ENVIRONMENTAL ASSESSMENT

Cavitt Creek Road-Related Restoration

Bureau of Land Management, Roseburg District
Swiftwater Field Office

And

Umpqua National Forest,
North Umpqua Ranger District

This Environmental Assessment (EA) has been prepared for the Roseburg Bureau of Land Management - Swiftwater Field Office's and Umpqua National Forest - North Umpqua Ranger District's proposed Cavitt Creek Road Restoration. This EA analyzes road related restoration work in the Cavitt Creek area of the Little River Adaptive Management Area (AMA). The goal of the proposed project is to reduce existing and minimize future sediment input into streams to improve fish habitat and water quality.

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Location:	Douglas County, Oregon T27S, R3W sections 21, 23, 25, 26, 27, 35 T27S, R2W sections 19, 30 T28S, R3W sections 1, 2, 3, 5 T28S, R2W sections 6, 9, 10, 15, 20, 21
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Introduction

This EA is a site-specific analysis of potential environmental impacts that could result with the implementation of a proposed action. The EA assists the Agencies in project planning and insuring compliance with the National Environmental Protection Act (NEPA) and in making a determination as to whether any "significant" impacts could result from analyzed actions. "Significance" as defined by NEPA is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or "Finding of No Significant Impact" (FONSI). The FONSI is a document that briefly presents the reasons why implementation of the proposed action will not result in "significant" environmental impacts (effects) beyond those already addressed in the Roseburg District's Resource Management Plan and Final Environmental Impact Statement (RMP/FEIS) and the Umpqua National Forest's Land and Resource Management Plan (LRMP).

A Decision Record would be completed after the FONSI is signed to document the decision. A notice of this decision will be placed in *The News Review*, a daily newspaper of general circulation in Roseburg, Oregon.

I. PURPOSE OF AND NEED FOR ACTION

This section provides a general overview of the proposed action. Included are: the need for the action, purpose of the action, a general description and objectives of the proposal, and conformance with existing land use plans.

A. Need for Action

The BLM and Forest Service have a need to implement the *Roseburg District Record of Decision and Resources Management Plan* (RMP) and the *Umpqua National Forest Land & Resource Management Plan* (LRMP), respectively.

The RMP "responds to dual needs: the need for forest habitat and the need for forest products" (RMP, pg. 15). "The need for forest habitat is . . . for a healthy forest ecosystem with habitat that will support populations of native species and includes protection for riparian areas and waters." Following are excerpts from applicable sections in the RMP:

Watershed Restoration (RMP, Pg. 21)
Watershed restoration will be an integral part of a program to aid recovery of fish habitat, riparian habitat and water quality. The most important components of a watershed restoration program are control and prevention of road related runoff and sediment production.

Focus watershed restoration on removing some roads and where needed, upgrading those that remain in the system.

AMA (RMP, Pg. 32)
Develop and test new management approaches to integrate and achieve ecological and economic health and other social objectives.

Contribute substantially to the achievement of SEIS ROD objectives, including…restoration and protection of riparian zones.

Water and Soils (RMP, Pg. 35)
As directed by the Clean Water Act, comply with state water quality requirements to restore and maintain water quality to protect the recognized beneficial uses for the South Coast and Umpqua Basins.

Design and implement watershed restoration projects that promote long-term ecological integrity of ecosystems.

Roads (RMP, Pg. 72)
Determine the influence of each road on the Aquatic Conservation Strategy objectives through watershed analysis. Meet Aquatic Conservation Strategy objectives by:

- Reconstructing roads and associated drainage features that pose a substantial risk.

- Prioritizing reconstruction based on current and potential impacts to riparian resources and the ecological value of the riparian resources affected.

- Closing and stabilizing, or obliterating and stabilizing roads based on the ongoing and potential affects to Aquatic Conservation Strategy objectives and considering short-term and long-term transportation needs.

Design and construct new culverts…and improve existing culverts, bridges, and other stream crossings determined to pose a substantial risk to riparian conditions.

Minimize sediment delivery to streams from roads.

Provide and maintain fish passage at all road crossings of existing and potential fish bearing streams.

The Umpqua National Forest LRMP provides similar guidance as follows:

1. Keep total fine sediment (<1.0 millimeter) to less than 20 percent by weight in spawning gravels (LRMP, Ch. IV – 34).

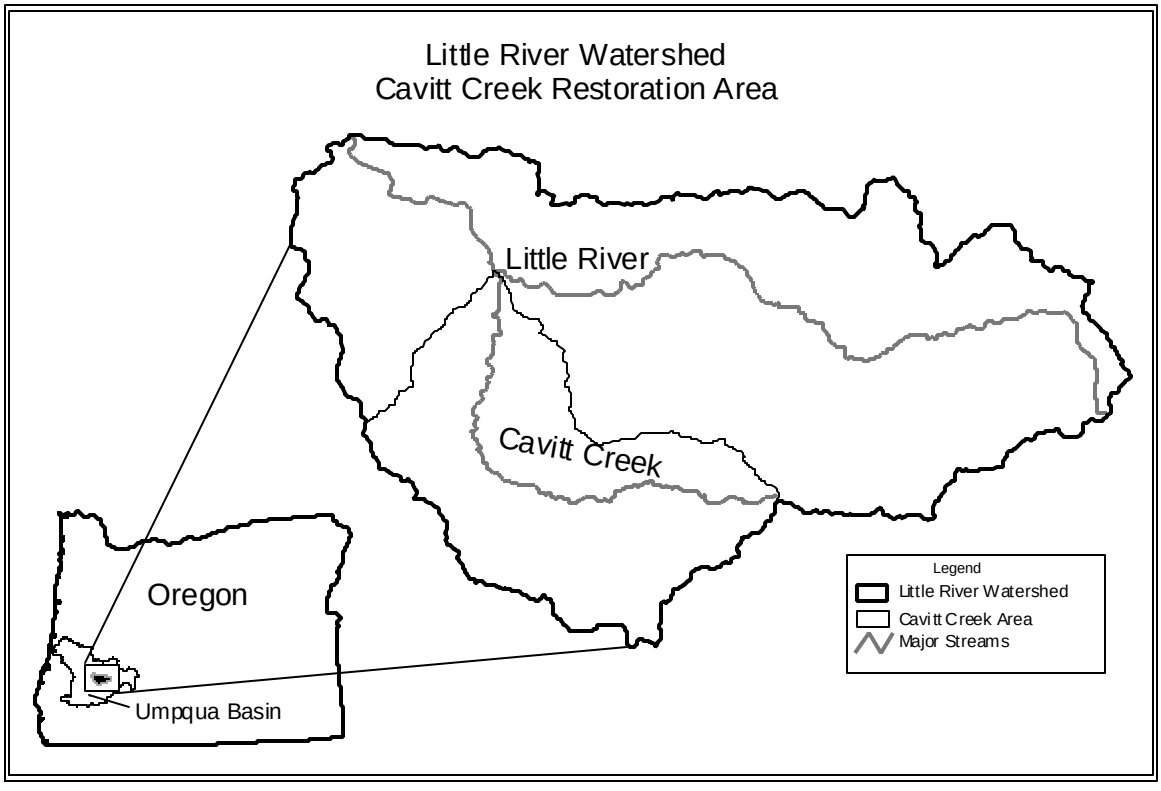
2. Design new stream crossings to provide for unimpeded fish passage and correct existing passage problems on a prioritized schedule (LRMP , Ch. IV – 34).

3. Plan and conduct restoration projects on lands where range, road construction, timber harvest, or other management activities cause soil and watershed conditions that do not meet standards and guidelines (LRMP, Ch. IV – 71).

Watershed Analysis is a required component of the Aquatic Conservation Strategy of the Northwest Forest Plan. Watershed restoration is also an integral part of the Aquatic Conservation Strategy. The need for restoration was identified during watershed analysis and water quality restoration planning.

The Little River Watershed Analysis (WA) was completed in 1995. It described a need to control and prevent road-related impacts to the riparian and aquatic resources within the Cavitt Creek area of the Little River watershed. Cavitt Creek was listed as the highest priority area for aquatic restoration due primarily to its position as a cutthroat and coho stronghold within the Little River watershed.

Figure 1. Little River Watershed and the Cavitt Creek Restoration Area. The Little River watershed includes approximately 131, 00 acres. The Cavitt Creek area includes approximately 33,000 acres.



Cavitt Creek is listed for violating Oregon water quality standards for sediment, temperature, pH, and habitat modification (ODEQ, 1998). Within the Cavitt Creek river basin, roads are currently a source of chronic and episodic sediment input to aquatic habitats that support fish species and other aquatic life. Culverts impede fish passage and pose a risk for large sediment inputs if they fail during large storm events. The Little River Water Quality Restoration Plan (WQRP), developed jointly by the BLM and

USFS, recommends road restoration as the single most important measure that should be taken throughout the Little River watershed. This strategy is consistent with direction in the Northwest Forest Plan, "Watershed restoration should focus on removing and upgrading roads." (ROD, B-32).

B. Purpose of Action

The purpose of this effort is to develop a coordinated inter-agency plan that implements road-related restoration projects in areas of highest need within the Lower Cavitt Creek, Middle Cavitt Creek, Upper Cavitt Creek, and Cultis Creek subwatersheds. The Cavitt Creek area was ranked as the highest priority for aquatic habitat restoration in the Little River watershed analysis. This proposed action is intended to reduce existing and minimize future sediment input into streams to improve fish habitat and water quality.

C. Description of the Proposal

This proposed action tests how road-related restoration can improve water quality and aquatic habitat in an area that has had extensive past timber harvest and roading.

The proposed action consists of the following:

- 7 miles of road treatments (drainage structures, ditches, numerous slides, etc.)
- 3 sites of road treatment (major cut and fill failure sites)
- 1 mile of road decommissioning
- 16 culverts replacements (improve fish passage and/or hydraulic function)

Background

In 1998, the major landholders in the Cavitt Creek area (BLM, USFS, and Seneca Jones Timber Company) along with the Umpqua Basin Watershed Council (UBWC) initiated an effort to inventory and prioritize road-related risks. This process identified the roads that are high risk to aquatic resources and in need of restoration. This cooperative effort was intended to more effectively addresses water quality and fisheries concerns in areas with intermingled private and public lands.

Through grants from the Oregon Watershed Enhancement Board and Oregon Department of Environmental Quality and partner contributions, a total of $25,000 was raised to accomplish the road inventory. A total of 204 miles of roads were surveyed.

