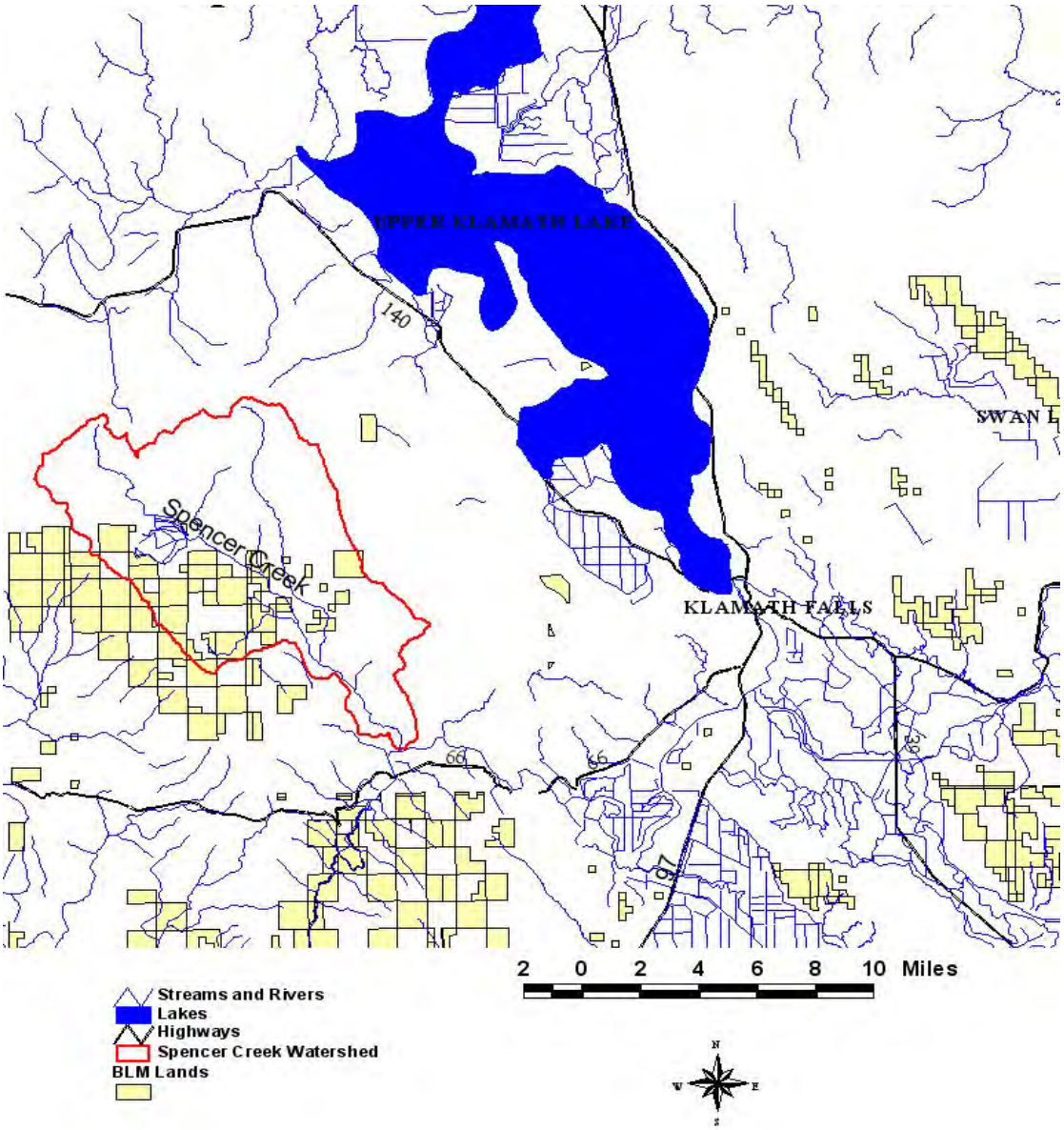
SPENCER CREEK RESTORATION TREATMENTS
ENVIRONMENTAL ASSESSMENT
EA# OR-014-04-08



ABSTRACT: The following Environmental Assessment addresses the environmental impacts associated with stream enhancement/restoration treatments in Spencer Creek, primarily consisting of additions of large woody debris to the stream channel to create structural diversity and improved aquatic habitat.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
LAKEVIEW DISTRICT
Klamath Falls Resource Area

RESOURCE AREA: Klamath Falls

FY& EA #: OR-014-04-08

ACTION/TITLE: Spencer Creek Restoration Treatments Environmental Assessment -

LOCATION: Klamath Falls Resource Area

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FREEDOM OF INFORMATION ACT AND RESPONDENT'S PERSONAL PRIVACY INTERESTS: The Bureau of Land Management is soliciting comments on this Environmental Assessment. Comments, including names and street addresses of respondents, will be available for public review at the above address during regular business hours. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

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CHAPTER 1 - INTRODUCTION

Overview

The Klamath Falls Resource Area (KFRA) is evaluating resource management opportunities on BLM administered land in the Spencer Creek analysis area (See Cover Map). An interdisciplinary evaluation of the resources in the analysis area including wildlife, recreation, soils, fisheries, timber, cultural, hydrology, as well as other resources will be documented as part of this environmental assessment (EA). The analysis is accomplished by examining the different resources in the analysis area and recommending a course of action that best meets the objectives outlined in the KFRA Resource Management Plan (RMP).

