

### 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).

**Reasonably foreseeable future actions** in the project area include the following:

- Oakridge/Westfir Thinning and Fuel Reduction Project. This project proposes up to 3,600 acres of commercial thinning to reduce fire risk, 300-400 acres of small fuels reduction, meadow restoration (including soil and vegetation restoration in the old Mule Meadow), and prescribed burning to maintain low fire risk. Implementation of this project is planned to begin in 2008.
- Upper Middle Fork Watershed Stormproofing and Restoration Project, which proposes to close and stormproof up to 23.2 miles of road in the Upper Middle Fork watershed.
- A Forest-wide Travel Management Rule is expected to be completed in 2009. This plan will address which roads will be open to mixed use and OHV use on the Willamette National Forest, including the Middle Fork Ranger District. None of the actions proposed in the Echo Staley Road Storage and Illegal Household Trash Site Management project will preclude any decisions that may be made in the Travel Management Rule.

#### **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 effects to the primary interests. Road use on the Middle Fork Ranger District can be considered from four primary interests; Public Use, Administrative Use, Aquatic Values and Terrestrial Values. The

procedure for evaluating these interests, along with the actual rankings for each road being considered for closure in this E.A., is displayed in Appendix B.

### 3.1 Access to Roads

#### 3.1.1 Existing Condition - Public and Fire Suppression Access

There are currently about 1, 678.4 miles of road in the four fifth field watersheds within the project area. About 98 miles (6%) of these roads are currently closed year-round. About 94% percent of the road miles are available for year-round or seasonal use by motorized vehicles. The following figure shows the total miles by fifth field watershed:

**Figure 3-1: Miles of road by fifth field watershed**

Fifth Field Watershed	Total Miles of National Forest Roads	Miles of National Forest Roads Closed Year-round
Upper Middle Fork	516.3	45.8
N. Fk. M. Fk. Willamette	258.7	25.2
M. Fk. Willamette/Lookout Point	576.4	18.8
Salmon Creek	327.0	8.2
<b>Total</b>	<b>1,678.4</b>	<b>98.0</b>

These roads are used by the public for activities such as camping, pleasure driving, hunting, firewood gathering, berry picking, and mushroom gathering. Verizon Wireless operates a cell tower in the project area and uses Rd. 5828 to access the tower for routine maintenance. Rd. 5828 is close to Westfir and gets it greatest amount of use in the summer and fall. Rd. 2404 is in close proximity to Oakridge. The roads in the project area are also used for access to areas of the district for fire suppression. Roads that are closed with gates are not considered to be restrictive for fire suppression access. Roads that are closed with boulders or berms are considered to be a hindrance to fire suppression access and result in a delayed response time.

#### 3.1.2 Environmental Consequences

##### 3.1.2.1 Direct and Indirect Effects – Public Access

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 public access. Travel would continue as long as road conditions permit.

In Alternatives 2, 3, and 4, prohibiting motorized access to roads would limit access and recreational 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 such activities as camping, pleasure driving on the forest roads, hunting, firewood gathering, berry picking, mushroom gathering and OHV (off-highway vehicle) use.

Alternatives 2 and 3 would close Rd. 5828 seasonally, from Dec. 15 to July 1. This would not have a large effect on recreational driving since this road gets most of its use in the summer and fall.

Alternative 2 would have the greatest effect on public access by closing 40.9 miles year-round and 15.8 miles seasonally. Verizon Wireless would be granted permission to enter the gate whenever needed for cell tower maintenance. It is not anticipated that there would be a change in maintenance of Rd. 5828 as it would only have a seasonal closure and it will be available for administrative use year-round. There would be no effect to trail maintenance on Trail # 3450 by the Disciples of Dirt mountain bike club, as this group would be granted access for trail maintenance in the spring each year.

Alternative 3 would have the least effect on public access as it closes 17.6 miles year-round and 15.8 miles seasonally. Verizon Wireless would be granted permission to enter the gate whenever needed for cell tower maintenance. It is not anticipated that there would be a change in maintenance of Rd. 5828 as it would only have a seasonal closure and it will be available for administrative use year-round. There would be no effect to trail maintenance on Trail # 3450 by the Disciples of Dirt mountain bike club, as this group would be granted access for trail maintenance in the spring each year.

Alternative 4 would have an effect between Alternatives 2 and 3, with 32.3 miles of year-round closure and no seasonal closures. Access for Verizon Wireless and trail maintenance would not be affected.

**Figure 3-2: Public Access – Direct and Indirect Effects**

		Alt. 1	Alt. 2	Alt. 3	Alt. 4
<b>Miles of road proposed for year-round closure</b>		0	40.9	17.6	32.3
<b>Miles of road proposed for seasonal closure (Dec. 15 – July 1)</b>		0	15.8	15.8	0
5 <sup>th</sup> -field Watershed					
<b>Percentage of National Forest road system closed year-round (includes this project's actions only)</b>	Upper MF Willamette	0%	4.5%	0%	4.5%
	MF Willamette/ Lookout Point	0%	2.6%	2.6%	2.6%
	NFMF Willamette	0%	0.4%	0.4%	0.4%
	Salmon Creek	0%	2.7%	2.7%	0.1%

**3.1.2.2 Direct and Indirect Effects – Fire Access**

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 public access. Travel would continue as long

as road conditions permit. In the long term, public and fire suppression access would become increasingly more difficult and unsafe in the Echo Staley portion of the project area.