A team comprised of a hydrologist, fish biologist, engineer, soil scientist, and GIS specialist reviewed the road inventory data along with other information to identify and prioritize potential restoration. Using the road data, problem sites were identified based on the following:

Culverts:	Culvert is a stream crossing
	High potential that water diversion would occur if culvert failed
	Sediment is entering stream
	Erosion (such as eroding fill slope) is occurring at outlet
Road:	Segment has deep ruts of 100 feet or longer
	Segment has ditches that are eroding or are full of debris
	Slope is 8% or greater
	Segment has impending cut or fill slope slides of 50 cu. yds. or larger
	Segment has active slumping below the road

This information was then combined with fish distribution, geomorphic land types, and a 1995 stream-crossing inventory to further identify potential projects and priorities. Priorities were established and the proposed action reflects those priorities.

A field review was then conducted to visit problem sites and develop the proposed action.

D. Conformance with Existing Land Use Plans

The Proposed Action and all alternatives were developed to be in conformance with

1). *Final - Roseburg District Proposed Resource Management Plan / Environmental Impact Statement* (PRMP/EIS) dated October 1994 and its associated *Roseburg District Record of Decision and Resources Management Plan* (RMP) dated June 2, 1995. The RMP was written to be consistent with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl* (FSEIS); dated Feb. 1994 and its associated *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (ROD) and *Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl* (S&G's) dated April 13, 1994; generally referred to as the "Northwest Forest Plan" (NFP).

2). *The Land and Resource Management Plan (Forest Plan) for the Umpqua National Forest*, dated October 5, 1990 as supplemented by the Northwest Forest Plan FSEIS and ROD.

These plans employ the strategy known as "ecosystem management". "Ecosystem management emphasizes the complete ecosystem instead of individual components and looks at sustainable systems and products that people want and need. It seeks a balance between maintenance and restoration of natural systems and sustainable yield of resources" (RMP, pg. 18). The NFP (ROD, pg. 6) divides the federal land base into seven land use allocations (LUA) or categories. This project is within the "Little River Adaptive Management Area (AMA)" LUA. The AMA is designed to "Develop and test new management approaches to integrate and achieve ecological and economic health and other social objectives" (RMP, pg. 32).

E. Issues

The Interdisciplinary (ID) Team reviewed the issues identified during the Upper & Middle Smith River Restoration and Rehabilitation (EA #104-00-01). That EA analyzed road-related restoration along with instream restoration. The same issues identified for the road-related work in the Smith River EA also apply to the Cavitt Creek EA. These issues were determined to not be significant because: (1) PDF's and management actions (Section II.C.) included in the proposed action would sufficiently mitigate the anticipated environmental impacts of specific activities, or (2) the impacts are within the limits addressed in the ROD/RMP. These issues are further described in Appendix D ("Issue Identification Summary").

Issues:

1. Operating in northern spotted owl and other listed species habitat.
2. Reducing road access (fire, public).
3. Noxious Weeds and use of native seed for restoration of impacts.
4. Loss of management opportunities due to decommissioning.
5. Water quality and fish habitat related to sediment input.

"Critical Elements of the Human Environment" is a list of elements specified in BLM Handbook H-1790-1 that are to be considered during the NEPA process. These elements were considered in this EA and are found in Appendix E.

II. ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section describes the No Action and Proposed Action alternatives. These alternatives represent a range of reasonable potential actions that would meet the Purpose and Need. This section also discusses specific design features that would be implemented under the action alternatives

A. The No Action Alternative

The No Action Alternative is required by NEPA to provide a baseline for the comparison of the alternatives. This alternative represents the existing condition. If this alternative were selected there would be no road restoration within the bounds of the project area. Only periodic road maintenance would be performed; mainly for the purpose of keeping roads open to traffic. There would be no decommissioning of roads.

B. The Proposed Action Alternative

Implementation of the Proposed Action Alternative would result in road treatments on approximately seven miles of road and three sites. Treatments maintain vehicular access while lessening risks to riparian and aquatic resources by installing larger culverts; adding additional culverts (ie. ditch relief

culverts); replacing culverts with ford crossings; pulling back oversteepened road and landing fills; installing waterbars, drain dips, culvert splash aprons, and culvert stand pipes.

Table 1. Proposed Action Alternative, Cavitt Creek Road-Related Restoration.

Activity	Amount	Road Number	Description
Road Decommission	.3 Mile .1 Mile .75 Mile	27-3-21 (BLM) 27-3-35.2 (BLM) 2500-480 (USFS)	Decommission road segments
Road Treatment	.5 Mile 1.27 Mile .5 Mile 2 Sites 1 Site 3.48 Mile .6 Mile	27-3-26.4 (BLM) 27-3-17 (BLM) 27-3-14.2 (BLM) 27-2-19 (BLM) 28-4-13.2 (BLM) 2500-037 (USFS) 2500-425 (USFS)	Road Treatments to reduce aquatic risks
Culvert Replacement	16	Multiple (see map)	Replace culverts to improve fish passage and hydraulic function

Road decommissioning would occur on approximately one mile of roads. Decommissioning reduces the risk of mass wasting by pulling back road fill, outsloping the remnant surface to eliminate concentration of water, removing all stream crossings and relief culverts, removing road fills from floodplain areas and restoring stream profiles to their pre-culvert contours. In some cases, decommissioning also includes roadbed subsoiling to allow establishment of trees and more effective water infiltration.

Sixteen culverts will be repaired or replaced to restore adult and juvenile fish passage and Hydrologic function. Many culverts are undersized for large flood events thereby increasing potential water diversion and fill failure. Three culverts are presently blocking fish passage. Replacement of these culverts would result in approximately six miles of additional potential fish distribution.

C. Project Design Features and Management Practices as part of the Action Alternative

This section describes Project Design Features (PDF's) and management practices that would be incorporated as part of the proposed action to avoid or reduce environmental harm. PDF's are site-specific measures, restrictions, requirements or physical structures included in the design of a project in order to reduce adverse environmental impacts.

1. The RMP (Appendix D, pg. 129) lists "Best Management Practices" (BMPs). BMPs are identified and required by the Clean Water Act (CWA) as amended by the Water Quality Act of 1987. BMPs are the primary mechanism to prevent and control to the "maximum extent practicable" nonpoint source pollution and achieve Oregon water quality standards. A list of BMPs selected for this project can be found in Appendix C.

2. Essential Fish Habitat (EFH) for coho salmon would be affected by the proposed action.

Design criteria for road maintenance and decommissioning from *The Biological Assessment for Programmatic USDA Forest Service and USDI Bureau of Land Management Activities, Klamath Mountain Province Steelhead, Southern Oregon/Northern California Coast, Oregon Coast Chinook, and Oregon Coast Coho within the Southwestern Oregon Province Oregon, April 13, 2001*; and

Reasonable and prudent measures #1, #8, and #13 along with their terms and conditions as described in the July 12, 2001 *Endangered Species Act Section 7 Formal Programmatic Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on Bureau of Land Management, Forest Service, BIA/Coquille Indian Tribe Actions Affecting Southern Oregon/Northern California Coho, Oregon Coast Coho Salmon, and Oregon Coast Steelhead* would be followed to minimize the potential adverse effects of the proposed action.

3. Several Northern Spotted Owl (NSO) sites are found within the proposed project area. ESA consultation for T&E wildlife species was accomplished with the **US Fish and Wildlife Service** (FWS) and the Biological Opinion (BO) was received on May 31, 2001 (Ref. no. 1-15-01-I-270). The proposed action would follow the PDFs for the NSO found in Appendix A of this BO.

4. There is one peregrine falcon (a BLM Sensitive Species) nest site in T27S-R3W-S24 NE ¼ (Evarts Creek). This site is within approximately 0.5 mile of one project site and 1 mile of another site. Disturbance above ambient levels would be limited during the nesting season (March 1 through July 31). This includes no staging or parking vehicles and large equipment below the nesting territory (rock outcrops and cliffs) along the 14.1 road (T27S-R3W-S24 NE ¼ SW 1/16). Disturbance restrictions may be removed if surveys indicate that the site is unoccupied, not nesting, or nesting has failed.

5. If, during the implementation of the proposed action, any other Special Status (threatened or endangered, proposed threatened or endangered, candidate, State listed, USFS or BLM sensitive or BLM assessment) species or SEIS Special Attention (survey and manage or protection buffer) species is found, evaluation for the appropriate type of mitigation needed for each species would be done. Stipulations would be placed in the contract to halt operations if any of these Special Status animals are found to allow time to determine adequate protective measures before operations could resume.

6. To prevent the spread of noxious weeds the proposed action includes the following mitigation measures:

> a. In order to prevent the potential spread of noxious weeds, the operator shall be required to clean all construction equipment and vehicles prior to entry on BLM or USFS lands.

b. Cleaning shall be defined as removal of all dirt, grease, plant parts, and material that may carry noxious weed seeds into public lands. Cleaning prior to entry onto BLM or USFS lands may be accomplished by using a pressure hose.

c. Only construction equipment inspected by the government shall be allowed to operate within the project area, or in the immediate vicinity of the project area. All subsequent move-ins of construction equipment shall be treated the same as the initial move-in.

d. Prior to initial move-in of all construction equipment, and all subsequent move-ins, the operator shall make the equipment available for government inspection at an agreed upon location off federal lands.

e. Construction equipment will be visually inspected by a qualified government specialist, to verify that it has been reasonably cleaned.

7. Any large woody material generated during construction activities would be used for future instream habitat enhancement in the vicinity.

III. AFFECTED ENVIRONMENT

This section describes the existing environment and forms a baseline for comparison of the effects created by the alternatives under consideration. This section does not attempt to describe in detail every resource within the proposed project area that could be impacted but only those resources that could be significantly impacted. This project lies within the Oregon Western Cascades and Klamath Physiographic Province. The "Northwest Forest Plan" FSEIS describes the affected environment for these provinces on page 3&4-19, 20 and 22.

The *Roseburg District Proposed Resource Management Plan/Environmental Impact Statement* (PRMP/EIS, pp. 3-3 through 3-71) and the *Umpqua National Forest Land and Resource Management Plan/Final Environmental Impact Statement* (FEIS, III 1 - 48) provide a description of BLM and USFS administered lands. A further description can also be found in the Little River Watershed Analysis.
The proposed project areas are not known to be used by, or disproportionately used by, Native Americans, minorities or low-income populations for specific cultural activities, or at greater rates than the general population. According to 2000 Census data approximately six percent of the population of Douglas County was classified as minority status (*Oregonian*, Pg. A-12; March 15, 2001). It is estimated that approximately 15% of the county is below the poverty level (Frewing-Runyon, 1999).