Location

The Spencer Creek is located northwest of Klamath Falls, Oregon (see overview map front page of this EA). The legal description and location of the analysis area is shown in Table 1 (see also Appendix A – Figure 1). The analysis area is comprised of the stream channel and the inner half of the adjacent riparian stands on the BLM, Fremont/Winema National Forest, and private lands in the upper Spencer Creek watershed (upstream of Miners Creek).

Table 1 – Land Status in the Upper Spencer Creek Drainage, between Miners Creek and Buck Lake.

Land Status	Location Township	Range	Section(s)	Affected Stream Miles	Approx. Acres Within 140 feet of the Stream	% of Area
BLM	38S	6E	21, 27, 28, 34	1.81	59.8	30
USFS	38S	6E	18, 17	1.06	35.4	18
Private	38S	6E	18, 20, 28, 27, 34	2.95	102.6	52
Totals				5.82	197.8	100

Objectives

The intent of the proposed action is to improve instream aquatic habitat and subsequently increase population and distribution of aquatic species. Specific habitat objectives are to: retain/increase spawning habitat, increase channel roughness to provide for a diversity of aquatic habitats, create low-velocity holding and rearing habitat for juvenile salmonids, and enhance pool complexity and cover.

Purpose and Need for Action

Spencer Creek is a tier one key watershed where watershed restoration is a priority, including stream restoration (KFRA RMP, 1995). Spencer Creek Watershed Analysis (April 1995) identified several sections of Spencer Creek as being in need of large woody debris (LWD) (Appendix A- Figure 2). The lack of LWD to trap gravels and create quality pools limits areas for fish spawning, rearing and holding (FEMAT 1993). More recent surveys of Spencer Creek habitat have identified specific locations that would be improved through introduction of large woody debris. Oregon Department of Fish and Wildlife (ODFW) has conducted stream surveys and population surveys, downstream of the project reach, and have identified Spencer Creek as a critical spawning area for Klamath River Redband trout (Hemmingsen et al, 1991; Smith R. - personal communication, 2004). Spawning surveys above Spencer Creek Hookup Road culvert indicate that trout spawn in the low gradient reach immediately upstream of the culvert. A recent decision to replace the Spencer Creek Hookup Road culvert will improve passage for multiple lifestages to areas above the culvert. Habitat improvements such as LWD installation would improve structural diversity and local hydraulics in the stream channel which is conducive to providing spawning, resting, and rearing habitat in treated and newly accessible locations.

Environmental Analysis and Decision Process

This Environmental Assessment (EA) is tiered to the Final - Klamath Falls Resource Area Resource Management Plan and Environmental Impact Statement. The purpose of this EA is to assess the

impacts of the proposed treatments, identify appropriate mitigation measures, and to determine if the environmental impacts associated with the proposed site-specific treatments are significant and/or greater than those already analyzed in the previous KFRA Final EIS. If the impacts are not significant or greater than analyzed in the KFRA Final EIS, a Finding of No Significant Impact (FONSI) will be documented upon the completion of the analysis. The EA will provide the public with information about the proposed treatments, describe the alternatives and the associated impacts with each alternative, assist the decision maker in selecting an alternative, and provide analysis to determine if an environmental impact statement is necessary.

The KFRA Field Manager, as the responsible official, will determine whether or not the proposed action is consistent with the RMP as well as other laws and regulations (i.e., the Endangered Species Act and Clean Water Act, etc.) and decide whether or not to implement the Proposed Action. This decision will be documented in a specific Decision Record (DR) written prior to implementation of management actions. New information from on-going biological surveys or other sources may warrant consideration in the Decision Record for additional mitigating measures.

Public Input Summary and Issue Development

The BLM has worked with the Spencer Creek Coordinated Resource Management Plan (CRMP) working group over the last decade addressing watershed issues including prioritizing and implementing restoration activities. The Spencer Creek CRMP is comprised of individual landowners (Ranchers, Livestock Leasees, and outdoor recreationists) within the Spencer Creek Watershed, US Timberlands (now Inland Fiber Group LLC), Pacific Power and Light, Fremont/Winema National Forest, Oregon Department of Forestry, Oregon Department of Fish and Wildlife, and the BLM. Proposed habitat enhancement work outlined in this EA was presented to this group in 2002.

Issues

Within the Spencer Creek drainage, historic management activities (logging, salvage, snag removal, stream-cleaning, and road building) have reduced inputs of large wood and resulted in loss of instream complexity (Spencer Creek Watershed Analysis). Simplification of aquatic habitat generally reduces the abundance and taxonomic diversity of aquatic and some terrestrial organisms as well as eliminates the capacity of streams to retain organic material, an important food source for aquatic macro-invertebrates and a major component of aquatic food webs (Murphy and Meehan 1991). Current management, regulations, and voluntary actions are providing some level of recovery of the stream margin riparian vegetation, however, recruitment of large wood debris is still likely to remain low until riparian stands reach mature (decadent) age-classes.

Conformance with Existing Plans

This Environmental Assessment (EA) is tiered to the Klamath Falls Resource Area (KFRA) Resource Management Plan (RMP). Management direction is contained in a number of supporting documents listed below.