Under Alternatives 2, 3, and 4 fire suppression and other administrative access to roads that are closed with boulders or berms would be made more difficult. Heavy equipment would be needed to move boulders, and to smooth out berms and water bars to make roads drivable for fire access. This would result in more costly fire suppression due to having to re-open roads, putting them back in storage after fire suppression is completed. Higher fire suppression costs would also result because of delays in the ability to respond to fires, resulting in larger fire growth before initial attack begins. Drivable drain dips would require response vehicles to drive a little slower, but would not prevent timely access.

Alternatives 2 and 4 would close 32.3 miles of road with berms and boulders, resulting in the highest impact on fire suppression response time and the highest fire suppression costs.

Alternative 3 does not close roads in the Echo Staley portion and uses drivable drain dips rather than water bars and ditches, resulting in only 9.0 miles of road closed with berms and boulders. This alternative would have the least impact on fire suppression access and costs.

**Figure 3-3: Access for Fire Suppression – Direct and Indirect Effects**

	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Miles of road closed year-round with berm or boulders	0	32.3	9.0	32.3
Extra cost of opening up roads for fire access and putting them back in storage	0	High	Low	High
Extra cost of suppressing a potentially larger fire due to delays	0	High	Low	High

**3.1.2.2 Cumulative Effects – Access for Public and for Fire Suppression**

The cumulative effects area used for analyzing effects to public access includes the fifth field watersheds in the project area.

**Alternative 1 – No Action:**

Alternative 1 would have the lowest cumulative effect to public access because it would not close any roads. However, the cumulative effect for all alternatives, including No Action, do include past closures and the reasonably foreseeable future road closures proposed in the Upper Middle Fork Watershed Stormproofing and Restoration Project.

**Alternatives 2, 3, and 4:**

Road related recreational uses have decreased in the last 10 years due to past road closures and this project would continue to decrease the mileage of roads available for vehicle-base recreation. Percentage of National Forest road system that would be in a closed status by fifth-field watershed is displayed below. These percentages include the past, present, and future road closures. Alternative 2 would have the largest cumulative increase in closed roads in the four watersheds. Alternative 4 has the next lowest increase, and Alternative 3 has the lowest increase. There would be no increase with Alternative 1 (No Action). There are still hundreds of miles of roads available for driving across the Middle Fork Ranger District, and all the roads that have been closed now provide for an entirely different but still valuable and attractive recreational use (in particular road-based but non-vehicular hunting) that otherwise would virtually be non-existent had the roads not been closed.

**Figure 3-4: Public Access – Cumulative Effects**

	<b>Watershed</b>	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>
<b>Percentage of National Forest road system closed year-round</b> (includes past, present, and foreseeable future road closures)	Upper MF Willamette	13.4%	17.9%	13.4%	17.9%
	MF Willamette/ Lookout Point	9.7%	12.3%	12.3%	12.3%
	NFMF Willamette	3.3%	3.6%	3.6%	3.6%
	Salmon Creek	2.5%	5.2%	5.2%	2.6%

**3.2 Water Quality**

**3.2.1 Existing Condition**

**Road Conditions:**

Road conditions in the planning area were assessed through a combination of field surveys of proposed harvest units by interdisciplinary team members including the Fisheries Biologist, Soil and Water Scientist, and Hydrologic Technician. Additional information was obtained by analysis of stream survey reports, water temperature monitoring, and utilizing information contained in the Willamette National Forest Geographical Information System.

Results of field surveys found that many roads proposed for closure currently have drainage structures and ditches that have a risk of failure during high runoff events (see the District Watershed Improvement Needs database for detailed information by road). Failure of these drainage systems could result in chronic sediment source areas for streams or catastrophic failure leading to mass wasting events delivering large quantities of sediment to streams. In either case, these failures would have a detrimental affect on water quality and in-stream habitat for aquatic organisms.

**Soil Damage in the old Mule Meadow**

The district has not been successful in preventing illegal four-wheel drive (4WD) damage in the old Mule Meadow near the junction of Roads 24 and 2404. As a result, deep ruts and soil displacement created by 4WD vehicles are causing erosion and sedimentation.