A. General Setting

The Cavitt Creek river basin is comprised of four sixth-field sub-watersheds comprising about 60 square miles. Cavitt Creek enters Little River approximately eight miles upstream from the confluence of Little River and the North Umpqua River. Cavitt Creek is part of the Little River Adaptive Management Area (AMA).

Each of the ten designated AMA's was given a specific technical objective. The technical objective for the Little River AMA is the development and testing of approaches to integration of intensive timber production with restoration and maintenance of high quality riparian habitat.

According to the watershed analysis, in the four subwatersheds found in the Cavitt Creek basin, 22,694 acres or 60% of the land had been harvested and reforested as of 1990. Approximately 290 miles of roads have been built, equating to a road density of 4.9 miles per square mile of land. The average road density in the Little River watershed is 4.6 miles per square mile of land.

The low gradient, meandering channels in the mainstem of Cavitt Creek tend to be some of the most productive in terms of aquatic insects and fish populations (Watershed Analysis, 1995). Cavitt Creek and its tributaries have approximately 32 miles of anadromous fish habitat. In addition, there is approximately three miles of Cutthroat trout habitat above and beyond the range for anadromous fish.

Cavitt Creek is characterized by an abundance of gravel, a relatively low gradient, and by the presence of large amounts of fine sediment, compared to the main stem of Little River. The Cavitt Creek area has extensive areas of dormant, large-scale landslide complexes and massive earthflow deposits (Watershed Analysis, 1995).

The northwestern edge of the Cavitt Creek basin contains granitic bedrock terrain. Granitics are well known for their highly erosive nature. This terrain is subject to both large amounts of surface erosion, as well as debris avalanches and debris flows on steep slopes. Much of this granitic terrain has been managed for timber and has high road densities. This area of Cavitt Creek is most susceptible to increased sediment loading due to management action and is therefore a high priority for road restoration (Watershed Analysis, 1995).

The Little River Watershed Analysis (1995) estimates that the naturally occurring landslide density within the Cavitt Creek area (estimated from 1946 aerial photos) is 1.6 slides per square mile. By 1991, the landslide density increased to a cumulative total of 5.4 slides per square mile (based on the following aerial photos: pre-1946, 1947-1966, 1967-1982, 1983-1991). It should be noted that these estimates are based on aerial photos and only a minor amount of field verification was done, but the trend appears to be an increasing number of landslides. Many of the road-related landslides lack the large wood that would normally enter streams with natural landslides in forested or burned areas. This equates to excessive sediment delivery without the benefits of large wood inputs to moderate sediment routing, trap beneficial gravel, and increase aquatic habitat diversity. The Northwest Forest Plan Standards and Guidelines provide for Riparian Reserves along streams. In the future, these reserves will provide a source of large woody debris for streams.

In summary, both human caused and natural sediment delivery processes occur and vary spatially and temporally depending on precipitation and land types. These processes deliver both beneficial (gravelly, coarse) and detrimental (fine, silty) sediment to streams (Roseburg BLM and Umpqua NF, 2001). The combination of large sediment sources and physical habitat that has been simplified (lack of large wood to trap beneficial gravel) has resulted in stream channels that contain large amounts of fine sediment.

B. Affected Resources

The affected area was surveyed for the resources listed below according to established protocols:

Botany - No Special Status Plants were observed and no known sites are within the affected project area. The AMA itself has several known Special Status Plant sites, Survey and Manage sites and other sites of special interest. However, those species will not be affected by this proposed action. There are some localized infestations of Scotch Broom, a noxious weed, in the project area.

Cultural Resources - Field inventories of the proposed actions were conducted in September and October, 2001. No new resources were discovered. One previously known site is near one of the proposed actions. The site, 35DO747, is located near the northwesterly end of the Plus Four road restoration action. A field examination of the site failed to reveal any material other than "cat shatter" resulting from the mechanical breaking of naturally-occurring chert nodules, casting doubt on its designation as a cultural resource site. Regardless of the designation, the proposed action will not affect qualities that would make the site eligible for inclusion on the National Register of Historic Places. Since no historic properties will be affected by the proposed action, environmental consequences for cultural resources were not analyzed for direct, indirect, or cumulative effects .

Fisheries - There are 19 fish-bearing streams in the proposed project area. These streams represent approximately 35 miles of fish-bearing habitat. According to the Little River WA (pg. 18), Coho salmon (*Oncorhynchus kisutch*), Coastal Cutthroat trout (*Oncorhynchus clarki clarki*), and Winter Steelhead trout (*Oncorhynchus mykiss*), are present within the Cavitt Creek watershed.

As required by the Magnuson-Stevens Act, the Pacific Fisheries Management Council (PCMC) described and identified Essential Fish Habitat (EFH) in each of its fisheries management plans. EFH includes "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity." All streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California are designated as EFH for affected salmon stocks with management plans. The proposed action occurs within the area designated as EFH for coho salmon. A detailed description is provided in Appendix F.

The Oregon Department of Fish and Wildlife (ODF&W, 1993) has conducted stream habitat surveys in the Little River watershed. Data is available for Cavitt Creek, McKay Creek, Evarts Creek, Buckshot Creek, Copperhead Creek, White Rock Creek, Mill Creek, and Tuttle Creek. These surveys generally show that streams within the watershed lack large wood, have elevated water temperatures, altered sediment inputs, increased peak flows, and decreased summer flows. Mill Creek was rated by ODF&W as Good. All of the other creeks surveyed were rated as Fair or Poor. These streams lack large wood, are bedrock dominated, and contain a high percentage of fine sediment.

Hydrology (Water Quality) - Little River and Cavitt Creek are listed under Section 303(d) of the Clean Water Act for violations of Oregon standards for temperature, pH, sedimentation, and habitat modification (Oregon DEQ, 1998).

Wildlife - Federally Threatened and Endangered (T&E) species known to occur in the Roseburg District include the northern spotted owl (*Strix occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), bald eagle (*Haliaeetus leucocephalus*), and Columbian white tailed deer (*Odocoileus virginianus)*. There are three NSO sites (MSNO 4017 (Little Cavitt), 2090 (Jim Creek), and 0286 (Buck Peak)) within 1.2 miles (home range) and three sites (MSNO 0291 (Evarts Creek), 4012 (McKay Creek), and 4020 (Red Pond)) within 0.25 miles (disturbance zone) of the project area. All owl sites, except the Jim Creek owl site (MSNO 2090), are protected with a Residual Habitat Area. On US Forest Service (FS) lands, there are eight additional NSO sites located within the watershed. The Cavitt Creek Watershed contains 17,162 acres within Critical Habitat Unit CHU OR-29 for the northern spotted owl. Critical Habitat is a specific geographical area specified by the US Fish and Wildlife Service (FWS) in Recovery Plans as containing habitat essential for the conservation of a Threatened and Endangered species. The west boundary of the project area occurs 63 miles from the Coast and is therefore not considered to contain suitable marbled murrelet habitat or marbled murrelet critical habitat. There are no known bald eagle nests, which could be affected by disturbance above ambient noise levels within 0.25 miles of any of the project areas. The remaining T&E species do not occur in the project area.

Survey and Manage Species: There are no known red tree vole or mollusk sites within the immediate project areas (road prisms). There is one red tree vole site adjacent to USFS road #2500-425. This site will not be disturbed by project work.

Bureau Sensitive Species: There is one peregrine falcon site (Evarts Creek) located in T27S-R3W-S24 NE 1/4. This peregrine site is located within approximately 0.5 miles of one project site and 1.0 mile of another project site, which could be affected by disturbance above ambient noise levels.

IV. ENVIRONMENTAL CONSEQUENCES

This section provides the evidence and analytical basis for the comparisons of the alternatives. The probable environmental consequences (impacts, effects) to the human environment that each alternative would have on selected resources are described. This section is organized by the alternatives and the effects on the selected resources. Analysis considers the direct impacts (effects caused by the action and occurring at the same place and time), indirect impacts (effects caused by the action but occurring later in time and farther removed in distance) and cumulative impacts (effects of the action when added to other past, present and reasonably foreseeable future actions) on the resource values. The following paragraphs describe potential direct and indirect effects that could occur to the affected resources:

Botany - Direct effects are actions that cause direct mortality of Special Status Plants and Survey and Manage species such as ground disturbance or alteration of microclimate conditions. Indirect effects include the possible spread of noxious weeds as a result of management actions.

Fisheries - Direct effects are those actions that cause direct mortality, such as accidental chemical spills and direct disturbance of redds. Generally, direct impacts occur from work within or adjacent to fish bearing streams. Indirect effects include increased sediment / turbidity and water temperature, altered stream flows and large woody inputs.

Hydrology - Direct effects are those actions that cause direct changes to the stream channel morphology, hydraulic geometry, or water quality. Indirect effects occur at a later time and are farther removed from the action. Actions that indirectly effect hydrology and water quality include changes in road densities, runoff and sediment transport, streamside shading, and large woody debris recruitment.

Wildlife - Direct effects consists of mortality to species or habitat removal at the time of action. Indirect effects include disturbance to species that might occur as a result of the action alternative, later in time or farther removed in distance, but still reasonably foreseeable.

Roseburg District's Resource Management Plan and Final Environmental Impact Statement (FEIS) and the USDA FEIS for the *Umpqua Land & Resource Management Plan* analyzed the environmental consequences in a broader context. This EA does not attempt to reanalyze impacts that have already been analyzed in the FEIS but rather to identify the particular site-specific impacts that could reasonably occur. Environmental effects of the "Critical Elements of the Human Environment" are shown in Appendix B.

Some irreversible and irretrievable commitment of resources would result from the implementation of this project. An irreversible commitment is a commitment that cannot be reversed whereas an irretrievable commitment is a commitment that is lost for a period of time. An irreversible commitment of petroleum fuels for road construction as well as the loss of rock from quarries for crushed rock used in the renovation of the road system would result from the proposed action.

When encountering a gap in information, the question implicit in the Council on Environmental Quality regulations on incomplete and unavailable information was posed: Is this information "essential to a reasoned choice among the alternatives?" {40 CFR 1502.22(a)}. While additional information would often add precision to estimates or better specify a relationship, the basic data and central relationships are sufficiently well established that any new information would not likely reverse or nullify understood relationships. Although new information would be welcome, no missing information was determined as essential for the decision makers to make a reasoned choice among the alternatives.

A. No Action Alternative

Botany – There would be no direct or indirect effects. Plant diversity, composition and viability would continue at present levels since microclimate conditions favorable to the sustained viability of mid-seral vascular and non-vascular plants would not be altered.