- Final Klamath Falls Resource Area Resource Management Plan and Final Environmental Impact Statement (RMP/FEIS, September 1994) and its Record of Decision (ROD, June 2, 1995).
- Aquatic Conservation Strategy Supplemental Environmental Impact Statement/Record of Decision 2004 (ACS SEIS EIS/ROD – 2004).

Additional information supporting this environmental assessment can be found in the Spencer Creek Pilot Watershed Analysis of August 1995 (Spencer Creek WA).

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

Alternative 1 – Proposed Action

The Proposed Action is designed to create additional pool habitats by promoting step-pool formations with additions of large woody debris (LWD) within the channel of Spencer Creek. Approximately 120 logs could be yarded into the middle reach of Spencer Creek (see Appendix A - Figure 1). Most of the logs proposed for use would be obtained from cull log stockpiles, including one site at the intersection of the Spencer Hookup and Keno Access roads. Most logs would be yarded and positioned by helicopter into Spencer Creek. Log lengths would range from 30-70 feet. Placement of LWD would also be accomplished through a combination of methods including cutting and dropping large trees into the channel where feasible and/or using ground based equipment (skidders or excavators) to push or cable trees into position from old existing "cat roads" along the creek. Placement of large woody debris would occur in portions of the stream where coarse structure is lacking and the creek would respond most to the addition of debris (ODF 1995; Rosgen 1996). The use of complex structures (multiple pieces of large wood) is generally more successful than single trees and will be employed where feasible. To successfully maintain the wood structure in the stream, most of the length of the main log will be located outside of the stream channel to serve as an anchor point. Where possible, logs would be keyed into standing live trees to increase retention of the log on site. Boulders may also be used to key logs into the bank.

Alternative 2 - No Action

The National Environmental Policy Act (NEPA) requires analysis of a No Action alternative. This alternative proposes no channel restoration activities in Spencer Creek.

CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

Introduction

A thorough description of the affected environment of all the resources that could be impacted by the proposed action can be found in the Klamath Falls Resource Area RMP/ROD and FEIS (pages 3-3 to 3-79) and the Spencer Creek Watershed Analysis. This chapter is designed to focus on the affected environment and environmental impacts to those specific resources that would be most impacted by the proposed action. In addition, it discusses the mitigation measures that will be implemented to minimize or avoid those impacts.

Hydrology

Affected Environment

Peak flows in the middle portion of the Spencer Creek watershed are driven by snowmelt and rain-on-snow events. Snowmelt events occur during spring, while rain-on-snow events typically occur in mid-winter. A stream gage located at the USFS campground downstream from Buck Lake recorded average daily flows from 1992 to 1998. During the period of record, annual peak flows were on the order of 150 to 200 cfs, 100 year event discharges are estimated at 480 cfs, and summer baseflows are typically on the order of 20 cfs, although flows on the order of 5 cfs occur following dry winters (such as 1993/1994). Baseflows in the project reach are likely about the same as those at the gage, since no major springs or tributary inflows occur along the stream between the two points. The channels in the reaches proposed for treatment are considered suitable for large wood placements because they are Rosgen Channel-types B and C, and have relatively low average gradients (0.5-2%) (ODF, 1995; Rosgen, 1996).

Environmental Consequences

Alternative 1

The placement of in-stream structures would increase diversity of structure thus affecting channel processes by redistributing velocity and creating a diversity of velocity. This would allow the channel to aggrade, reconnect the channel to a larger floodplain area, and provide habitat for fish and other aquatic organisms. The channel would aggrade as the result of direct physical capture of bedload materials by large wood and associated debris and by capturing sediment including bedload in the lower velocity areas created. A larger floodplain would help reduce stream velocity and, therefore, erosion of stream beds and banks. Substrate and organic material would be retained in the channel longer as opposed to being rapidly flushed downstream. In the long term, additional pools and wider flood plain environments would be expected.

The proposed instream structures would increase bed elevation by aggrading the stream channel. This would increase the elevation of the local water table, allowing water storage during periods of high flow and potentially increasing summer flows as a consequence of an enlarged floodplain. Stream flows and water temperatures during subsequent low water periods would be buffered by the water stored in the floodplain. However, any increase in summer base flow would not likely be measurable. There would be no effect on processes that generate peak flows.

The proposed treatment locations are predominately above the Spencer Creek Culvert. The upgrades being implemented at the Spencer Creek Culvert, replacement of the existing round pipe with an open bottom arch, would substantially reduce risks of mass failures and subsequent transport of material downstream. Installation of proposed instream structures in accordance with ODF/ODFW (1995) guidance would minimize risk of material being transported downstream. All other downstream crossings are either bridges or low water crossings. Based on treatment locations and conditions within the watershed, installing wood using appropriate guidance, and the predicted annual stream flow conditions it is highly unlikely that the proposed instream structures, or their constituent components, would negatively affect downstream resources and land ownership.

Alternative 2
No changes to existing stream channel structure are expected for several decades, until sufficient levels of naturally-recruited large wood are able to provide the needed roughness to elicit substantial channel response.

