

CHAPTER 3- ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

The cumulative effects discussed in this chapter include an analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the proposed action and its alternatives may have a continuing, additive and significant relationship to those effects. The cumulative effects of the proposed action and the alternatives in this analysis are primarily based on the aggregate effects of the past, present and reasonably foreseeable future actions. Individual effects of past actions have not been listed or analyzed and are not necessary to describe the cumulative effects of this proposal or alternatives (CEQ Memorandum, Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, June 24, 2005).

Middle Fork District Road Analysis Process

Middle Fork Ranger District completed a roads analysis that recommended which roads to retain, which roads to close and the appropriate level of maintenance.

The objective was to balance funding levels available for road maintenance with needs for access in a manner that minimized road related effects to resources.

Each road segment was evaluated for its potential affects to the primary interests. When the ranking to close the road was equal to the ranking to keep it open the automated system highlighted the need for an interdisciplinary discussion. This discussion and a landscape look at the individual road segment resulted in a consensus recommendation for the road.

Once all recommendations were finalized, a visual landscape assessment of the road system was made to ensure that road recommendations were viable and complied with pertinent policy and direction.

Road use on the Middle Fork Ranger District can be considered from four primary interests; Public Use, Administrative Use, Aquatic Values and Terrestrial Values. These interests can be evaluated by answering the following questions. To further refine the analysis numerous subcomponent questions must also be answered.

Public Uses:

Which roads are important to recreational uses?

Which roads are important for permitted uses?

Which roads are important for mineral uses?

Which roads are important to heritage uses?

Administrative Uses:

Which roads are important to access silvicultural treatments?

Which roads are important to access for fire suppression?

Which roads are important to access for management of the timber sale program?

Which roads are important for access to road maintenance developments?

Which roads are important to access other ongoing administrative needs?

Terrestrial Values:

Is this road undesirable to big game resources?

Is this road undesirable for threatened, endangered or sensitive species?

Is this road undesirable for survey and manage species as listed in the Northwest Forest Plan?

Is this road undesirable to botanical resources?

Aquatic Values:

Is this road undesirable to nearby fish stock?

Which roads have undesirable stream crossings and surface types for aquatic resources?

Which roads have a high failure risk that would impact the aquatic resource?

The Roads Analysis process considered that a decrease in maintenance funding over the past several years has allowed the National Forest road system to rapidly degrade and close itself through lack of maintenance. There is a need to complete an environmentally sensitive and comprehensive plan to systematically reduce the risk of continued and increasing damage to the associated resources. This approach was completed in an interdisciplinary manner analyzing road uses and needs of the land. The process was thorough enough to ensure that the revised transportation system is sufficient to address the long-term needs of the District as well as those of the neighboring Districts, forest users, and owners of adjacent lands. Implementing the analysis recommendations would allow the remaining road maintenance funds to be concentrated on providing a safer, more environmentally sensitive transportation system that protects natural resource values.

Table 6 – Summary of Rating from District Road Analysis

Road Number	Miles	Road Analysis Ratings				Road Analysis
		ADMN	PUBLIC	AQU	TERR	Prescription
2100401	0.25	M	L	H	M	close
2100416	1.192	M	L	H	H	close
2100420	0.138	M	L	M	M	close
2120424	0.811	M	L	M	H	close
2120425	3.079	M	L	M	H	close
2120428	0.815	M	L	M	H	close
2144326	0.241	L	L	M	L	close
2143316	0.249	H	L	L	H	close
2144319	0.472	M	L	L	H	close
2144320	0.848	M	L	M	M	close
2149408	2.2	M	L	M	H	close
2149415	0.831	M	L	M	H	close
2149416	1.023	M	L	M	H	close
2149417	0.99	M	L	L	H	close
2149421	0.25	M	L	H	H	close
2153350	0.805	H	L	L	M	c.after sale
2153352	1.349	M	L	H	H	close
2153357	0.212	H	L	H	H	close
2153357	1.152	H	L	H	H	close
2153373	0.388	H	L	M	H	c.after sale
2153378	0.287	H	L	L	H	close
2153392	0.325	M	L	M	H	close
2153395	0.169	H	L	M	L	close-BGEA
2154367	0.528	H	L	M	L	close
2154241	0.533	M	L	L	M	close
2154382	0.383	H	L	L	L	close
2154382	0.306	H	L	L	M	close
2154395	0.76	M	L	L	H	Close
2160369	0.214	L	H	M	L	close-BGEA
2160403	0.362	M	L	L	M	close
2300417	0.117	H	L	M	L	close
2300417	0.342	M	H	M	L	close
2300419	0.239	H	L	H	L	close
2300425	1.35	M	L	M	H	Close
TOTAL	23.21					

Recreation and Public Access

Recreational use occurs over the general area of the watershed, but is concentrated in Riparian Reserves found along the Middle Fork of the Willamette River, its tributaries, and lakes. High use areas are the Middle Fork of the Willamette River, Diamond Peak Wilderness, and the Timpanogas Basin. However, timber harvest, hunting, hiking, mountain biking, driving for pleasure, and similar recreation or economic activities do take place in the remainder of the watershed.

Significant Issue - Closing and storing roads in the Upper Middle Fork watershed would limit access for recreation and forest activities that are based upon driving motorized vehicles on roads to access areas of public interest. Decreased access to some roads in the project area could potentially affect activities such as camping, pleasure driving on the forest roads, hunting, firewood gathering, and recreation.

Direct and Indirect Effects

Three of the four alternatives formulated for this project would affect recreational use in the project area to varying degrees.

