operating off of main roads shall be cleaned off prior to leaving the job site when the job site includes noxious weed populations. Removal of all dirt, grease, and plant parts that may carry noxious weed seeds or vegetative parts is required and may be accomplished with a pressure hose.

Appendix C

Vegetation Treatment Project Design Features Table

Species	**Cut**	**Leave**	**Spacing/tree density**
Curl-leaf mountain mahogany *Cercocarpus ledifolius*		Leave live & dead brush	Leave All
Birchleaf mountain mahogany *Cercocarpus montanus*	Okay to cut stems less than 4" DBH	Leave stems greater than 4" DBH	
Bitterbrush *Purshia tridentata*		Leave live & dead brush	Leave All
Prunus/cherry/plum	Cut stems less than 4" DBH	Leave stems greater than 4" DBH	
Ponderosa pine *Pinus ponderosa*	Leave all	Leave all	Leave all
Juniper *Juniperus occidentalis*	All non-old juniper	Old juniper (see Appendix D)	Leave old juniper (see Appendix D)
Aspen or other hardwoods		All hardwoods	Leave
DBH = diameter at breast height			

Appendix D
Characteristics of Old Juniper

Older juniper: Juniper that originated in the "presettlement" period, before 1870. It is assumed that these trees are growing on sites that they are adapted to, since they began growing there under "natural conditions" when natural processes (including lightning fires) determined vegetation patterns. Older juniper are usually found in rocky areas where vegetation is sparse and natural fire frequency is low. Some typical characteristics of older juniper are:

- Crown is flat, rounded, broad at top, or irregular (as opposed to the more pointed tops of younger trees)
- Spike top
- Numerous dead branches
- Branches covered with a coarse, bright yellow-green lichen (*Letharia*, or wolf lichen)
- Large diameter lower branches
- Large diameter trunk relative to height
- Trunk has spirally-twisted bark, deep furrows
- Hollow trunk

It is rare for an older juniper to have all of the above features, but more commonly will have at least three or four. Also, older juniper are trees not always the largest trees; on drier, rocky sites, they can be short, stubby, gnarly trees.

Appendix E
Soils Quality PDFs and BMPs

Soil Quality PDFs and BMPs (BMPs are from KFRA RMP Page D-11)

- Limit detrimental soil conditions to less than 20 percent of the total acreage within the activity area. Use current soil quality indicators to monitor soil impacts. Sites where the 20 percent standard is exceeded will require treatment, such as ripping, backblading or seeding.
- Retain and establish adequate vegetative cover in accordance with RMP BMPs to reduce erosion.
- Retain enough small woody (dead and down) material to sustain soil nutrients. See RMP BMPs for specifications. In ponderosa pine forest land, nine tons per acre of duff and litter (approximately ½ inch deep).
- Seed and/or mulch exposed and disturbed soil surfaces with native seed when seed is available.
- Recommend placement of residual slash on trail upon completion of mechanical treatments.
- Limit mechanical operations to soil moistures below 20 percent at a six inch depth. Even lower soil moisture levels are preferable on fragile soils.
- Cable yarding and restricted use of mechanized equipment is required on slopes that are greater than 35 percent.
- Construct fireline by hand on slopes greater than 35 percent.
- Hand pile and burn within 100 feet of Riparian Reserves.

Appendix F
Water and Fish Mitigation

Project Design Features (PDFs) for Fuels Treatments within Riparian Reserves with No Listed Fish Species

The purpose of this document is to provide guidance to fuels management personnel for designing fuels projects that include treatments within Riparian Reserves. These PDFs should be used for units adjacent to or containing riparian areas and/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.

The following information is 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 soils 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 for a sufficient frequency and duration to support vegetation adapted to saturated soil conditions.
- There should be an opportunity on a case-by-case basis to assess the effect of the buffer width on riparian areas and aquatic species and habitats.

Riparian Reserve Types And Widths For The Klamath Falls Resource Area	
Riparian Reserve Type	Reserve Width (for each side of streams/wetlands)
Fish-bearing streams	At a minimum, the reserve width will include: ▪ 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: ▪ 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: ▪ 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: ▪ 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).

Mechanical fuels treatments in riparian reserves:

- Treatments methods that would disturb the least amount of soil (yarding over snow or frozen ground, limiting activities to the dry season, pulling line to each tree, and minimizing skid trails) would be used in the RRs.
- No ripping, piling, or mechanical site preparation (except for designated skid trails crossings, roads, or yarding corridors) would occur in RRs. Avoid landings in riparian reserves. For slopes along streams that are > 30%, a no mechanical entry would occur from the natural topographic break to the edge of the riparian area within the riparian reserve. In areas where a topographic break is not evident, the following guidelines would be implemented:
    1. Perennial, intermittent, and/or fish bearing streams
        - Slopes < 20% – 25 foot no entry buffer would be established from the edge of the riparian area.
        - Slopes > 20% – 50 foot no entry buffer would be established from the edge of the riparian area.
    2. Wetlands - 50 foot no entry buffer would be established from the edge of the riparian area.
    3. Lakes, constructed ponds, and reservoirs – 25 foot no entry buffer would be established from the edge of the riparian area or the high water mark, whichever slope distance is greatest.

Ignitions within the riparian reserves:

- Ignition of broadcast fires should not occur within a minimum of 50 feet from the stream channel within the riparian reserves. (The specific distance for lighting fires within the RR will depend on topography, habitat, ignition methods, and fuel moisture.)
- 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 vegetative cover. No 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.
- Mobile ignition methods, i.e. ping-pong ball ignition, ignition distance from the stream
    1. 50 feet on slopes of 35 percent or less
    2. 100 feet on slopes greater than 35 percent
- 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.
- When igniting fuels on the lower end of the window of moisture content, increased ignition spacing from stream would be recommended to further protect CWD and overhead cover components.

Roads and temporary fire trail access in riparian reserves:

- No new roads will be constructed within the RR unless they replace an existing road that is causing more resource damage. If possible, use new technology construction methods for building temporary roads into treatment units (including but not limited to wood chip constructed roads.)
- 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
- 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 to protect soil from erosion during the wet season.
- Mulch and seeding or other methods of soil stabilization should be applied to any exposed soil surfaces prior to the wet season to reduce surface erosion.
- Surface roads in accordance with RMP BMPs (Roads C-1-8) for all naturally surfaced roads not proposed for decommissioning or closure.
- Design blockages (close or decommission) upon completion of treatments to minimize non-authorized use of roads and trails within treatment areas.
- Placement of residual slash on trails upon completion of mechanical treatments should occur.