Water Quality

Affected Environment

Spencer Creek is included on the 2002 Oregon DEQ 303(d) list of water quality impaired streams. Listed parameters included "sedimentation" and "biological criteria". The principal causes of stream sedimentation (i.e., excessive fine sediment) are bank erosion and delivery of sediment from roads and stream crossings. Although Spencer Creek is not included on the 2002 303(d) list for temperature concerns, monitoring data indicates that summer water temperatures in portions of the stream consistently exceed the Oregon 64 degree F standard.

Environmental Consequences

Alternative 1
Placement of logs by helicopter should create very little channel disturbance. Instream work would be restricted to an instream work period from July 1 - January 31, when stream flows are at the lowest levels, and limited to the degree practical to minimize stream bed disturbance. Anticipated effects from sediment created during this work would be limited and not expected to persist beyond the first winter and spring following project completion. In the long term, overall reductions in sediment would be expected as structures capture sediment and retain substrate in the active stream channel.

Logs for instream placement would come primarily from an offsite cull log stockpile, leaving dominant trees intact to provide shade. Scattered individual onsite trees dropped or cabled into the channel would not reduce shade by any measurable extent, and potential changes to stream temperature would be negligible. As the channel aggrades, a larger portion of the summer flow would fill spaces between accumulated gravels, subjecting less water surface to solar heating. Increases in heating due to inadvertent loss of shade would be offset by the reservoir of cool water provided by deeper pools, expanded floodplain, and higher water table.

Alternative 2
There would be no temporary change in sediment levels associated with instream work and log placement. There would be no long-term reduction in sediment provided by added structures. This alternative would have no effect on current stream flows and temperature.

Aquatic Species and Habitat

Affected Environment

Spencer Creek supports a variety of native aquatic species (Table 2). Spencer Creek is an important fish bearing tributary of the Klamath River, providing the majority of spawning habitat for Klamath redband trout (*Onchorhynchus mykiss)* residing in Klamath River between Keno Dam and the State Line. Spencer Creek also provides an important rearing and migratory habitat for redband trout.

Klamath smallscale suckers (*Catostomus rimiculus*) use Spencer Creek for spawning, rearing, and migratory habitat. Klamath largescale suckers (*Catostomus snyderi*), a federally sensitive species, may use the lower portion of the Spencer Creek for spawning and rearing. ESA listed Endangered Lost River (*Deltistes luxatus*) and shortnose (*Chasmistes brevirostris*) sucker may also use the lowest mile of Spencer Creek for spawning and rearing. The Spencer Creek Drainage is part of the Klamath River and tributaries designated critical habitat unit (USDI-FWS 1994). Native species including lamprey sp., Klamath Speckled dace, and marbled sculpin are also known to reside within the project area stream channel. Pacific giant salamanders (*Dicamptodon tenebrosus*) are known to reside in Spencer Creek. Spencer Creek is one of the eastern most streams occupied by this species. Pacific giant salamander largely exhibits the aquatic form, maintaining gills into adulthood.

Spencer Creek is considered an excellent candidate for addition of large wood due to channel characteristics and subsequent likelihood that wood additions will improve habitat quality and abundance (OWEB 1999). Although the current level of existing large wood in the streams is very low (BLM/USFS, 1995) compared to ODFW benchmark of 20 key pieces per mile, in the few places where wood exists, there is generally good rearing habitat for fishes, indicating that wood additions can be expected to improve habitat quality and abundance for these species.

Table 2 - Aquatic Species, State/Federal Status, and Distribution within Spencer Creek.

Common Name	Scientific Name	Status	Distribution
Lost River sucker	*Deltistes luxatus*	Endangered[1]	Distribution unspecified
Shortnose sucker	*Chasmistes brevirostris*	Endangered[1]	Distribution unspecified
Klamath largescale sucker	*Catostomus snyderi*	Species of Concern[1]	Distribution unspecified
Klamath smallscale sucker	*Catostomus rimiculus*	None	Widely distributed in Spencer Creek
Klamath redband trout	*Onchorhynchus mykiss*	Species of Concern[1]	Widely distributed in Spencer Creek
Speckled dace	*Rhinichthys osculus*	None	Widely distributed in Spencer Creek
Sculpin species	*Cottus ssp.*	None	Widely distributed in Spencer Creek
Lamprey species	*Lampetra ssp.*	None	Distribution unspecified
Pacific Giant Salamander	*Dicamptodon tenebrosus*	None	Downstream of Buck Lake

1 – Federal status, source Oregon Natural Heritage Program (2001)

Environmental Consequences

Alternative 1

The instream working periods for the Klamath River below Keno has been identified as from July 1 to March 31. ODFW recommends limiting the instream working periods from July 1 to January 31 to protect spring spawning of redband trout in Spencer Creek (Smith, 2004). This project would restore channel conditions by the addition of wood which would increase spawning habitat, increase channel roughness to provide diversity of aquatic habitats, create low-velocity holding and rearing habitats, and enhance pool complexity and cover. Application of the recommended instream working period would minimize impacts to adult spawning. Water quality impacts which may affect resident trout would be of a short duration. Conducting enhancement work during low water periods would further minimize potential impacts to resident fish. Over the long term, these habitat improvements should lead to increased population and distribution of aquatic species.

The distribution of Federally Sensitive largescale suckers and T&E Lost River and shortnose suckers does not extend up to the project treatment areas. These species are not expected to be affected by proposed actions.