Under the No Action Alternative 1 none of the roads considered in this proposed project would be closed; there would be no immediate change to the recreational use. Travel would continue as long as road conditions permit and administrative and public access would become increasingly more difficult and unsafe.

Action Alternative 2 would close approximately 23 miles of road to motorized vehicle traffic. This alternative limits access for some recreation while it allows entry into the area by foot.

Action Alternative 3 would close approximately 18.4 miles of road to motorized vehicle traffic. Alternative 3 considers leaving some roads open for administrative purposes. This alternative would not impact recreation as much as Alternative 2; it would still limit some recreational access.

Alternative 4 would not block access to any of the roads being considered for treatment. The roads would have rolling dips installed to mitigate drainage structure problems and would be accessible to most vehicles.

Action Alternatives 2, 3 and 4 have varying degrees of impact to the public access, 2 and 3 would decrease motorized public access to the forest areas. Alternative 2 would close approximately 23 miles of road. Alternative 3 would close approximately 18.44 miles of road. Alternative 3 could potentially allow more area of the forest to be open to the public for motorized. Alternative 2 could decrease public access for motorized activities into the forest.

Cumulative Effects

The cumulative effects analysis area was the project area defined by the Upper Middle Fork of the Willamette River fifth field watershed. Alternative 1 (No Action) would have no cumulative effect to recreation or public access because it would not close any roads. Alternative 2 would close 7.0% of the total roads in the watershed. Alternative 3 would

close 3.9 % of total roads in the watershed. Alternative 4 would have no cumulative effect to recreation or public access because it would not close any roads.

Soils, Water Quality and Fisheries

Soils

Alpine glaciations have extensively modified the topography of the Upper Middle Fork watershed. U-shaped valleys with wide, flat bottoms and steep side slopes dominate the landscape. Hanging valleys, alpine lakes, and cirque basins are common features in the upper stream reach channels.

The steep valley sidewalls are prone to debris slides, both naturally occurring and management related (road construction and timber harvest). Debris slides in this area generate frequent pulses of coarse soil and woody debris which may or may not be carried to the streams.

Approximately 50% of the project area is characterized by steep ground with shallow, erosive soils. Air photo reconnaissance indicates that approximately 77% of harvest related debris slides occur in this geomorphic setting.

The dominant erosion processes affected by road conditions, density, use, and location are mass movement from landslides and surface erosion from road ditches. Specifically, coarse sediment input to the stream systems has increased as a result of landslide activity. Likewise, fine sediment input to stream system has increased as a result of increased effective drainage density. Roads located in steep areas on highly erosive, shallow soils, and moderate to high storm response has exacerbated these conditions.

Water Quality

Essentially, the history of streams temperatures reflects this cool glacial valley typical of the western Cascades. Water temperatures are generally less than 50 degrees Fahrenheit in the upper elevations and between 51 and 54 degrees in the lower main stem reaches. While many tributaries of the Middle Fork usually meet the summer temperature standard themselves, some of other tributaries of the Middle Fork probably contribute to the cumulative temperature increases which are occurring in the main stem.

Increases in stream temperature are usually associated with the riparian reserve conditions. Almost 35% of riparian stands have been harvested in the watershed. Stream shading will continue to improve over the next 25 years as previously harvested riparian reserves stands mature. Riparian vegetation is critical for stability of erodible banks and bars, maintaining side channels, and recruitment of coarse woody debris into the stream channels.

Significant Issue - Allowing these roads to remain open and doing no maintenance would result in higher risks of slope failure, soil movement and sediment input into streams. Un-maintained roads have the potential to have adverse affects to water quality and fish habitat.

Direct and Indirect Effects

Alternative 1 – No Action would continue the current conditions. The road segments would continue to degrade from lack of maintenance. The environmental effects of allowing access to these roads and doing no maintenance would result in higher risks of slope failure, soil movement and sediment input into streams. The potential for mass failure would increase over time. Alternative 2, 3, and 4 would have positive benefits by improving current conditions and reduces the potential for road related sedimentation. Potential runoff problem areas and land stability problems would be improved with the proposed road restoration work. Sedimentation may be increased for a short term but would be reduced in the long term. No new detrimental soil conditions are anticipated from the action alternatives. No long term adverse soil and water effects are anticipated from the implementation of this project. Best Management Practices (BMP) practices would be used for erosion control and minimizing the road related sediment potential. The following are those BMPs considered for this project: R-2 Erosion Control Plan, R-3 Timing of Construction Activities, R-5 Road Slope and Waste Area Stabilization (Preventive), R-7 Control of Surface Road Drainage Associated with Roads;; and R-18 Maintenance of Roads. There would be no effects to stream temperature of the area or any change to the Middle Fork 303d listing for water quality limited stream temperatures. No streamside vegetation would be affected by the proposed road restoration work.

Cumulative Effects

The cumulative effects analysis area was the Upper Middle Fork fifth field watershed. No detrimental cumulative soil and water effects are anticipated from the proposed actions alternatives or other projects in the area. Cumulatively reducing the miles of roads that could produce sediments would be positive for the soil and water resources and overall watershed conditions. .

The Upper Middle Fork Willamette Watershed Analysis was used to focus the work in the recommended areas and provided the approach to reduce the road related sediment input to the streams of the area which benefit aquatic habitat. The ACS objectives set forth in the NWFP have been met. The standard and guidelines of the NWFP are intended to focus the review of proposed projects to determine watershed scale compatibility with ACS objectives. This project would contribute to maintaining and restoring the 5th field watershed over the long term.