Fisheries - Hydrologic processes affecting water temperature, sediment inputs, and woody debris would continue at existing rates and levels. Fish species and populations would remain unchanged or decline. Although there would be no direct effects under this alternative, indirect and watershed cumulative effects would allow for the continuing degradation of fisheries habitat.

Hydrology - There would be no direct effects on water quality and stream hydrology. Hydrologic processes would continue at existing rates and levels. The estimated average annual sediment delivery from unpaved logging road surfaces is approximately 35 cubic yards per mile, and average chronic sediment delivery from stream crossings is approximately 2.7 cubic yards per culvert (Bureau of Land

Management, 2000). These estimates were based on data from the Watson Mountain sixth field watershed (adjacent to Cavitt Creek). The indirect and cumulative effects of this alternative would allow for the continuing degradation of streams since activities designed to reduce the risk of catastrophic sediment delivery from existing roads would not occur. Without the proposed improvements, the risk of fill failure at culvertswould remain (see Table 2). No change to stream temperature, large woody debris, water pH, dissolved oxygen, or other chemical parameters is likely to occur under either alternative.

Wildlife – There would be no direct effects under this alternative. Use of roads would continue at the current rate. Indirect effects would occur under this alternative. The roads planned for decommissioning would remain open to motorized vehicles. Approximately 0.6 miles (BLM) of road are located within 0.25 miles of a NSO core area (MSNO 4020) and 0.75 miles (USFS) are within NSO designated critical habitat. Continued use of these roads during the critical nesting period could potentially cause disturbance to the spotted owl. Continued use of these roads is not expected to modify spotted owl habitat.

B. Proposed Action Alternative

Botany - No direct effects are expected because the proposed action would not directly affect the microclimate of vascular and non-vascular plants. Road treatments and decommissioning could result in an indirect effects through the potential to spread noxious weed infestation into the proposed project area. Exposed soil is highly preferred by noxious weeds and invasive nonnative species. Noxious and invasive weed seeds are often introduced from seeds carried into the area by construction equipment. However, the PDF's and Management practices incorporated into the proposed action are expected to limit these effects. The BLM and Forest Service have a supply of native (and non-native, non-invasive as needed to supplement) grass seed that would be used to revegetate where needed.

Fisheries - Direct effects to fisheries habitat include sedimentation and turbidity introduced into the stream during removal or replacement of stream-crossing culverts. This increase would be short-term and minor. Best Management Practices and ODFW/Oregon Plan guidelines for in-stream work would be followed (including restricting instream work to periods of low flows during the dry season) to minimize this effect. The probability of fish kill would be extremely low. Indirect effects to fisheries habitat would include the beneficial effects of more natural hydrologic functions. Removal of understory vegetation and approximately twenty 12" DBH or greater conifer trees during culvert replacement would have inconsequential effects to stream flow. Overall, stream flows would remain the same or improve since problem roads and culverts would be fixed and no new permanent roads would be constructed. Large woody inputs would be enhanced with the removed conifer trees providing source material for in-stream habitat enhancement. In the long-term, in-stream fine sediment should be reduced. Stream temperature would remain at existing levels.

Hydrology – Direct effects would include increased turbidity in streams during project implementation. These effects would be short-term and minimized by working during low flows and adhering to all Best Management Practices (BMP's). The estimated average annual chronic sediment delivery from unpaved logging road surfaces is approximately 35 cubic yards per mile, and average chronic sediment delivery from stream crossings is approximately 2.7 cubic yards per culvert (Bureau of Land

Management, 2000). The action alternative would likely result in a long-term beneficial direct effect of decreased chronic sediment delivery from roads and culverts to streams within the project area. No change in stream temperature, large woody debris, water pH, dissolved oxygen, or other chemical parameters is likely to occur.

Table 2. Estimated sediment delivery (in cubic yards) due to potential culvert failures.

Culvert (RD #)	T. R. & SEC	Potential Sediment Delivery
27-3-26.3	T27S R3W Sec 27	518
27-2-19.0	T27S R2W Sec 30	89
27-3-26.3	T27S R3W Sec 27	730
27-4-13.2	T27S R3W Sec 5	243
27-3-2.0	T27S R3W Sec 2	161
27-3-23.0	T27S R3W Sec 23	567
2500	T27S R2W Sec 10	288
2500-425	T27S R2W Sec 15	1261
27-3-2.0	T27S R3W Sec 3	110
27-3-2.0	T27S R3W Sec 26	159
27-3-2.0	T27S R2W Sec 26	84
27-3-25.1	T27S R3W Sec 25	376
27-3-26.4	T27S R3W Sec 35	442
2500-425	T27S R2W Sec 10	557
27-3-2.0	T27S R2w Sec 1	465
27-3-35.3	T27S R3W Sec 35	408
	Total	**6458**

Indirect effects from culvert replacements would include the beneficial effect of reduced risk of road fill failures (estimated fill volume delivery in cubic yards for the selected culverts are listed in Table 2). No additional indirect effects to stream temperature, water pH, dissolved oxygen, or other water quality parameters are likely to occur under the proposed action.

Wildlife - For *T&E species*, there would be no direct loss of nesting, foraging, and dispersal habitat for the Northern spotted owl. Indirect effects consist of potential disturbance to the spotted owl due to the use of heavy equipment. Restoration activities would occur within 0.25 miles of three known spotted owl activity centers (MSNO 0291, 4012, and 4020) and could potentially affect nesting behavior. Seasonal restrictions, included as part of the proposed action, should mitigate disturbance activities. There is approximately one mile of road planned for decommissioning. Approximately 0.25 miles (BLM) of road are located within 0.25 miles of a NSO core area (MSNO 4020) and 0.75 miles (USFS) are within designated critical habitat. Decommissioning these roads could indirectly benefit the spotted owl by reducing vehicle disturbance during the critical nesting period. For *SEIS Special Attention Species*, there is no direct effect since habitat disturbing activities for the red tree vole and mollusks are not anticipated within the proposed project sites. For *Bureau Sensitive Species*, restoration activities would occur within 1.0 mile of the Evarts Creek peregrine falcon nest site and could potentially indirectly effect nesting and foraging behavior. The requirement included as part of the proposed action that limits disturbance above ambient levels during the nesting season within 1.0 mile of the peregrine falcon site should mitigate disturbance impacts. There would be no direct loss of nesting, foraging, and dispersal habitat for the peregrine falcon.

C. Cumulative Impacts Analysis

Potential cumulative effects were analyzed by considering the proposed activities in the context of the past, present, and reasonably foreseeable actions in the Little River Watershed. It is assumed that private landowners within the watershed will continue to harvest timber on a schedule similar to the past. For the Roseburg BLM, the following activities are likely to occur over the next five years:

- Permittee road construction in Sec. 34 &35, T26S, R2W, W.M.
- Noxious weed control:
    - Scotch Broom control (spot treat chemical and manual on 30 ac.) in T27S, R2W, sec. 17-21, 28, 29, 32 in Evarts Creek.
    - Scotch Broom control (spot treat chemical on 2 ac.) in T26S, R3W, sec. 35 in Evarts Creek.
    - Scotch Broom control (spot treat chemical on 8 ac.) on BLM roads in T27S, R2W, sec. 7.
    - Scotch Broom control (spot treat chemical and manual on 17 ac.) in T27S, R3W, sec. 3, 9-11, 15, 17, 20, 21 in Jim Creek.
    - Diffuse Knapweed control (spot treat chemical on 3 ac.) in T27S, R3W, sec. 11 in Jim Creek.
- Harvest of special forest products by permit – area wide.
- Cavitt Creek road restoration (7 mi. road treatment, 2 mi. road decommissioning, 3 sites of repair for cut/fill slope failure, 16 culverts replaced).
- Commercial thinning (35 acres) in T27S, R3W, Sec. 7.
- Watson Mountain project (500-700 ac. commercial thin and regeneration harvest, 20-25 mi. road restoration, mariposa lily habitat enhancement, fertilization, slide stabilization, noxious weed control) in T25S, R1W, secs. 23, 24, 25, 26, 27, and 35.
- Green Thunder project (215 ac. regen harvest and 325 ac. commercial thinning) in T26S, R2W, sec. 31, 33 and T26S, R3W, sec. 25.
- Emile Timber Sale (58 ac. regen harvest, 47 ac. partial cut, 29 ac. commercial thinning) in T26S, R2W, sec. 35 and T27S, R2W, sec. 1.

Table 3 summarizes the approximate acres of the present and reasonably foreseeable activities (over the next five years) on lands managed by the Forest Service. Other activities include road maintenance, campground maintenance

Table 3. Present and Reasonably Foreseeable Activities on Forest Service Lands.

Subwatershed	Timber Sale	Road Restoration	Other
Black Creek	Exodus – 1100 acres	Approx. 9 miles road decommissioning; closure of 6 miles	Precommercial thinning, soil decompaction, large instream wood placement
Upper Cavitt Creek	Withrow (Blaze and Flicker) – 701 acres	Approx. 12 miles road decommissioning	Precommercial thinning, soil decompaction
Red Butte	Mjollnir – 666 acres	Approx. 6 miles road decommissioning; closure of 4 miles	Precommercial thinning, large instream wood placement
Little River Canyon	Pinnacle-Junction – 1005 acres	Approx. 7 miles road decommissioning	Precommercial thinning, large instream wood placement
Emile Creek and 1 unit in Upper Little River	Little River DEMO – 160 acres	Approx. 7 miles road decommissioning	Precommercial thinning, soil decompaction
Middle Little River	Whitecap – 1130 acres	Approx. 1.5 miles road decommissioning	Precommercial thinning, large instream wood placement; includes spot treatment of chemicals to reduce competition in study area

Timber harvest, road building, and wildfires represent the primary past management activities that contribute to the cumulative effects of the proposed Job Corps project.

Natural processes that have affected the project area include past wildfires, wind, insect infestations, etc. Past and current management activities, such as road/skid trail construction, timber harvest, private land uses, and transmission line maintenance have affected upland, channel, and riparian functions.

Ongoing activities within the project area also include harvest of special forest products, timber harvest, dispersed recreation, private land uses, transmission line maintenance, and road maintenance.

Botany - Cumulative impacts to Botany are measured as the increase in the presence of any noxious or invasive nonnative weed species into the area. This would be detrimental to native species since weeds are aggressive pioneer species that reduce microclimate conditions and out compete natives for light, moisture and nutrients. Mitigation measures are incorporated into the proposed action to minimize the spread of noxious weeds. Incorporating these mitigation measures into the proposed project would likely prevent, control, or reduce the spread of noxious weeds on federal lands, and reduce the need for costly weed eradication in the future.