Alternative 2

Without additions of large woody structure to project-area streams, habitat conditions are likely to persist for several decades, until sufficient levels of naturally-recruited large wood are able to provide the needed roughness to elicit substantial habitat improvements. During this time, it is unlikely that the stream will recruit enough key structures to aid in the formation of complex cover, pool habitat, retention of bedload and energy dissipation within the channel. As a result, aquatic species such as fishes, amphibians, and macroinvertebrates, which depend on these conditions, will persist at present or reduced levels. Without additions of large wood to stream channels, benefits to aquatic species such as increased habitat diversity and long-term structure would be foregone or delayed.

Terrestrial Species and Habitat

Affected Environment

The Spencer Creek area has a diversity of birds and mammals that inhabit the area. A description of the wildlife and its habitat can be found in the Spencer Creek Watershed Analysis, 1995 (pp 4-93 – 4-125). The analysis area supports a diversity of mammal and bird species generally associated with a late successional mixed conifer forest. The area is dominated by late successional forest, but has a mix of early seral and mid-seral stage habitat, pocket meadows and riparian habitat. Upland game birds, songbirds, woodpeckers, raptors, black-tailed deer, elk, bats, small mammals, black bear and forest carnivores have all been documented in the analysis area. Special Status Species are covered in the Special Status Species Section.

Environmental Consequences

Alternative 1

Operation of motorized equipment and actual placement of log structures creates the potential for loss of individual animals, especially young, due to direct mortality from the proposed activity. This loss would be extremely localized and have minimal to no impact to populations at large. Timing of disturbance (late summer - early fall) and nest site buffers (see Appendix B) would minimize impacts to nesting birds. Overall, impacts from human disturbance would be considered a short-term effect and would cease after treatment activities were completed. Additions of large Decay-Class 1 logs to the floodplain/riparian area will improve habitat for species such as birds and small mammals which depend on these structures for foraging and cover habitat.

Alternative 2

No impacts to wildlife would occur if the project is not implemented.

Special Status Species

Affected Environment

The proposed project is adjacent to the Spencer District Designated Reserve (DDR). This reserve was designated because of a bald eagle territory along Spencer Creek. There is one known nest within the DDR within the area of the proposed project. Other late successional associated species such as the northern goshawk and northern spotted owl are in the general area. Sections 20, 21, 28, and 29 contain Critical Habitat for the Northern spotted owl as well as nesting-roosting-foraging (NRF) habitat. The spotted owl nest site is further than 0.7 mile away and has not been occupied since 1997, although there have been night detections in the area. The goshawk nest site was occupied last year and produced one young. This nest site is approximately 0.7 mile away from the project.

The project area is not high priority habitat for any Survey and Manage mollusk species. Surveys for aquatic mollusks were done in 2000 in Spencer Creek upstream from the project area. No sites were found and the stream conditions do not currently provide habitat for the Survey and Manage aquatic mollusk (*Fluminicola* sp.).

Vascular plant surveys have been completed. No special status plant species were found. The mountain lady slipper orchid (*Cypripedium montanum*), a Bureau tracking species, and green-flowered ginger (*Asarium wagneri*), a Bureau sensitive species have potential to occur in the analysis area, but no populations were found during the botanical surveys conducted within this area. In any areas not surveyed previously, pre-disturbance surveys will be completed before implementation of ground disturbing activities.

Environmental Consequences

Alternative 1

The proposed project will have no long-term adverse affects to Threatened and Endangered Species or their habitats. The proposed timing of the project would be sometime between July and January, but would be of short duration. The proposed action has potential for disturbance to nesting bald eagles, spotted owls or northern goshawks. If special status species were discovered in the area

affected by construction activity, seasonal restrictions on heavy equipment and helicopter operations would be applied. Cull logs would be obtained from areas outside of the riparian reserve only where the remaining supply is sufficient to meet snag and down woody debris requirements for wildlife habitat. Trees in the reserve to be used in the channel would be selected individually, avoiding tree/snags with high wildlife habitat value. Increasing stream habitat diversity through the addition of large woody debris could create suitable habitat for *Fluminicola* sp. There would be no impact to special status plant species.

Alternative 2
If the project is not implemented, no impact to special status species would be expected.

Noxious Weeds
Affected Environment
Original vascular plant surveys did not find any populations of noxious weeds within the project area. However, a site visit in 2003 found scattered individuals of Dalmatian toadflax (*Linaria dalmatica*) and St. John's wort (*Hypericum perforatum*) along the side of the Spencer Hookup Road.

Environmental Consequences
Alternative 1
Intense or extensive ground disturbance creates conditions under which noxious weeds would have a competitive advantage relative to other plant species. The positioning of logs by helicopter would create minimal and localized disturbance to existing vegetation with little opportunity to introduce weeds. Positioning logs by cable or machinery would create increased disturbance and opportunity for impacts. Weed prevention measures (see Appendix B) will reduce the potential for the establishment or spread of noxious weeds.

Alternative 2
Implementation of the "No Action" alternative would not facilitate the establishment and/or spread of noxious weed species.

Cultural Resources
Affected Environment
Native American use of the area spans many millennia. The project area was used by the Takelma, Klamath, and Modoc tribes, though activity was limited to seasonal hunting and gathering. Permanent occupation sites, such as villages, were generally established at lower elevations. In 1864, the area fell within the territory ceded to the United States by the Klamath Tribes consisting of the Klamath, Modoc, and Yahooskin people. Although treaty rights are no longer federally recognized in the project area, the Klamath Tribes remain concerned about potential disturbance to cultural sites in this region.