Aquatic Conservation Strategy Objectives

The alternatives would have the following effects on the Aquatic Conservation Strategy objectives presented on page B-11 of the Northwest Forest Plan Standards and Guidelines (USDA/USDI, 1994).

Implementation of any of the action alternatives would be consistent with attainment of Aquatic Conservation Strategy objectives 4 (maintain and restore water quality) and 5 (maintain and restore sediment regime). Action Alternative 2 would stabilize a greater area and would therefore contribute more toward long-term attainment of ACS objectives than would Alternatives 3 and 4. Under the No Action Alternative, there would be a greater risk of road related failures in the future, potentially leading to adverse affects on

water quality, sediment regime, instream habitat, and distribution of sediment to the riparian areas.

Fisheries

Fish species currently inhabiting the Middle Fork Willamette Watershed include spring Chinook salmon, bull trout, rainbow trout, cutthroat trout, sculpin, lamprey, mountain whitefish, large scale suckers, dace, red side shiners, and northern pike minnow. Spring Chinook salmon are indigenous to watershed, however upstream migration was blocked in the late 1950's and early 1960's by the construction of Dexter, Lookout Point, and Hills Creek Dams. Spring Chinook salmon are stocked in Lookout Point Reservoir by the Oregon Department of Fish and Wildlife (ODFW) to support a sport fishery. In 1993, ODFW began transporting pre-spawned adult spring Chinook salmon into the Middle Fork Willamette, upstream of Hills Creek Dam. These adult salmon successfully spawn and the juveniles spend approximately one year near the spawning grounds before emigrating towards the sea. Emigrating salmon effectively pass through the turbine and regulating outlets of Hills Creek and Lookout Point Dams and are assumed to pass through Dexter Dam. Spring Chinook salmon do occupy habitat downstream of the project area.

Historically, bull trout inhabited the Middle Fork Willamette River and associated tributaries. Since 1997, the Forest Service and ODFW have reintroduced more than 10,000 bull trout into several sites above Hills Creek Dam in the watershed. Bull trout occupy areas downstream of the project area.

The purpose of this project is to bring these roads closer to meeting specified resource direction and to increase the Districts ability to perform adequate road maintenance with existing budgetary constraints. Closure methods would include a combination of techniques that would stabilize and increase the overall integrity of the road network. Individual closure methods are site specific to each road and the surrounding circumstances, but could include the following techniques; 1) Berm, construct a berm or ditch at the entrance to close the road to prevent vehicular access, 2) Ditch over culverts construct a ditch in the road bed above a culvert to keep streams confined to the existent streambed, 3) Waterbar, construct a berm and ditch in the road bed to deflect water off the road and into a suitable area, 4) Culvert removal, remove existing culverts and re-contour stream banks to original integrity, Ditch cleaning, clearing brush from ditches so as they operate efficiently and effectively.

Consultation

Road decommissioning and obliteration activities are included in the Northwest Programmatic Biological Assessment for on-going activities affecting bull trout and Upper Willamette spring Chinook salmon. This category allows for the removal or stabilization of unnecessary, unstable, or poorly designed and constructed roads or portions of roads with an overall goal of restoring hydrologic function in the watershed. The effects determination for activities associated with the Upper Middle Fork Watershed Restoration Project is May Affect, Not Likely to Adversely Affect (NLAA) bull trout and spring Chinook salmon, because the project would not transmit sediment to stream channels and the work would largely be completed outside of riparian reserves.

The Middle Fork Ranger District began consultation with National Marine and Fisheries Service (NMFS) for spring Chinook salmon when critical habitat was listed upstream of an Ecologically Significant Unit (ESU) on February 16, 2000. On May 7, 2002 NMFS withdrew critical habitat designations for ESA listed Pacific anadromous salmonids. The project also occurs within the United States Fisheries and Wildlife Service (USFWS) designated Lower Columbia River bull trout Distinct Population Segment (DPS). The USFWS has not yet finalized designated critical habitat for bull trout within the DPS.

Consultation requirements for the Upper Middle Fork Watershed Restoration Project have been met through the Programmatic Biological Assessment with the US Fish and Wildlife Service and the National Marine Fisheries Service. Therefore no further consultation is necessary.

Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Act do not include habitat above Hills Creek Dam. The proposed project effects are short-term in nature with the long-term benefits outweighing short-term effects resulting from the project. It is further determined that the project would not exceed the "May Adversely Affect" EFH threshold and is therefore not subject to EFH consultation with NMFS.

The Regional Forester's Sensitive Species List was revised in November 2000 and currently there are no fish or aquatic macro invertebrates to address in Biological Evaluations. The purpose of this analysis is to review the project and address any concerns relating to fisheries.

Management Indicator Species and Best Management Practices

Resident salmonids (rainbow and cutthroat trout) and other aquatic species are Management Indicator Species in the Willamette Land and Resource Management Plan. As Management Indicator Species, federal projects need to ensure the viability of these species when conducting activities on National Forest System land; therefore the following conditions must occur:

- 1) Ensure a professional fisheries biologist is involved in the design of the project.
- 2) Do not dispose waste on active floodplains (approximately 100 feet from the stream channel).
- 3) Leave vegetation in ditches, when possible.
- 4) Stabilize potential erosion areas and control sedimentation.
- 5) Maximize activities during dry season to avoid wet periods.
- 6) Follow ODFW guidelines for in-water work period.