Fisheries - The proposed project consists of enhancement measures that are designed to restore fisheries habitat over a period of decades. Other relevant management activities likely to occur within the Little River fifth-field watershed include both Federal and Private timber harvest and silvicultural treatments. A large portion of the watershed is managed for timber operations (Little River WA page 5). These activities would comply with federal and state laws governing water quality and fisheries habitat, therefore, additional adverse impacts are not anticipated. It should be noted that restoration activities on private industrial timberlands within the watershed are likely. The overall beneficial cumulative impacts of combined federal and private restoration activity would be highly beneficial to fisheries habitat.

Hydrology - Cumulative impacts to hydrology and water quality are measured as an increase in harvested acres and road miles within the watershed (Coffin and Harr, 1992; King and Tennyson, 1971; Megahan, 1971; Wemple, et. al., 1996). Cumulative impacts resulting from other activities on private and federal forest lands in the watershed may result in increases in peak flows and sediment delivery to Cavitt Creek (and thus Little River), due to the large percentage of land in the watershed that is ready for harvest. New permanent roads are unlikely on federal lands. Removal of less than 20 trees would occur under the action alternative, and would not affect the number of harvested acres in the watershed. No additional cumulative impacts to water quality or hydrology would result.

Wildlife – No additional cumulative effects are anticipated, other than those noted above.

V. CONTACTS, CONSULTATIONS, AND PREPARERS

A. Agencies, Organizations, and Persons Consulted

The Agency is required by law to consult with the following federal and state agencies (40 CFR 1502.25):

1. **Threatened and Endangered (T&E) Species Section 7 Consultation -** The Endangered Species Act of 1973 (ESA) requires consultation to ensure that any action that an Agency authorizes, funds or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat.

a. Roseburg District's Biological Assessment (BA) for T&E wildlife species consultation was submitted to the **US Fish and Wildlife Service** (FWS) on April 16, 2001. The BA made the determination that this project would result in a "not likely to adversely affect for the spotted owl, murrelet, or bald eagle. The required ESA consultation for T&E wildlife species was accomplished with the **US Fish and Wildlife Service** (FWS) and the Biological Opinion (BO) was received on May 31, 2001 (Ref. no. 1-15-01-I-270). The BO concurred that the FY2001-2002 Programmatic Assessments for Activities Not Likely to Adversely Affect Listed Species, is “not likely to adversely affect” spotted owl, murrelet, or bald eagle. Incidental Take is not expected to occur.

b. The proposed project would result in adverse affects to Essential Fisheries Habitat (EFH) for Coastal Coho salmon (EFH evaluation is attached as Appendix F). Roseburg District's Biological Assessment (BA) for T&E fish species consultation was submitted to the **National Marine Fisheries Service** (NMFS) on April 13, 2001. The BA made the determination that this project would result in a may effect and would likely to adversely affect" for the Oregon Coast coho salmon. A BO was received from NMFS on July 12, 2001that concluded no additional measures are necessary to offset adverse affect to EFH.

2. **Cultural Resource Section 106 Compliance -** The BLM has completed its Section 106 responsibilities under the 1997 National Programmatic Agreement and the 1998 Oregon Protocol. The Forest Service has completed its Section 106 responsibilities under Appendix B of the 1995 State of Oregon Programmatic Agreement. The inventory information generated by this project will be forwarded to the State Historic Preservation Office as provided for in the agreements.

B. Public Notification

1. Notification was provided to affected **Tribal Governments** (Confederated Tribes of the Coos, Lower Umpqua and Siuslaw; Grande Ronde; Siletz; and the Cow Creek Band of Umpqua Tribe of Indians). No comments were received.

2. Letters were sent to five adjacent landowners or private organizations including the Little River Committee, Umpqua Watersheds, Inc., Seneca-Jones Timber Co. (SJTC), Roseburg Resources, and Douglas Fire Protection Association (DFPA). No comments were received from the Little River Committee or Umpqua Watersheds, Inc. Comments from SJTC and Roseburg Resources regarding road decommissioning were received and incorporated.

3. The **general public** was notified via the *Roseburg District Planning Update* (Summer, 2001) going to approximately 150 addressees. These addressees consist of members of the public that have expressed an interest in Roseburg District BLM projects. One request for additional information was received (road decommissioning candidates).

Notice was also published in the August 17, 2001 copy of the Glide Weekly. Notices were posted at the Glide Store and Peel Store on August 28, 2001.

4. Notification will also be provided to certain **State, County and local government** offices.

5. A 30-day **public comment period** will be established for review of this EA. A Notice Of Availability will be published in the *News Review*. This EA and its associated documents will be sent to all parties who request them. If the decision is made to implement this project, a notice will be published in the *News Review*.

C. List of Preparers

Anne Boeder	Team lead and EA Writer
Isaac Barner	Cultural Resources
Chip Clough	Fisheries
Elizabeth Gayner	Wildlife
Steve Kropp	Hydrology
Randy Lopez	Engineering Lead
James Luse	NEPA Coordinator
Ronald Wickline	Botany

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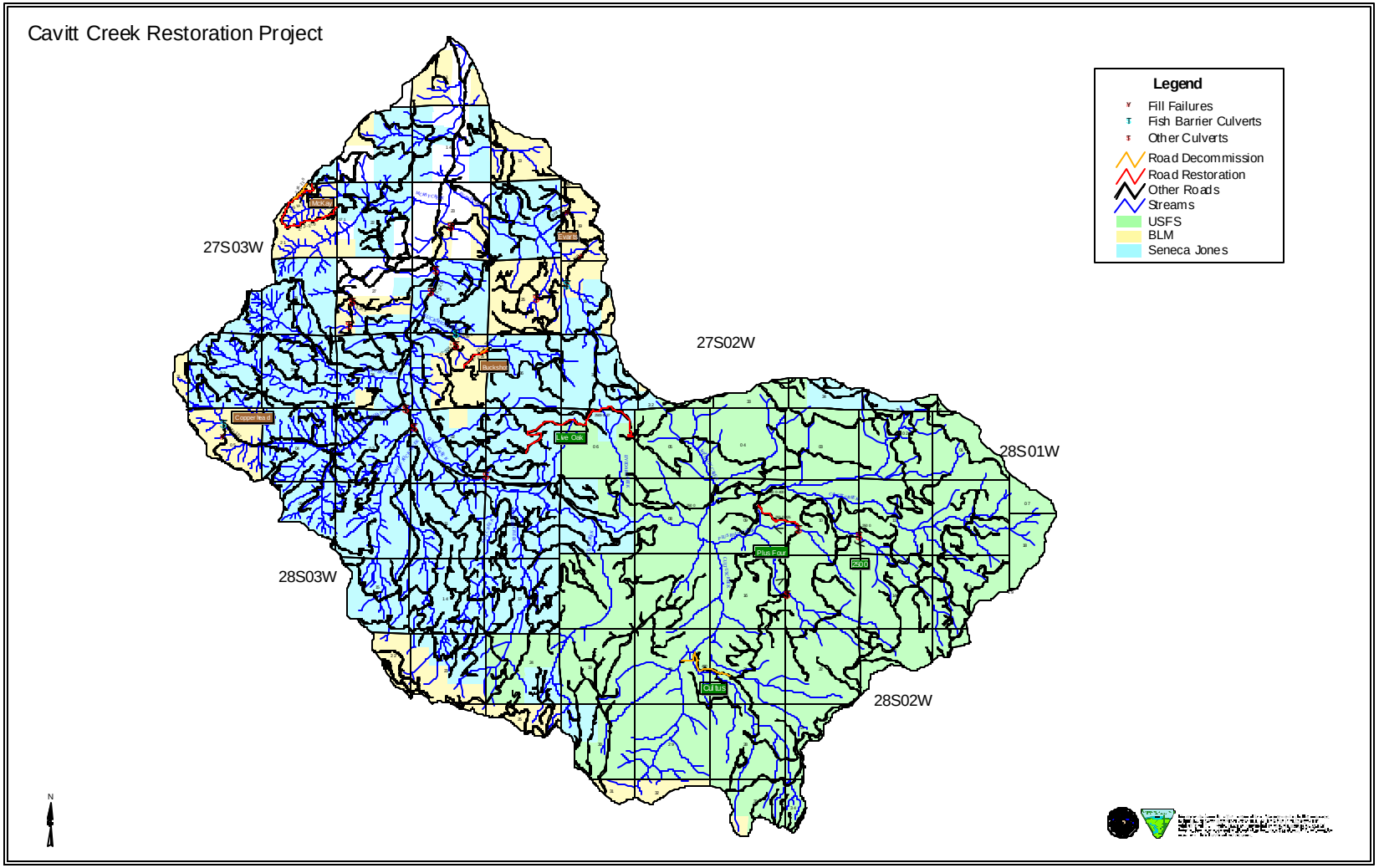
A APPENDIX


Cavitt Creek Restoration Project
Legend
Fill Failures
Fish Barrier Culverts
Other Culverts
Road Decommission
Road Restoration
Other Roads
Streams
USFS
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Seneca Jones
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B APPENDIX

AQUATIC CONSERVATION STRATEGY (ACS) ASSESSMENT

ACS Objective 1 - *Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted.*

The Cavitt Creek Road-Related Restoration project has been designed to improve water quality and aquatic habitat in an area that has had extensive past timber harvest and road construction. The proposed action consist of seven miles of Road treatments involving drainage structures, ditches, numerous slides; three sites of road treatments involving cut and fill failure sites; one miles of road decommissioning; and sixteen culvert replacements to improve fish passage and/or hydraulic function. The proposed project would result in habitat improvements to approximately thirty-five miles of fish bearing streams and opening up approximately eight miles of potential fish bearing streams through the removal of five fish barriers.

Based on design features, the project would not hinder or prevent attaining the elements outlined in ACS Objective 1. No indicator is expected to be degraded in the fifth-field watershed over the long term. Therefore, it is concluded this project is consistent with ACS Objective 1.

ACS Objective 2 - *Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

This project would maintain the current quality of connectivity within and between watersheds through the previous establishment of the Riparian Reserves. Within the Little River Fifth-Field Watershed, connectivity currently only exists as disconnected patches of late-successional forest. However the remaining stands do serve as refugia for late-successional forest dependent species. It is expected that the decommissioning of several roadways will restore connectivity within the watershed. The removal of five fish barriers will reconnect eight miles of fish habitat.