Historically (post-1846), after the establishment of the Applegate Trail, the project area was used for cattle ranching and logging. Logging began in the1860s with a few small enterprising sawmills. The industry boomed in the early twentieth century both in and around the project area after the introduction of railroads nearby. Weyerhaeuser arrived in 1923 and began constructing rail lines for logging. Today logging and ranching continue to be significant in the area.

Environmental Consequences
Alternative 1
The proposed action should result in very limited ground disturbance and, therefore, limited potential to impact cultural resources. Cultural resource surveys have been conducted on BLM lands in the project area and an historical site has been documented immediately adjacent to the creek. Project activities will avoid this site. Prior to the initiation of project activities, remaining unsurveyed areas (Forest Service and private land) will be inspected and any discovered cultural resource sites will be avoided.

Alternative 2
The No Action alternative would create no impacts to cultural resources.

Recreation

Affected Environment

Primitive, user-created hiking trails access this area of Spencer Creek. The area along Spencer Creek, north of the Hook-up road, offers good opportunities for solitude. Excellent botanical/old growth forest and wildlife viewing opportunities, along with primitive camping sites are available. Visual resources within ¼ mile of Spencer Creek are managed as VRM class II. For additional information about recreation resources in the analysis area, reference the Spencer Creek Watershed Analysis, pages 4-4 through 4-8.

Environmental Consequences

Alternative 1
The proposed action should result in very limited ground disturbance and, therefore, limited potential to impact recreation resources. Improved fish habitat with potential increases in fish populations could provide additional recreation opportunities for angling.

Alternative 2
The No Action alternative would create no impacts to recreation resources.

Visual Resources

Affected Environment

The BLM has a basic stewardship responsibility to identify and protect visual values on public lands. This is accomplished through the Visual Resource Management (VRM) program. Through this program, all BLM lands are inventoried and managed in specific VRM classes. Visual resources within ¼ mile of Spencer Creek are managed as VRM Class II. VRM Class II management objectives are for low levels of change to the characteristic landscape. Management activities may be seen but should not attract attention.

Environmental Consequences

Alternative 1
Proposed treatment activities would have minimal short term impacts to visual resources. In the short term, addition of large log structures in the creek could be perceived as a negative visual impact. Over time, the structures become less obvious and more natural looking, creating visual diversity.

Alternative 2
The No Action alternative would create no impacts to visual resources.

Upland Forest Vegetation

Affected Environment

Much of the Spencer Creek drainage consists of dense upland forest vegetation with large, old mixed conifer overstory and multiple layers of shrubs and young trees in the understory.

Environmental Consequences

Alternative 1
Most of the logs for the proposed channel restoration would be obtained offsite. A few suitable trees along the channel may be cut down or cabled into the creek, but impacts would be minimal and the overall character of the vegetation would be unchanged.

Alternative 2
No impacts to the upland forest vegetation would occur.

Soils

Affected Environment

Soil issues and concerns for the affected environment are addressed in detail in the Spencer Creek Watershed Analysis (pages 4-76 to 4-83) and the KFRA RMP (pages 28 to 30 and Appendix D).

Environmental Consequences

Alternative 1

Implementing the proposed action would result in extremely localized soil disturbance. Most logs will be placed by helicopter, minimizing soil impacts. Soil displacement at the site of the root wads would occur as individual trees are pulled or pushed over using machinery. Use of equipment would be limited to the existing "cat road" that parallels the creek to confine soil disturbance. Operations will be limited to the dry season to prevent compaction, puddling, and erosion. Application of the Soils PDF would further prevent/minimize impacts to soils

Alternative 2

Basically no soil impact would be incurred under Alternative 2 because no soil disturbing treatments would be implemented.

Riparian Resources

Affected Environment

Spencer Creek is an example of a lotic riparian area, a category of riparian-wetland habitat associated with running water such as streams and flowing springs. Vegetation communities with riparian characteristics are found along the project reach of Spencer Creek including wet meadows and deciduous plant communities. Although Proper Functioning Condition surveys have been completed downstream from the analysis area, they have not been completed for the project reach. Informal surveys of the stream channel by the KFRA hydrologist suggest that the middle section of Spencer Creek is "Properly Functioning". For a further description of lotic riparian resources in the analysis area, refer to pages 4-126 to 4-137 in the Spencer Creek Watershed Analysis.

Environmental Consequences

Alternative 1

When large logs are added to the stream channel, most of the length of the log will be outside the channel. Additions of large Decay-Class 1 logs to the floodplain/riparian area will create wider floodplain environments and allow additional water storage, potentially increasing the width of the riparian area. Machinery would be confined to the existing "cat road" and not allowed in the riparian area. There could be some loss of individual riparian plant species when trees are felled, cabled, or pushed into position. Nearly all of the selected trees would be non-riparian (conifer) species.

Alternative 2

No impacts to the riparian vegetation would occur.

Resources Not Impacted

The following resources are either not present or would not be affected by the proposed action or no action alternative:
Areas of Critical Environmental Concern, prime or unique farm lands, Native American religious or cultural concerns, Native American traditional uses, livestock grazing, wild horses, roads, wetlands, solid or hazardous wastes, Wild and Scenic Rivers, air quality, Wilderness/WSAs, visual resources, and paleontology.