Economics

This project incorporates by reference the Willamette National Forest Road Analysis Report (USDA, 2003). One of the key findings the report is the dilemma of managing an extensive forest road system with limited operating funding. The Forest Road Analysis Report estimates \$3.4 MM per year is needed "on the ground" to perform the necessary annual maintenance. Total funding to the Forest is \$1.4 MM per year, leaving an estimated budget shortfall of \$2 MM per year. The direction in Forest Service Manual 7703 establishes policy to determine and provide for the minimum forest transportation

systems that best serves forest management objectives as identified in appropriate Land and Resource Management Plans. The policy also states that it is important that road analysis consider access needs in relation to realistic funding levels. Based on the funding levels and annual maintenance costs, there is more than \$1MM annual shortfall even if the network of Key Forest roads are fully maintained to their current objective maintenance levels.

Another key findings from the Forest Roads Analysis that pertains to the project is that economics alone (financial efficiency) do not support large scale road closures or decommissioning in spite of the current imbalance in funding available for forest roads. Road decommissioning is a capital investment, just as road construction was, and decisions regarding these investments must be based on a sound analysis of resource values.

Significant Issue - There are several different methods and treatments to close and put a road into a hydrologically stable and stored condition. Each of these methods has a cost related to the implementation of the project and a longer term cost to maintenance the closure, and then the cost of re-opening the roads when they are needed in the future.

Direct and Indirect Effects

An estimated \$96,000 would be needed to maintain the road for the next 25 years in Alternative 1 – No Action. This cost does not include the potential value of degraded water quality and aquatic habitat.

Alternative 2 would cost an estimated \$44,738 to implement the treatments prescribed in this alternative. If and when these roads are needed in the future, the estimated cost to restore and open these roads would be about \$44,738.

Alternative 3 would cost an estimated \$90,712 to implement the treatments prescribed in this alternative. If and when these roads are needed in the future, the estimated cost to restore and open these roads would be about \$43,414.

Alternative 4 would cost an estimated \$278,780 to implement the treatments prescribed in this alternative. If and when these roads are needed in the future, the estimated cost to restore and open these roads would be about \$15,600.

Table 7 – Summary of Costs by Alternative

Cost	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3	Alternative 4
Cost to Implement Treatments*	\$96,000	\$44,738	\$90,712	\$278,780
Cost to Restore & Open Roads	0	\$44,738	\$43,414	\$15,600
Total	\$96,000	\$89,476	\$134,126	\$294,380

*Note: Cost to Implement includes costs of Best Management Practices (erosion control, etc)

Vegetation

Botany

Forest management activities that may impact populations of or alter habitat for PETS (Proposed, Endangered, Threatened, or Sensitive) species require a Biological Evaluation (FSM 2671.44) to be completed. The Biological Evaluation process (FSM 2672.43) is used to assist in determining the possible effects the proposed management activities have on:

- a) Species listed or proposed to be listed as endangered (E) or threatened (T) by the U.S. Fish and Wildlife Service (FWS).
- b) Species listed as sensitive (S) by the USDA Forest Service, Region 6. There are 71 organisms listed on the Regional Forester's Sensitive Botanical List that are documented or suspected to occur on the Willamette National Forest (Attachment 1).

The area was reviewed to determine the presence of known sites or habitat for 71 Region 6 sensitive species. Using the current list of potential PETS species (compiled from USFWS listings, Oregon Natural Heritage Program listings, Oregon Department of Agriculture listings, and the Regional Forester's sensitive species list), maps of known sensitive plant populations were checked for previously reported sites and aerial photos and topographical maps were scrutinized for potential habitat. The Interagency Species Management System (ISMS database) was queried to determine if any sensitive species previously categorized as survey and manage occur in or adjacent to project areas.

There are no documented sites of sensitive lichen, fungi and plant species in the vicinity of the proposed road storm proofing areas.

For the vascular plants *Iliamna latibracteata*, *Montia howellii* and *Cimicifuga elata*, listed as potentially occurring along road sides proposed for treatment, a potential direct effect could be localized disturbance of individual plants should they occur in the road prisms from road maintenance work. The lichen *Usnea longissima* is found in the branches of conifers and hardwoods; any disturbance to branches could also disrupt lichen populations. Though this species is currently listed sensitive in Region 6, it is not considered to be rare on the Willamette National Forest. No threats from new invader noxious weeds have been identified.

Direct and Indirect Effects

We determined that activities associated with the proposed action "May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Loss of Viability for the Population or Species". Implementation of this project is expect to result in a low likelihood of risk to the persistence of populations of sensitive plants listed on the Regional Forester's (Region 6) list of sensitive plant species that have the potential to occur in the project area.

Table 8: Upper Middle Fork Watershed Restoration – Road Storm Proofing, Middle Fork Ranger District: Summary of Botany Effects

Species/Functional Group	
<i>Iliamna latibracteata</i>	MIIH
<i>Cimicifuga elata</i>	MIIH
<i>Montia howellii</i>	MIIH
<i>Usnea longissima</i>	MIIH

Wildlife

The following summarizes effects or impacts determinations to species that have suitable habitat identified as either known to occur, or suspected to occur within the project area.

Threatened, and Endangered Species

Table 9 – Summary of the Biological Evaluation process for Willamette TES (or Proposed) fauna associated with proposed Upper Middle Fork Watershed Storm Proofing/Restoration Project.