Based on design features, the project should maintain and restore the elements outlined in ACS Objective 2. No actions are proposed that would be expected to physically or chemically obstruct routes to areas within or outside the watershed that are critical for fulfilling life history requirements of the anadromous fish species considered. No indicator is expected to be degraded in the fifth-field watershed over the long term. Therefore, it is concluded this project is consistent with ACS Objective 2.

ACS Objective 3 - *Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.*

This project is designed to specifically identify features within the Lower Cavitt Creek, Middle Cavitt Creek, Upper Cavitt Creek, and Cultis Creek Sixth-Field Watersheds that would control and prevent road related runoff and sediment production. The focus of the restoration plan is on removing some roads and, where needed, upgrading those that remain in the system. It is expected that the road upgrades and removals would maintain and/or improve the physical integrity of the adjacent aquatic systems.

Based on design features, the project should maintain and restore the physical integrity of the aquatic system as outlined in ACS Objective 3. None of the above referenced indicators are degraded in the fifth-field watershed in the long term. Therefore, this project is consistent with ACS Objective 3.

ACS Objective 4 - *Maintain and restore water quality necessary to support healthy riparian, aquatic and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

Cavitt Creek is currently listed for violating the Oregon water quality standards for sediment, temperature, pH, and Habitat modifications.

It is expected that some additional amount of sediment would be generated from road improvement related activities. This could cause localized (streams within ~200 feet), short-term (first wet season after construction) increases to turbidity levels in streams adjacent to or downstream from the activity. Implementation of Best Management Practices (Roseburg District RMP 1995) and Project Design Features is expected to reduce these increases to negligible levels. Additionally, road decommissioning and road renovation/upgrading would improve road surfaces, drainage, and water infiltration and should result in a long-term reduction in the risk of road-generated sediment reaching stream channels.

Any activity involving gas or diesel-powered machinery in close proximity to stream channels has a potential to result in a hazardous materials spill. The contractor would be required to have a hazardous materials action plan to contain and clean up the spill. It is expected that contamination of a stream channel with hazardous materials is highly unlikely to occur and should not affect any waters within the proposed project area. If a hazardous materials spill did occur, mechanisms are in place to respond quickly to the incident and minimize the likelihood of contamination of a waterway.

Based on design features, the proposed project should maintain and begin to restore the elements outlined in ACS Objective 4. Therefore, it is concluded the proposed project is consistent with ACS Objective 4.

ACS Objective 5 -*Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.*

Sixteen culverts will be repaired or replaced to restore adult and juvenile fish passage and hydraulic function. Many culverts are undersized for large flood events and have the potential for causing water diversion, severe sedimentation and mass wasting. Existing culverts would be replaced with culverts sized for one hundred year floods. This would reduce the potential for mass wasting, water diversion and restore more natural sediment delivery and transport.

Eight miles of road would be renovated and decommissioned. This would reduce water diversion and the likelihood of fill failure, thereby reducing existing or potential sediment delivery to streams.

Based on the combination of culvert replacements and road renovation or decommissioning the proposed project should maintain and begin to restore the elements outlined in ACS Objective 5. Therefore, it is concluded the proposed project is consistent with ACS Objective 5.

ACS Objective 6 - *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

Sixteen culverts will be repaired or replaced because they are fish barriers or are hydraulically undersized. The replacement culverts would be sized for a one hundred year flood event and would be designed to simulate a more natural water routing regime.

Based on design features, the proposed project should maintain and restore the elements outlined in ACS Objective 6. Therefore, it is concluded the proposed project is consistent with ACS Objective 6.

ACS Objective 7 - *Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

The culvert replacements proposed within the project are expected to enhance the existing hydrological function of the watershed by restoring the timing and variability during storm flow events.

Based on design features, the proposed project should maintain and begin to restore the elements outlined in ACS Objective 7. Therefore it is concluded the proposed project is consistent with ACS Objective 7.

ACS Objective 8 - *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel*

migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

By previously establishing the Riparian Reserve network, following the relevant project design criteria, and adhering to Roseburg District BMP's, adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, channel migration, and coarse woody debris recruitment is expected to be maintained on federal lands in the short-term and restored through recovery over the long-term. Therefore, it is concluded the proposed project is consistent with ACS Objective 8.

ACS Objective 9 - *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.*

The proposed actions would maintain and restore the current Riparian Reserve network and other reserved areas (Residual Habitat Areas, Areas of Critical Habitat, Owl Core Areas, etc.) located throughout the watershed over an indefinite time period. By establishing this Riparian Reserve network, habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species is expected to be maintained in the short-term and restored through vegetative recovery over the long-term. Therefore, it is concluded the proposed project should begin to restore elements of ACS Objective 9.

C APPENDIX

BEST MANAGEMENT PRACTICES

(From the Roseburg District Record of Decision and Resources Management Plan)

Introduction

Best Management Practices are identified and required by the Clean Water Act as amended by the Water Quality Act of 1987. Best Management Practices are the primary mechanism to prevent and control to the "maximum extent practicable" nonpoint source pollution and achieve Oregon water quality standards. Best Management Practices are also identified in this document for the protection of soil productivity.

Through the implementation of Best Management Practices, the Bureau of Land Management fulfills the requirement for federal agencies to comply with all State requirements and programs to control water pollution from nonpoint sources (per Clean Water Act Section 313 and Executive Order 12088). The Bureau of Land Management under a memorandum of agreement with the Oregon Department of Environmental Quality is a "Designated Management Agency charged with implementing and enforcing natural resource management programs for the protection of water quality on federal lands under its jurisdiction" through Best Management Practices.

Best Management Practices are defined as methods, measures or practices which are site specific to protect water quality or soil protective. Best Management Practices include, but are not limited to, structural and nonstructural controls, operations, and maintenance procedures. In this document, Best Management Practices are a compilation of existing policies and guidelines and commonly employed practices to protect water quality and soil productivity.

Best Management Practices are selected during the NEPA interdisciplinary process on a site specific basis to meet overall ecosystem management goals. This document does not provide an exhaustive list of Best Management Practices. Additional measures may be identified during watershed analysis or the NEPA process for a specific activity. The selection and implementation of Best Management Practices initiates an iterative process that includes monitoring the effectiveness and modification when water or soil goals are not achieved.

Best Management Practices

II. Roads

A. Planning

Objective: To plan road systems in a manner that meets resource objectives and minimizes resource damage.

Practices:

1. Use an interdisciplinary process to develop an overall transportation system.

2. Establish road management objectives that minimize adverse environmental impacts given the use of the road.

3. Avoid fragile and unstable areas or plan appropriate mitigation measures.

B. Location

Objectives: To minimize mass soil movement, erosion, and sedimentation.

Practices:

1. Locate roads out of Riparian Reserves where practical alternatives exist.

2. Locate roads on stable positions (e.g. ridges, natural benches, and flatter transitional slopes near ridges and valley bottoms). Implement extra mitigation measures when crossing unstable areas is necessary.

3. Avoid headwalls whenever possible.

4. Avoid construction on unstable areas where practical.

5. Locate roads to minimize heights of cuts. Avoid high, steeply sloping cuts in highly fractured bedrock.

6. Locate roads on well- drained soil types.

7. Locate stream-crossing sites where channels are well defined, unobstructed, and straight.

C. General Design Features

Objective: To design the lowest standard of road consistent with use objectives and resource protection needs.

Practices:

1. Road design standards and design criteria are based on road management objectives such as traffic requirements of the sale and the overall transportation plan, an economic analysis, safety requirements, resource objectives, and the minimization of damage to the environment.

2. Consider future maintenance concerns and needs when designing roads.

3. Preferred road gradients are two to ten percent with a maximum grade of 15 percent. Consider steeper grades in those situations where they will result in less environmental impact (such as a ridge top spur road). Avoid grade less than two percent.

4. Outsloping - Outsloping of the road prism for surface drainage is normally recommended for local spurs or minor collector roads where low volume traffic and lower traffic speeds are anticipated. It is also recommended in situations where long intervals between maintenance will occur and where minimum excavation is desired. Outsloping is not recommended on gradients over eight to ten percent.

5. Insloping - Insloping of the road prism is an acceptable practice on roads with gradients over ten percent where the underlying soil formation is very rocky and not subject to appreciable erosion or failure.

6. Minimize excavation through the following actions whenever possible: use of balanced earthwork, narrow road width, and end hauling where slopes are greater than 60 percent.

7. Locate waste areas suitable for depositing excess excavated material.

8. End haul waste materials generated during road and ditch maintenance if side slopes exceed 60 percent or where unacceptable environmental damage may occur.

9. End haul excess materials where slopes have been over loaded.

10. Surface roads if they will be subject to traffic during wet weather. The depth and gradation of surfacing will usually be determined by traffic type, frequency, weight, maintenance objectives, and the stability and strength of the road foundation and surface materials.

11. Provide for vegetative or artificial stabilization of cut and fill slopes in the design process. Avoid establishment of vegetation where it inhibits drainage from the road surface or where it restricts safety or maintenance.

12. Prior to completion of design drawings, field check the design to assure that it fits the terrain, drainage needs have been satisfied, and all critical slope conditions have been satisfied, and all critical slope conditions have been identified and adequate design solutions applied.

13. Avoid diverting water into headwalls — roll the grade to channel water away from headwalls — check maintenance on existing roads to ensure water isn't allowed to remain on the road and/or diverted into unstable headwall areas.

14. Unless a road is needed for continued resource management, use a temporary road and put it to bed after use, using methods such as blocking, ripping, seeding, mulching, fertilizing, and waterbarring.

15. Minimize potential erosion on a road. If unsurfaced, put it to bed; otherwise apply rock to minimize surface erosion.

19. Restore the disturbed areas back to the natural configurations or shape to direct the runoff to preselected spots where water can be dispersed to natural, well-vegetated, stable ground.

D. Design of Cross Drains

Objectives: To minimize concentrated water volume and velocity on the road prism, thus to reduce movement and sedimentation.

Practices:

1. Design placement of all surface cross drains to avoid discharge onto erodible (unprotected) slopes or directly into stream channels. Provide a buffer or sediment basin between the cross drain outlet and the stream channel.

2. Locate culverts or drainage dips in such a manner to avoid outflows onto unstable terrain such as headwalls and slumps or block failure zones. Provide adequate spacing to avoid accumulation of water in ditches or surfaces through these areas.

3. Provide energy dissipators or armoring at cross drain outlets or drain dips where water is discharged onto loose material or erodible soil or steep slopes.