There would be no adverse impact to exploration and development of energy resources and no direct or indirect disproportionately high or adverse human health or environmental effects to minority or low income populations expected to result from implementation of either alternatives.

CHAPTER 4 – LIST OF PREPARERS

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APPENDIX A – MAPS AND PHOTOS

Figure 1 - Spencer Creek Proposed Treatment Areas, between Miners Creek and outlet of Buck Lake.

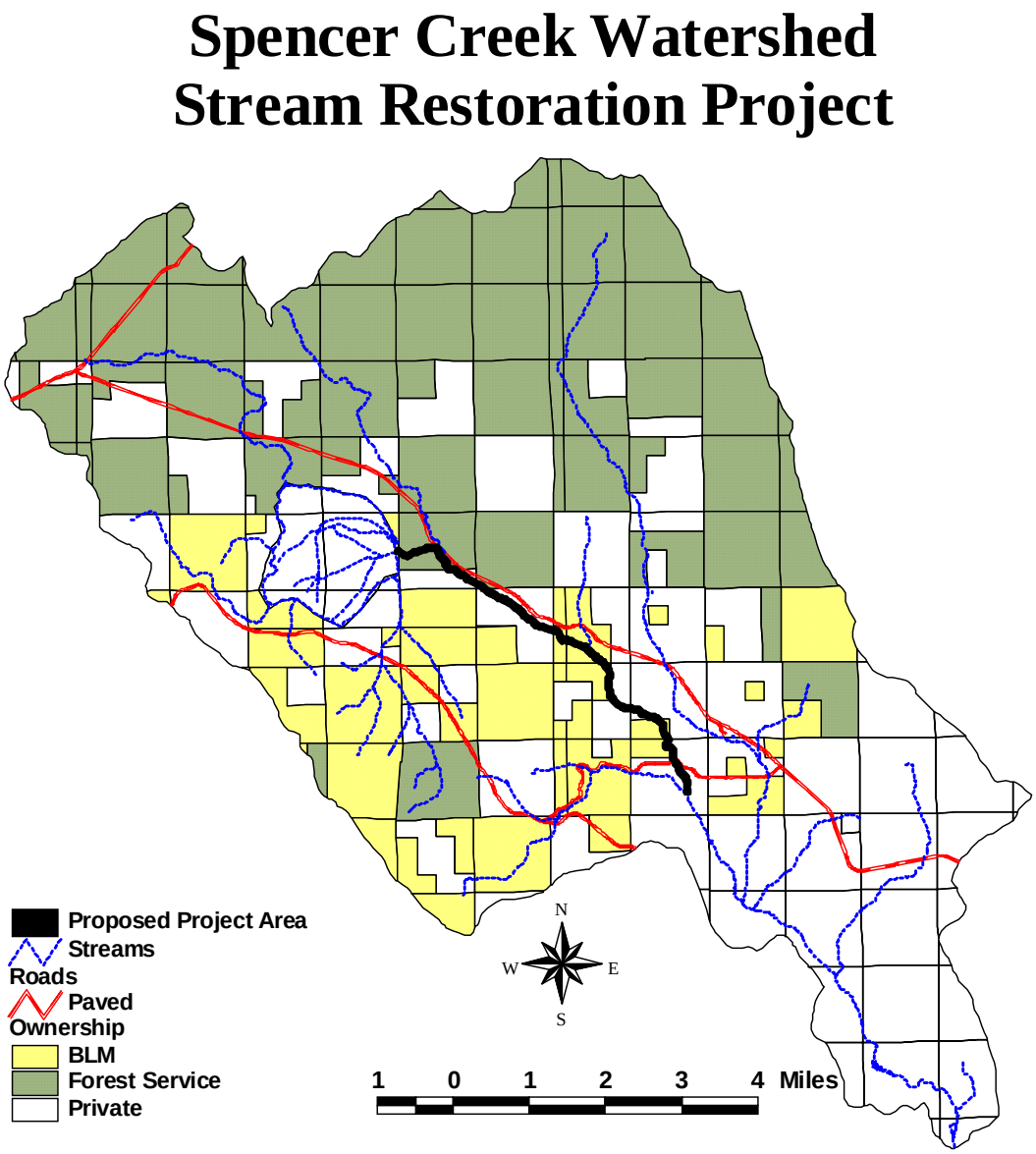
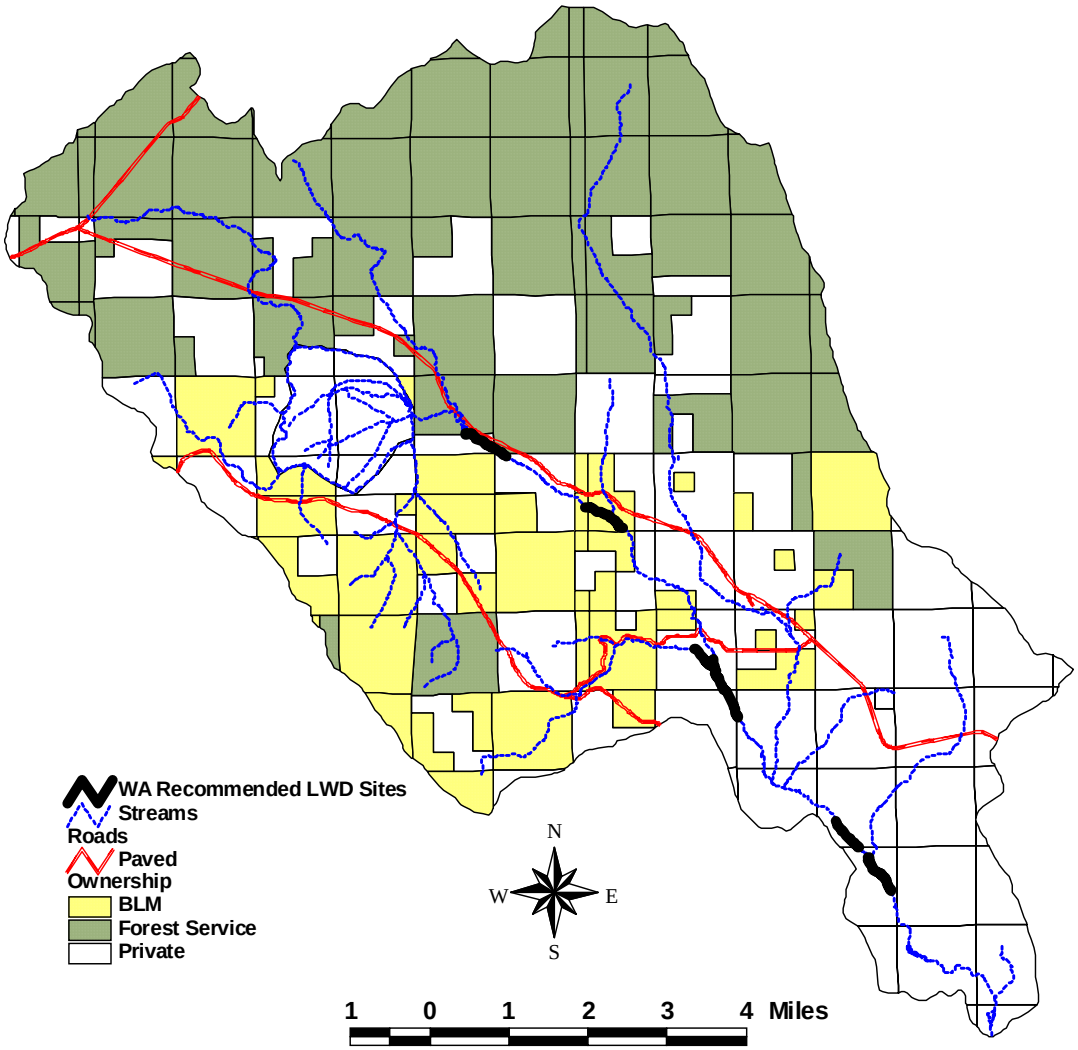