	<i>Prefield Review</i>	<i>Field Recon.</i>	<i>Risk Assessment</i>	<i>Analysis of Significance</i>	<i>USFWS Review</i>
SPECIES	Habitat Present (B,R,F,D)*	Occupancy Status	Conflicts?	Effects / Impacts	Consultation BA ¹ /BO ²
Northern Spotted Owl <i>Strix occidentalis caurina</i>	No, All activities within road prism	Unknown	No Conflict	NoEffect Seasonal Restrictions 3/1-7/15	NA
Northern Bald Eagle <i>Haliaeetus leucocephalus</i>	No				
Canada Lynx <i>Lynx canadensis</i>	No				
Least Bittern <i>Ixobrychus exilis</i>	No				
Bufflehead <i>Bucephala albeola</i>	No				
Harlequin Duck <i>Histrionicus histrionicus</i>	No				
American Peregrine Falcon <i>Falcon peregrinus anatum</i>	No, All activities within road prism	Unknown	No Conflict	NoEffect- Seasonal Restrictions 1/15-7/31	NA
Yellow Rail	No				

	<i>Prefield Review</i>	<i>Field Recon.</i>	<i>Risk Assessment</i>	<i>Analysis of Significance</i>	<i>USFWS Review</i>
SPECIES	Habitat Present (B,R,F,D)*	Occupancy Status	Conflicts?	Effects / Impacts	Consultation BA¹/BO²
<i>Coturnicops noveboracensis</i>					
Black Swift <i>Cypseloides niger</i>	No				
Tricolored Blackbird <i>Agelaius tricolor</i>	No				
Baird's Shrew <i>Sorex bairdii permiliensis</i>	No				
Pacific Shrew <i>Sorex pacificus cascadenis</i>	No				
Wolverine <i>Gulo gulo</i>	No				
Fisher <i>Martes pennanti</i>	No				
Pacific Fringe-tailed Bat <i>M. thysanodes vespertinu</i>	No				
OR Slender Salamander <i>Batrachoseps wrighti</i>	No				
Cascade Torrent Salamander <i>Rhyacotriton cascadae</i>	No				
Foothill Yellow-legged Frog <i>Rana boylei</i>	No				
Oregon Spotted Frog <i>Rana pretiosa</i>	No				
Northwestern Pond Turtle <i>C. marmorata marmorata</i>	No				
Mardon Skipper <i>Polites mardon</i>	No				
Crater Lake Tightcoil <i>Pristiloma arcticum crateris</i>	No				
Great Gray Owl <i>Strix nebulosa</i>	No				

Northern Spotted Owl

The northern spotted owl is a species strongly associated with old-growth forests containing a component of large diameter Douglas-fir. These forest stands commonly provide a variety of structural features such as large diameter trees having central cavities, dense canopies with a high level of vertical and horizontal diversity, and abundance of snags and down logs. Stands with all these characteristics provide the best suitable (nesting, roosting, foraging) habitat for spotted owls. However, all of the above characteristics may not need be present for spotted owls to make use of an area as nesting, roosting or foraging habitat. The owl's affinity to old-growth forest types also results from the adaptation of this species to foraging on prey animals commonly present in such stands and the lack of predation pressure and interspecies competition typical of more open areas. Nevertheless, spotted owls have been known to forage short distances into clearcut openings from a forested edge if a prey item is detected.

Dispersal-only habitat for the northern spotted owl generally consists of mid seral stage stands between 40 and 80 years of age with canopy closures of 40 percent or greater and trees with a mean DBHs of 11 inches or greater. Older stands lacking structural development that supports nesting may be considered dispersal habitat, and on some occasions may provide roosting or foraging opportunities for the species. Spotted owls generally use dispersal habitat to move between blocks of suitable habitat or, for juveniles, to disperse from natal territories.

A detailed account of the biology and ecology of the northern spotted owl may be found in the following documents: 1987 and 1990 U.S. Fish and Wildlife Service Status Reviews (USDI 1987 and 1990); the 1989 Status Review Supplement (USDI 1989); the conservation Strategy for the Northern Spotted Owl/Interagency Scientific Committee (USDA and USDI 1990); and the draft Recovery Plan for the Northern Spotted Owl (USDI 1992).

Direct, Indirect, and Cumulative Effects

The Upper Middle Fork Watershed Storm Proofing/Restoration Project proposes no habitat modification that would affect spotted owls. Activities that may disturb spotted owls in suitable habitat would be restricted from occurring throughout the breeding season. Due to location and type of proposed activities, along with implementation scheduling there are no recognized direct, indirect, or cumulative effects to spotted owls or critical habitat from this project

Implementing the following recommendation would ensure effects or impacts on listed species from proposed activities would be no greater than those addressed in this document, and also would mitigate those impacts.

Seasonally restrict all action alternatives for road maintenance operations that may be proposed to occur within .25 mile of suitable spotted owl habitat so that activities do not occur between March 1 and July 15th unless located within or adjacent to a LSR/CHU, then March 1-September 30th.

No current spotted owl suitable or dispersal habitat would be modified by this proposal, and activities that may disturb spotted owls in any adjacent suitable habitat throughout the breeding season (March 1-July15th and WHERE the project occurs in or adjacent to an LSR/CHU the restrictions would be March 1st –September 30th) would be restricted from occurring.

Consultation

This project is covered under the Programmatic Disturbance BA/BO and a Letter of Concurrence from USFWS dated March 1, 2006.