4. Use the guide for drainage spacing by soil erosion classes and road grade shown in Table D-1.

5. Consider using drainage dips in lieu of culverts on roads which have gradients less than ten percent or where road management objectives result in blocking roads. Avoid drainage dips on road gradients over ten percent.

6. Locate drainage dips where water might accumulate, or where there is an outside berm which prevents drainage from the roadway.

7. Cut all cannon culverts to the proper length, downspout, and provide for energy dissipation.

8. When sediment is a problem, design cross drainage culverts or drainage dips immediately upgrade of stream crossings to prevent ditch sediment from entering the stream.

9. Rolling gradients is a recommended design practice in erodible and unstable soils to reduce surface water volume and velocities and culvert requirements.

10. Consider use of slotted riser inlets on granitic and schist soils to prevent culvert plugging.

E. Design of Stream Crossings

Objective: To preclude stream crossings from being a direct source of sediment to streams thus minimizing water quality degradation and provide unobstructed movement for aquatic fauna.

Practices:

1. Pipe arch culverts are appropriate on most fishery streams. Bottomless arch culverts and bridges will be necessary in some instances where gradients greater than .5 percent, stream discharge and value of the fishery resource dictate that special engineering considerations necessary to ensure uninterrupted fish passage. A round culvert is suitable for nonfishery streams since fish passage is not a concern in these instances.

2. Use the theoretical 100-year flood as design criteria for new culverts, bridges, and other stream crossings.

3. Minimize the number of crossings on streams.

4. Where feasible, design culvert placement on a straight reach of stream to minimize erosion at both ends of the culvert. Design adequate stream bank protection (e.g. riprap) where scouring would occur. Avoid locations that require stream channel to be straightened beyond the length of a culvert to facilitate installation of a road crossing.

5. Evaluate the advantages and disadvantages of a temporary versus permanent crossing structure in terms of economics, maintenance, and resource requirements for access to the area during all seasons over the long tern.

6. Minimize the number of temporary crossings on a particular stream.

7. Low ford stream crossing is appropriate only when site conditions make it impractical or uneconomical to utilize a permanent or temporary crossing structures.

F. Construction

Objective: To create a stable roadway that will minimize soil erosion and water quality degradation.

Practices:

1. Limit road construction to the dry season (generally between May 15 and October 15). When conditions permit operations outside of the dry season, keep erosion control measures current with ground disturbance, to the extent that the affected area can be rapidly closed/blocked and weatherized if weather conditions warrant.

2. Manage road construction so that any construction can be completed and bare soil can be protected and stabilized prior to fall rains.

3. Confine construction to within the roadway construction limits.

4. Conduct construction so as to prevent undercutting of the designated final cutslope and prevent avoidable deposition of materials outside the designated roadway limits. Conduct slope rounding included in the design during the construction when the road cut slope is the same as the road backslope. This avoids excess amounts of soil being moved after excavation and embankment operations are completed.

5. Construct embankments of appropriate materials (no slash or other organic matter) using one or more of the following methods:

a. layer placement (tractor compaction)

b. layer placement (roller compaction)

c. controlled compaction (85-90 percent maximum density).

6. Avoid sidecasting where it will adversely affect water quality or weaken stabilized slopes.

7. Place surface drainage prior to fall rains.

8. Clear drainage ditches and natural watercourses above culverts of woody material deposited by construction or logging prior to fall rains.

9. Confine major culvert installation to the period of June 15 to September 15 to minimize sedimentation and the adverse effects of sediment on aquatic life.

10. Divert the stream around the work area to minimize sedimentation effects downstream.

11. Install the culvert as close to zero percent slope as possible on fishery streams but not to exceed 0.5 percent. Place culverts on larger nonfishery streams in the streambed at the existing slope gradient. Energy dissipators (e.g. large rock) placed at the outfall of culverts on small nonfishery streams are recommended to reduce water velocity and minimize scour at the outlet end.

12. Install stream simulation culverts when feasible to allow for more normal stream function.

13. Confine activities by heavy equipment in the streambed to the area that is necessary for installation of the structure. Restrict construction equipment to within the approved right-of-way and out of the streambed.

14. Permanent stream crossing structures on fishery streams are recommended to be in place before heavy equipment moves beyond the crossing area. Where this is

not feasible, install temporary crossings to minimize stream disturbance.

15. Place riprap on fills around culvert inlets and outlets where appropriate.

16. Where possible, limit the installation and removal of temporary crossing structures to once during the same year and within the prescribed work period. Installation and removal should occur between June 15 and September 15 to minimize adverse effects of sediment on aquatic life.

17. Use backfill material that is as soil free as practicable over temporary culverts. Whenever possible use washed river rock covered by pit run or one inch minus as a compacted running surface.

18. Spread and reshape clean fill material to the original lines of the streambed after a crossing is removed to ensure the stream remains in its channel during high flow.

19. Limit activities of mechanized equipment in the stream channel to the area that is necessary for installation and removal operations.

20. Remove stream crossing drainage structures and in-channel fill material during low flow and prior to fall rains. Reestablish natural drainage configuration.

21. Use washed rock/gravel in a low water ford crossing if it will be used much.
22. Rock the road approaches with 150 feet of each side of a low water ford to prevent washing and softening of the road surface.

23. Construct adequate waterbars on roads, spurs, and skid trails prior to fall rains.

24. Use the following table for waterbar spacing, based on gradient and erosion class.

G. Road Renovation/Improvement

Objective: To restore or improve a road to a desired standard in a manner that minimizes sediment production and water quality degradation.

Practices:

1. Improve flat gradients to a minimum of two percent or provide raised subgrade

sections (turnpike) to avoid saturation of the road prism.

2. Reconstruct culvert catchbasins to specifications. Catchbasins in sold rock need not be reconstructed provided that culvert entrance specifications are met.

3. Identify potential water problems caused by offsite disturbance and add necessary drainage facilities.

4. Identify ditchline and outlet erosion caused by excessive flows and add necessary drainage facilities and armoring.

5. Replace undersized culverts and repair damaged culverts and downspouts. Improve existing culverts, bridges, and other stream crossings to accommodate at least a 100-year flood when they pose a substantial risk to riparian conditions.

6. Add additional full-rounds, half-rounds, and energy dissipators as needed.

7. Correct special drainage problems (i.e. high water table, seeps) that affect stability of subgrade through the use of perforated drains, geotextiles, drainage bays, etc.

8. Eliminate undesirable berms that impair drainage away from the road prism.

9. Restore outslope or crown sections.

10. Avoid disturbing backslope while reconstructing ditches.

11. Surface inadequately surfaced roads that are to be left open to traffic during wet weather.

12. Require roadside brushing be done in a manner that prevents disturbance to root systems (i.e. avoid using excavators for brushing). Exposed soil would be seeded or protected when necessary to keep surface erosion within accepted standards. Install stabilization features such as debris racks, bin walls, and rock blankets as needed.

13. Reconstruct poorly built stream crossings with bridges or culverts, insuring proper alignment and grade.

H. Maintenance

Objective: To maintain roads in a manner which provides for water quality protection by minimizing surface erosion, rutting failures, sidecasting, and blockage of drainage facilities.

Practices:

1. Provide the basic custodial required to protect the road investment and to ensure that damage to adjacent land and resources is held to a minimum.

2. Perform blading and shaping in such a manner as to conserve existing surface material, retain the original crowned or outsloped self-drainage cross section, prevent or remove rutting berms (except those designed for slope protection) and other

irregularities that retard normal surface runoff. Avoid wasting loose ditch or surface material over the shoulder where it will cause stream sedimentation or weaken slump prone areas. Avoid undercutting of backslopes.

3. Keep road inlet and outlet ditches, catchbasins, and culverts free of obstruction, particularly before and during prolonged winter rainfall. However, hold routine machine cleaning of ditches to a minimum during wet weather.

4. Remove slide material when it is obstructing road surface and ditchline drainage and either utilize for needed road improvement elsewhere or place in a stable waste area. Avoid sidecasting of slide material where it will damage, overload, or saturate embankments, or flow into downslope drainage courses.

5. Retain vegetation on cut slopes unless it poses a safety hazard or restricts maintenance activities. Accomplish roadside brushing by cutting vegetation rather than pulling it out and disturbing the soil.

6. Patrol areas subject to road damage during periods of high runoff.

7. Reclaim/revegetate all roads not needed for future management activities.

8. Exposed soil would be seeded or protected when necessary to keep surface erosion within accepted standards.

9. Stabilize major failures (landslides) by subsurface drainage, rock blankets, or other methods.

I. Road Closure/Decommission

Objectives: To prevent erosion and sedimentation of streams from unmaintained roads, and restore site productivity to roads no longer needed.

Practices:

1. Barricade or block road surface using gates, guard rails, earth/log barricades, boulders, logging debris or a combination of these methods. Avoid blocking roads that will need future maintenance (i.e. culverts, potential slides, etc.) with unremovable barricades. Using guardrails, gates or other barricades capable of being opened for roads needing future maintenance.

2. Follow-up on road closures to ensure they are maintained in accordance with design criteria.

3. Install waterbars, cross drains, cross sloping, or drainage dips if not already on road to assure drainage.

4. Consideration will be given to Tilling with a winged subsoiler and revegetating for erosion control and site productivity restoration as appropriate.

J. Water Source Development

Objective: To supply water for road construction, dust abatement and fire protection while maintaining existing water quality and supply and consistent with the Aquatic Conservation Strategy.

Practices:

2. Avoid reduction of downstream flow that would detrimentally affect aquatic resources, fish passage, or other uses.

3. Direct overflow from water holding developments back into the stream.

4. Locate road approaches to instream water source developments to minimize potential impacts in the riparian zone. Rock surface these approaches to reduce the effects of sediment washing into the stream.

6. Construct water sources during the dry season (generally between May 15 and October 15).

C. Watershed Rehabilitation and Fish Habitat Improvement Projects

Objectives: To mitigate and minimize damage to riparian vegetation, streambanks, and stream channels.

Practices:

1. Employ good project planning by an interdisciplinary team.

2. Use corrective measures to repair degraded watershed conditions and restore to predisturbance conditions with a vegetative cover that will maintain or improve soil stability, reduce surface runoff, increase infiltration, and reduce flood occurrence and flood damages.

3. Carefully plan access needs for individual work sites within a project area to minimize exposure of bare soil, compaction, and possible damage to tree roots. Utilize existing trails to the extent practical.

4. Confine work in the stream channels to between June 15 and September 15 to minimize the area of the stream that would be affected by sedimentation during the low flow period.

5. Keep equipment out of streams to extent possible.

6. Limit the amount of streambank excavation to the minimum that is necessary to ensure stability of enhancement structures. Place excavated material as far above the high water marks as possible to avoid its reentry to the stream.