Figure 2 - Spencer Creek Pilot Watershed Analysis Recommended Large Wood Treatment Areas.

Spencer Creek Watershed Analysis Recommended LWD Treatment Sites



APPENDIX B – PROJECT DESIGN FEATURES

Wildlife
In areas seasonal restrictions will be required where the following wildlife species are actively nesting: bald eagle, northern spotted owl, American marten, northern goshawk, survey and manage species, and protection buffer species. Seasonal restrictions for specific species can be found on pages 231-240 of the KFRA FEIS.

For treatment adjacent to or containing bald eagle nest sites:

- No 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.
- Aircraft used during 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.

For treatment adjacent to or containing spotted owls, NRF habitat, or in areas of designated critical habitat:

- No felling of riparian stands will be planned within the core area (as identified by the BLM biologist) of a nesting spotted owl during the nest season. The core area will normally be the 100-acre reserve as required under the Northwest Forest Plan (NFP) but may be expanded
- In areas containing spotted owls, a BLM biologist will monitor spotted owl use of the area before the treatment is initiated to ensure that the owl situation is closely monitored.

Fisheries
Limit the instream working period from July 1 to January 31 to protect spring spawning of redband trout in Spencer Creek.

Noxious Weeds
Require cleaning of all equipment and vehicles prior to moving on-site to prevent spread of noxious weeds. Also, if the job site includes a noxious weed infestation, require cleaning of all logging and construction equipment and vehicles prior to leaving the job site. Removal of all dirt, grease, and plant parts that may carry noxious weed seeds or vegetative parts could be accomplished by using a pressure hose to clean the equipment.

Cultural Resources
Follow procedures for cultural protection and management outlined in the KFRA ROD/RMP (page 43), and protect identified sites by buffering.

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

Soils
Cat roads alongside Spencer Creek were closed to access and revegetated. When project work is completed the roads should be returned to original state, including closing and revegetating.

Aviation
Use of helicopters for installation of large wood should occur only when extenuating circumstances prevent installation of wood through other means. If helicopters are determined to be the only

feasible way to get the logs into the area, then development of an aviation risk assessment plan would be necessary.

HAZMAT

When motorized equipment operates in a stream, the Klamath Falls Resource Area Spill Contingency Plan for the Release of Oil or Hazardous Substances during Instream Work will be implemented to protect the waterway from spilled Oil or other hazardous chemicals.