American Peregrine Falcon

In the Pacific states, preferred peregrine falcon nesting sites are sheer cliffs 150 ft. or more in height with horizontal ledges (USFWS 1982). On the Willamette National Forest, cliffs with potential for nesting by peregrine falcons include those that are at least 75 feet high, have horizontal ledges, ledges with overhangs or cave-like openings, have sheer faces inaccessible to ground predators and within .5 miles of riparian habitat. Peregrine falcons feed almost exclusively on birds, many of which may be associated

with riparian zones, large bodies of water or an abundance of snag habitat. Other small birds on which peregrine falcons feed are present in drier open areas, particularly where hardwood shrubs and trees are abundant. Some avian prey species select for closed coniferous forest. Peregrine falcons can forage widely for prey and would hunt over closed coniferous forest canopies as well as in open areas and over hardwood patches - wherever prey is abundant.

There is no suitable peregrine nesting habitat in the immediate vicinity of the project area. Portions of the project area where activities are proposed (all within the road prism) are within primary, secondary and tertiary management zones for one known nearby peregrine nest site (OE:23). The portions of road (see highlighted table attached) that fall within these areas are seasonally restricted from Jan 15th-July 31st. Unless determined by District Biologist to be in non-occupied status. See tables with appropriate restrictions.

Adult and young peregrines from the nearby nest sites are known to forage for avian prey in watersheds surrounding the project area. Young peregrines may linger in this type of habitat while dispersing from the nest site. Proposed road improvement activities would not affect peregrines at the nest ledge. Some activities associated with this project occurs in both primary, secondary and tertiary zones could result in indirect disturbance to peregrines by influencing prey behavior and foraging success. However, due to the scale of this project, the type of activities, and proposed scheduling, minimal risk of disturbance is expected by these project activities.

Direct, Indirect and Cumulative Effects

Due to location, scale, and proposed project scheduling, there are no recognized direct or indirect effects to peregrine falcons as a result of this project. Although small and considered unquantifiable, cumulative effects to this species should be positive as overall biodiversity increases in response to these and future treatments within the planning area that encourage restoration of the former savanna habitat.

Management of this area under the Willamette Forest Plan, as amended by the the ROD should provide a long term increasing trend in the quality of suitable foraging and dispersal habitat for peregrine falcons. Activities as proposed under Upper Middle Fork Watershed Storm Proofing/Restoration Project would not result in modification of peregrine nesting habitat, and would avoid disturbance to the species during the breeding season.

There would be no effect to peregrine falcons or their habitat.

Seasonally restrict all action alternatives for road maintenance operations that are proposed within peregrine zones as defined in Table 10. (January 15th and July 31st).

Conclusions

Direct, indirect, and cumulative effects of the action alternatives 2, 3, and 4 in conjunction with other projects in and adjacent to the project area are not expected to jeopardize the continued existence of any TES species or result in a permanent adverse modification of their essential habitat; nor would they likely contribute to a trend towards Federal listing or cause a loss of viability to populations of species designated as R-6 Sensitive or as Management Indicator Species on the Willamette National Forest.

Maintenance and restoration of intact dispersal corridors surrounding the area would ensure ongoing opportunities for movement of spotted owls and other late-successional forest related TES.

Table 10 – Summary of road with Seasonal Restrictions

Road Number	ID	Miles	Seasonal Restriction	Remark
2100401	414	1.35	1/15-7/31	Peregrines
2100420	153	0.13	1/15-7/31	Peregrines
2120425	44	3.07	3/1-9/30	LSR
2149408	301	2.20	1/15-9/30	LSR
2149415	125	0.83	1/15-9/30	LSR
2149416	356	1.02	1/15-9/30	LSR
2149417	384	0.99	1/15-9/30	LSR
2153357	785	0.21	3/1-9/30	LSR
2153357	814	1.15	3/1-9/30	LSR
2300425	7	1.35	1/15-9/30	LSR
TOTAL	MILES	12.30		

Survey and Manage Species

The project area was assessed for habitat of the following Survey and Manage Species:

Crater Lake tightcoil - *Pristiloma arcticum crateris*,

Great gray owl - *Strix nebulosa*,

Red tree vole - *Phenacomys (Arborimus) longicaudus*,

Cavity Nesters, white-headed woodpecker, black-backed woodpecker, Pygmy nuthatch, flammulated owl

Bat roost sites – caves, mines, etc.

No habitat for any of the above listed species would be disturbed by the project. Therefore, all of the alternative would have no effect on any of these species.

Big Game Habitat

The management objectives for deer and elk habitat are applied to specific mapped “Emphasis Areas” within the Forest. The project area encompasses all, or a portion of seven Big Game Emphasis Areas (BGEA). Emmigrant Beaver and Spider Plus are designated as high level emphasis area. Swift Head, Echo East and Paddy’s Valley are designated as a moderate level emphasis area, and two small area named Douglas Lane and Coulee Moss are designated as a low level emphasis area. Forest Plan Standards and Guidelines (S&G) (FW-137) directs the use of a model to evaluate the effects of projects on habitat within BGEAs.

High road densities in Spider Plus, Swift Head, Echo East and Paddy’s Valley all exceed the Forest Plan standard for open road densities.

Direct and Indirect Effects

Alternative 1 (No Action) would not close any roads and current open road densities would remain the same. Big game would continue to be disturbed from motorized vehicle traffic on these roads.

Alternative 2 would close the most miles of roads and decrease the roads densities in these areas. The open road densities would result in lower levels of disturbance to big game habitat.

Alternative 3 would close the second most roads out of all the action alternatives and reduce the open roads densities.

Alternative 4 would not close any road and current open road densities would remain the same. Big game would continue to be disturbed from motorized vehicle traffic on these roads.