8. Inspect all mechanized equipment daily to help ensure toxic materials such as fuel and hydraulic fluid do not enter the stream.

9. Utilize waterbars, barricades, and seeding to stabilize bare soil areas.

D APPENDIX

ISSUE IDENTIFICATION SUMMARY

The Interdisciplinary (ID) Team identified the following concerns during project design. It was determined that they were not significant issues because: (1) PDF's and management actions (Section II.C.) included in the action alternative would sufficiently mitigate the anticipated environmental impacts of specific activities, or (2) the impacts are within the limits addressed in the ROD/RMP.

Concerns:

Operating in northern spotted owl and other listed species habitat (IDT#2, Sept. 5, 2001)

Discussion: This project would occur in spotted owl, Bald Eagle, and Peregrine habitat.

Mitigation: Normal survey protocol, seasonal restrictions.

Rationale: The Endangered Species Act requires formal consultation on the effects to Threatened and Endangered species prior to project implementation to ensure species are not jeopardized. ESA consultation for T&E wildlife species was accomplished with the US Fish and Wildlife Service (FWS) and the Biological Opinion (BO) was received on May 31, 2001 (Ref. no. 1-15-01-I-270). Terms and conditions of the BO will be applied in order to mitigate impacts to acceptable levels.

Reducing road access for fire & public access (IDT#3, Sept. 27, 2001)
Loss of management opportunities due to decommissioning (IDT#2, Sept. 5, 2001)

Discussion: This project proposes to decommission approximately one mile of road. This would limit public access and also restrict access for fire protection. Concern was also raised about the loss of management opportunities on federal lands with the decommissioning of roads.

Mitigation: The BLM has existing right of way (R/W) agreements with adjacent landowners (permittees) in the project area. Government roads under reciprocal R/W agreements cannot be unilaterally decommissioned. Permission to decommission was pursued with the affected parties. Letters giving approval for decommissioning were received from Western Lane District (Fire Protection Agency), Seneca Jones Timber Co. and Roseburg Resources Co. The roads listed in this EA are the final result of negotiation with and agreement of Right-of-Way permittees who have legal jurisdiction for determining road closures. With the signing of a decision related to this EA document, any of the roads listed could be decommissioned legally in the years to come as funds become available. The team felt other public access will not be affected due to the small amount of decommissioning and the fact that these roads are already currently impassible by a passenger vehicle. There is no administrative need for these roads.

Noxious Weeds and use of native seed for restoration of impacts (IDT#2, Sept. 5, 2001)

Discussion: Noxious weeds could be introduced during operations and nonnative seed could be introduced through seed from seeding of disturbed ground.

Mitigation: Incorporate mitigation measures into the construction contract to prevent and/or control the spread of noxious weeds through equipment cleaning and use of native grasses.

Rationale: An objective of the RMP is to avoid introducing or spreading noxious weeds or introducing nonnative species (RMP, pg. 74). The mitigation measures would have a high probability of preventing, controlling, or reducing the spread of noxious weeds and reduce the need for costly weed eradication in the future.

Water quality and fish habitat related to sediment input (IDT#2, Sept. 5, 2001)

Discussion: Sedimentation caused by project work could adversely affect water quality and fish habitat.

Mitigation: Best Management Practices and Project Design Features to prevent and/or control sediment delivery during construction in riparian areas or streams.

Rationale: Short-term inputs of sediment during project work would be offset by the longterm decrease in sediment delivery. The proposed project consists of enhancement measures that are designed to restore fisheries habitat over a period of decades.

E APPENDIX

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

Element	Relevant Authority	Environmental Effect
Air Quality	The Clean Air Act (as amended)	**Minimal** -Dust particles may be released into airshed as a result of road treatments.
Areas of Critical Environmental Concern	Federal Land Policy and Management Act of 1976 (FLPMA)	**None** - Project area is not within or near a designated or candidate ACEC
Cultural Resources	National Historic Preservation Act (as amended)	**"No Effect"**
Environmental Justice	E.O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	**None** - Minority and low-Income populations would not be adversely or disproportionally effected by this action.
Farm Lands (prime or unique)	Surface Mining Control and Reclamation Act of 1977	**None** - "No discernable effects are anticipated" (PRMP pg. 1-7)
Floodplains	E.O. 11988, as amended, Floodplain Management, 5/24/77	**Minimal** - Project is meant to reconnect 100 yr. floodplain for salmonid species.
Invasive, Nonnative Species	Lacey Act (as amended) Federal Noxious Weed Act of 1974 (as amended) Endangered Species Act of 1973 (as amended) E.O. 13112, Invasive Species, 2/3/99	**Minimal** - "Incorporating…mitigation measures into the proposed project would likely prevent, control, or reduce the spread of noxious weeds on federal lands."
Native American Religious Concerns	American Indian Religious Freedom Act of 1978	**None** - No concerns were noted as the result of public contact

Element	Relevant Authority	Environmental Effect
Threatened or Endangered Species	Endangered Species Act of 1973 (as amended) Recovery Plan for the Pacific Bald Eagle, 1986 Recovery Plan for the Marbled Murrelet, 1997 Biological Opinion and Conference Opinion - Implementation of Land and Resource Plans (USFS) and Resource Management Plans (BLM), March 18, 1997	**None - (Botanical) -** No T&E species observed within the project area (Botanical Clearance Report). **Non-jeopardy - (Wildlife)** - "... not likely to jeopardize the continued existence of the spotted owl, murrelet, or bald eagle..." (FWS Biological Opinion 6/28/99). **May effect (EFH) -** Oregon Coast coho salmon (BO, NMFS, 7/12/2001). T&E species not specifically mentioned do not exist in the analysis area.
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended	**None** - Applicable HazMat policies would be in effect.
Water Quality, Drinking / Ground	Safe Drinking Water Act as amended Clean Water Act of 1977	**None** - Project is not in a municipal watershed or near a domestic water source.
Wetlands/Riparian Zones	E.O. 11990, Protection of Wetlands, 5/24/77	**None** - "The selected alternative [of the FEIS] complies with [E.O. 11990]..."(ROD p. 51, para.7)
Wild and Scenic Rivers	Wild and Scenic Rivers Act (as amended) N. Umpqua Wild and Scenic River Plan (July 1992)	**None** - Project is not within the North Umpqua Scenic River corridor.
Wilderness	Federal Land Policy and Management Act of 1976 Wilderness Act of 1964	**None** - "There are no lands in project area which are eligible as Wilderness Study Areas." (RMP pg. 54)

OTHER RESOURCES CONSIDERED

Resource	Environmental Effect / Concerns
Land Use (Leases, Grazing etc.)	**None** - Roads are encumbered under Right-of-Way Agreements # R-645A (Seneca Jones) #R-659 and #R-876 (Roseburg Resources Co.).
Minerals	**None** - Project has no mining claims.
Recreation	**None** - Cavitt Creek Campground (BLM) and Shadow Falls Trail #1504 (USFS) are in the Cavitt Creek area but are not affected by the proposed action.
Visual	**None** - Project does not effect visual resources.
Other (Adjacent Landowners)	**None** - Letters sent to notify adjacent landowners.

F APPENDIX

ESSENTIAL FISH HABITAT (EFH) CONSULTATION ASSESSMENT

The Magnuson-Stevens Act (MSA) also established an EFH consultation process. The MSA requires consultation for all federal agency actions that may adversely affect EFH, and it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and up slope activities that may have adverse affect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of its location. The NMFS must provide conservation recommendations for any Federal or State activity that may adversely affect EFH. Within 30 days of receiving EFH conservation recommendations from the NMFS, Federal agencies must conclude EFH consultation by responding to NMFS with a written description of conservation measures the agency will use to avoid, mitigate, or offset the impact of its action on EFH. If the Federal agency selects conservation measures, which are inconsistent with the conservation recommendations of NMFS, the Federal agency must explain in writing its reasons for not following NMFS recommendations.

The proposed project area in the EA **occurs** within the area designated as EFH for coho salmon. The Magnuson-Stevens Act requires consultation for all federal agency actions that may adversely affect EFH. Salmon EFH excludes areas upstream of longstanding naturally impassible barriers (i.e., natural waterfalls in existence for several hundred years) and is those habitats occupied at present and those historic habitats in the Roseburg District boundaries. This includes mainstem streams and most tributaries below natural barriers to upstream migration. Salmon EFH includes aquatic areas above all artificial barriers except the Soda Springs Dam in the North Umpqua River (USGS Hydrologic Unit 17100301). However, activities occurring above impassible barriers that are likely to adversely affect EFH below impassible barriers are subject to the consultation provisions of the Magnuson-Stevens Act.

The proposed actions in this EA will have an adverse affect to coho salmon EFH based on the following referenced rationale.

Impacts to EFH Oregon Coastal Coho Salmon.

Project description as it relates to EFH:

The Cavitt Creek Restoration Project proposes to replace three existing “fish barrier” culverts with “fish passage culverts” and one road decommissioning within EFH for coho salmon.

Analysis of project impacts to EFH:

Both decommissioning and restoration require substantial earth movement within and near stream channels as culverts are removed or replaced and as culvert outflows are modified. Substantial portions of roads and ditchlines would be modified, and soil would be bared in locations that are now relatively

stabilized on the surface with vegetation. In the short term, this work may result in surface soil erosion and sediment delivery to streams containing coho salmon. The impacts can be expected to be worst during the first winter following the work, lessening over the next few years as vegetation reestablishes and surface erosion control measures become operational.

Restoration does not remove all potentially failing road and culvert fills, nor does it guarantee fish passage at modified culverts. Ditchline water diversions and water drainage onto unstable slopes remain possible on restored roads. Some fill material in roadbeds and surrounding culverts may remain susceptible to failure during storm events. On the other hand, decommissioning can be expected to alleviate culvert-related fish passage problems, and it removes the risks of plugged culverts and water diversion potential in both culverts and ditches.

Conclusion of affects on EFH:

The proposed project will have short-term impacts with adverse affects on EFH for Coho salmon during the culvert replacements and road decommissioning. These impacts are unavoidable and would be minimized to the fullest extent practicable. The long-term benefit to the EFH is improved habitat to approximately thirty-two miles of streams. In addition, the proposed project would open up approximately six miles of potential habitat by removing existing fish barriers.

Consultation:

The proposed project is in compliance with the National Marine Fisheries Service (NMFS) Programmatic Biological Opinion dated 8 August 2001. Therefore, further consultation with NMFS is unnecessary.