Cumulative Effects - Big Game Habitat

The cumulative effect analysis area is also defined by the big game emphasis areas. Past, present, and foreseeable actions were considered in the analysis and model during the mapping of habitat conditions. In a general context, cumulative effects of the Project on deer/elk would be positive for both Alternative 2 and 3 by improving the trend of open road densities toward Forest Plan Standards and Guidelines. Alternative 1 and 4 do not close any roads. There is one foreseeable action that would modify habitat in a portion of some of these BGEAs. The Echo Staley Road Storage and Trash Sites Project would also reduce open road densities in the Spider Plus and Echo East BGEAs contributing toward the trend of reducing open road densities.

Cultural Resources

These activities are specifically addressed in the 2004 PA with the SHPO, under the road decommissioning activities described in Appendix B (5, 7, and 8). Since the proposed project activity would take place entirely in the road prism, it is recommended that it be excluded from case by case review, based on inspection and monitoring, as per PA. Activities in the vicinity of the historic Oregon Central Military Wagon Road (along Forest road 21) should be monitored by the district archaeologist or cultural resource technician as previously discussed with the project manager. Hence, the district archaeologist should be notified when operations begin. In the event that heritage properties are located during the course of this project, all work in the area of this find shall be suspended immediately, while an archaeologist is notified to assess the find.

Air Quality

Air quality would not be affected, as disposal of waste or slash by burning is not proposed.

Other Disclosure

Short term Uses and Long term productivity

NEPA requires consideration of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity (40 CFR 1502.16). As declared by Congress, this includes using all practicable means and measures to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

The Multiple Use – Sustained Yield Act of 1960 requires the Forest Service to manage National Forest System lands for multiple uses (including timber, recreation, fish and wildlife, range, and watershed). All renewable resources are to be managed in such a way that they are available for future generations. The harvest and use of standing timber can be considered a short term use of a renewable resource. As a renewable resource, trees can be re-established and grown again if the productivity of the land is not impaired.

Maintaining the productivity of the land is a complex, long-term objective. All alternatives protect the long-term objective of the project area through the use of specific Forest Plan S&Gs, mitigation measures, and BMPs. Long-term productivity could change as a result of the various management activities proposed in the alternatives. Management activities could have a direct, indirect, and cumulative effect on the economic, social, and biological environment. Those effects are disclosed in the analyses presented in this Chapter 3.

Soil and water are two key factors in ecosystem productivity, and these resources would be protected in all action alternatives to avoid damage that could take many decades to rectify. Sustained yield of timber, wildlife habitat, and other renewable resources all rely on maintaining long-term soil productivity. Quality and quantity of water from the analysis area may fluctuate as a result of short-term uses, but no long-term effects to water resources are expected to occur as a result of timber management activities.

All alternatives would provide the fish and wildlife habitat necessary to contribute to the maintenance of viable, well distributed populations of existing native and non-native vertebrate species. The abundance and diversity of wildlife species depends on the quality, quantity, and distribution of habitat, whether for breeding, feeding, or resting. The alternatives vary in risk presented in both fish and wildlife habitat capability.

None of the alternatives would have an effect on the long-term productivity of timber resources.

Irreversible and Irretrievable Commitment of Resources

NEPA requires that environmental analysis include identification of “. . . any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.” Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations.

Irreversible effects primarily result from use or destruction of a specific resource (e.g., minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., disturbance of wildlife habitat); or is lost as a result of inaction (e.g., failure to monitor and treat forest vegetation to prevent infestation of insects).

The anticipated effects for all action alternatives described in this document are the same as those discussed in the FEIS for the Forest Plan (USDA, 1990b) on page IV-178. Some erosion and soil movement would result from road work.

The analysis revealed no significant irreversible or irretrievable commitment of resources associated with implementing the alternatives that are not already identified in the Willamette National Forest Plan FEIS

Unavoidable Adverse Effects

Several expected adverse effects, including some that are minimal and/or short term, were identified during the analysis. Resource protection measures or mitigations were identified and considered for each of these as a means to lessen or eliminate such effects on specific resources. See mitigation measures starting on Chapter 2. Resource areas determined to have potential adverse effects (resulting from any of the alternatives – including No Action and the Action Alternatives) are documented within the appropriate Environmental Consequences sections of each resource in this chapter. See the following sections:

Recreation and Public Access

Water Quality and Stream Conditions

Fisheries

Wildlife - Threatened and Sensitive Species

Wildlife - Survey and Manage Species

Wildlife – Management Indicator Species

Wildlife - Big Game Habitat

Vegetation: Invasive Weeds

Effects on Recreational Fisheries (Executive Order 12962)

This 1995 order's purpose is to conserve, restore, and enhance aquatic systems to provide for increased recreational fishing opportunities nationwide. It requires federal agencies to evaluate the effects of federally funded actions on aquatic systems and document those effects relative to the purpose of this order.

There is a potential short term impact of sediments into the streams as a result of the road management activities. This short term impact would not threaten fish species. The short term impacts are outweighed by the long term benefits to the water quality and fisheries resource. Mitigating measures have been applied in the action alternatives to maintain anadromous fish and resident fish populations and habitat. These mitigating measures

include best management practices during road work activities. Road closures have been proposed to reduce the risk of sedimentation to water quality and fisheries resources.

All action alternatives including associated mitigation actions and BMPs are consistent with current management direction including Willamette Forest Plan Standards and Guidelines, Aquatic Conservation Strategy (ACS) Objectives (at the watershed analysis level) and the Federal Clean Water Act. Implementation of required BMPs would insure protection of water quality and beneficial uses under all alternatives.

Effects on Consumers, Civil Rights, Minority Groups and Women

Implementation of any alternative may not by itself have any effect upon consumers, but in combination with other projects may have an effect upon the local economy, especially on communities of Lowell, Oakridge, Springfield and Eugene. The Forest Plan FEIS addresses social and economic effects on pages IV 119-128.

Implementation of this project has not been planned to either favor or discriminate against any social or ethnic group. Contracting procedures would ensure that projects made available through this project would be advertised and awarded in a manner that gives proper consideration to minority and women-owned business groups and meet Equal Employment Opportunity requirements. Because of this consideration, there would be no direct, indirect, or cumulative effects to consumers, minority groups with implementation of any of the alternatives

Effects on Minorities, Low-Income Populations, or Subsistence Users (Environmental Justice – Executive Order 12898)

The project is located near the cities of Oakridge and Westfir, in Lane County, Oregon. These communities have minority populations of 8 percent, 7 percent and less than 1 percent, respectively. Lane County, in its entirety, has a minority population of 9 percent, (U.S. Census Bureau, 2000).

For the City of Oakridge, approximately 14.5 percent of the population is at or below poverty level; approximately 12.2 percent of the population of the City of Westfir is at or below the poverty level. (U. S. Census Bureau, 2000). According to information from the Oregon Economic and Community Development Department (OECDD), Lane County, (excluding areas within the city limits of Eugene, Springfield, Coburg and Dunes City), is rated 1.30, (threshold 1.20), on the distressed area index.(OECDD, 2002). These Cities, as well as much of Lane County, have experienced a significant decline in timber-based jobs over the past decade, contributing to factors used to determine a distressed community.

Implementation of any alternative that provides the opportunity for employment may positively affect low-income families who are either unemployed or underemployed. Implementation of any alternative is not expected to impose a disproportionately high or adverse effect to those populations.

Subsistence and cultural use levels are difficult to quantify and differential patterns of subsistence consumption are unknown at this time. However, the Forest provides access

to firewood, Christmas trees, mushrooms and other consumables through a personal-use permit system. Middle Fork Ranger District sells and issues permits for about 800 cords of firewood; about 2,000 Christmas tree permits; and about 300 personal-use mushroom permits per year.

Effects on fisheries are mitigated in all action alternatives to maintain anadromous fish and resident fish populations and habitat.

Road closures may impact subsistence in the immediate project area, but these impacts would be mitigated by the availability of other access routes throughout the area.

The Willamette National Forest has Memorandums of Understanding (MOU) with the Confederated Tribes of the Grand Ronde, the Confederated Tribes of Warm Springs, and the Confederated Tribes of Siletz. These MOUs provide the mechanism for regularly scheduled consultations on proposed activities. Beyond this, the Forest notifies and consults with tribal governments in a manner consistent with the government-to-government relationship on any matters that ripen outside of the meeting schedule. Any potential impacts are discussed and mitigated through these processes.

All alternatives comply with Executive Order 12989 “Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations”.

Effects on American Indian Rights

The Confederated Tribes of the Siletz, Grand Ronde, Coos, Lower Umpqua, Siuslaw and Warm Spring, Klamath Tribe, Coquille Tribe and Cow Creek Band of Umpqua Indians were notified of the project during the scoping of issues as part of the public participation process.

The project has been included in the annual Program Review of Work with the Conferated Tribes of the Siletz and Grand Ronde for the last couple of years. Assorted presentation was given on the major Forest’s timber sale planning efforts. No specific comments were received from these tribes as a result of scoping letters and annual Program Review meeting. No specific sacred sites have been identified in the proximity of the proposed units. No impacts, as outlined in the American Indian Religious Freedom Act, are anticipated upon American Indian social, economic or subsistence rights.

All alternatives comply with Consultation and Coordination with Indian Tribal Governments Executive Order 13084 and Indian Sacred Sties Executive Order 13007.

Effects on Farmlands, Rangelands, Forest Land, and Floodplains

Executive Orders 11988 and 11990 direct Federal agencies to avoid, to the extent possible, both short-term and long-term adverse impacts associated with the modifications of floodplains and wetlands. None of the alternatives have specific actions that adversely affect wetlands and floodplains. Wetlands and streams with associated riparian reserves (includes adjacent floodplains) have been delineated for the project area. All of the wetlands and streams near treatment areas would protect the natural and beneficial values and minimize any detrimental effects to those wetlands and streams. Proposed activities are compliant with the orders and USDA Departmental Regulation

9500-3. See discussions related to this topic in the water quality and stream conditions, fisheries and soils resource sections in Chapter 3 for more information.

Monitoring

Based upon the purpose and need for the action, the issues identified during the scoping process and used in the design of the alternatives, the following Forest Plan S&Gs are recommended to be used as a guide for monitoring key components of the project.

Road Closure (Purpose and Need)

Did the project meet the recommendations in the District's and Forest's Road Analyses?

Did the road closures or access restrictions consider the effects on developed and dispersed recreation sites and trailheads (FW-313)

Recreation and Public Access

Does the project meet the recreation access and travel management guides developed by the District (FW-023)?

Did the proposal contribute to the diversity of off-road vehicle recreational opportunities across the Forest and is consistent with criteria specified in FSM 2355.12 (FW-024)?

Did the area closed or restricted to off road vehicle use get posted with a brief explanation of the reasons for the closure (FW -026)?

Water Quality

Were the BMPs used to mitigate effects to water quality (FW-090, 092)?