**Beneficial Uses for Willamette River Tributaries:**

The Oregon Department of Environmental Quality has identified beneficial uses for Willamette River tributaries in Oregon Administrative Rules 340-41-340 Table 340A. Beneficial uses within the watershed include:

- • Public Domestic Water Supply
- • Potential Anadromous Fish Passage
- • Salmonid Fish Rearing
- • Salmonid Fish Spawning
- • Resident Fish and Aquatic Life
- • Recreational Fishing
- • Water Contact Recreation
- • Aesthetic Quality

**Water Quality Limited Streams:**

The state of Oregon has established water quality standards set out in Chapter 340, Division 41 of the Oregon Administrative Rules. Water bodies that do not meet state water quality standards are termed “water quality limited” and are placed on a list by the Oregon Department of Environmental Quality in accordance with Section 303(d) of the Federal Clean Water Act (303(d) list). The main-stem of the Middle Fork of the Willamette River (Middle Fork) downstream of the Echo Staley portion from Staley Creek to Hills Creek Reservoir is currently designated as water quality limited on the 303(d) list for high summer water temperatures. The listed segment of the Middle Fork is located downstream of the Echo Staley portion and upstream of the trash site portion. No other stream segments are currently designated as water quality limited for any parameter within the Upper Middle Fork Willamette fifth-field watershed. The North Fork of the Middle Fork of the Willamette is 303d listed for stream temperatures from river mile 0 to 28.3. Several of the illegal trash sites are near the North Fork of the Middle Fork Willamette River and are in the riparian area or close by along the road system. This project proposes no vegetation management in or immediately adjacent to any water body currently designated as water quality limited.

**Illegal Trash Sites:**

Surveys of illegal trash sites along the Hwy 58 corridor completed by the University of Oregon and several years of illegal household trash data collected during clean-up of illegal household trash sites verifies the number of sites and amount of trash collected. Many of the roads being considered for management include multiple illegal household trash sites that have had trash

removed yearly. To this point no hazardous materials have been found or picked up at the sites being considered for management.

**Figure 3-5: Streams listed by the DEQ as water quality limited (303(d) list)**

Stream Name	Listed Segment (river mile)	Parameter
Middle Fk. Willamette	52.3 to 82.2	Temperature
North Fk. Middle Fork Willamette	0 to 28.3	Temperature

### 3.2.2 Environmental Consequences

#### 3.2.2.1 Direct and Indirect Effects

##### Soil Erosion and Sedimentation:

Aquatic risk levels were developed to reflect road conditions that given lack of road maintenance and high runoff storm events could harm the aquatic ecosystem. For this analysis, aquatic risk levels are used to reflect potential soil erosion and sedimentation where improving drainage would decrease the aquatic risk (reducing chances for road related erosion from reaching streams as sedimentation) and not improving road drainage would increase the aquatic risk (increase chances that road related erosion might reach streams as sedimentations).

Alternative 1 – No Action would continue with the same as current conditions. The road segments would continue to degrade from lack of road maintenance. The environmental effects of allowing access would result in higher risks of slope failure, soil movement, and sediment input into streams. Measures available to restrict 4WD access to the old Mule Meadow would be less effective than the Rd. 2404 closure in Alternatives 2 and 3. Unauthorized access by 4WD vehicles would continue and erosion and sedimentation would continue. The potential for soil erosion and sedimentation would increase over time. Refer to Figure 3-6 for aquatic risk associated with the No Action alternative.

Alternatives 2, 3, and 4 would have positive benefits by improving current road drainage and reduce the potential for road related sedimentation. Potential road runoff related problem areas and the potential for land stability problems would be improved with the proposed road restoration work. As a result of the restoration work at site#10, compaction would be ameliorated, increasing water infiltration and reducing runoff. With the proposed road restoration work, soil erosion and sedimentation would be increased for the short term but long term conditions would be improved. Alternative 2 would close (year-round and seasonally) the most miles of road (20.8 miles) with a high aquatic risk rating, followed by Alternative 3 with 14.1 miles, then Alternative 4 with 13.8 miles. Refer to Figure 3-6 for aquatic risk associated with the action alternatives.

Alternatives 2 and 3 would have the highest benefits from reducing 4WD access to the old Mule Meadow with the placement of a gate on Rd. 2404. Because the method of restricting 4WD

access would be more effective in these two alternatives, further soil damage in the old Mule Meadow would be avoided. Alternative 4 would have the same effect as Alternative 1 (No Action) in that it would be difficult to keep illegal 4WD activity out of the Mule Meadow and soil resources in the meadow would continue to be degraded.

### **Stream Temperature**

The most important source of energy contributing to stream heating is from direct solar radiation . As a source of stream water heating, energy from the air is conducted to the stream at a very slow rate. Vegetation adjacent to streams that shade the channel can reduce the potential for direct solar radiation to increase water temperature. No action (Alt. 1) or any action alternatives (Alts. 2, 3, and 4) proposed for this project would have any direct or indirect effects on stream shading vegetation and therefore would not measurably affect stream temperatures.

### **Peak Stream flow**

Peak stream flows within the drainage can be affected by management influences including alteration of tree canopy closure potentially affecting snow accumulation and melt particularly during rain-on-snow events. The extent of road development can also affect the magnitude of peak flows under some circumstances. None of the proposed actions would alter tree canopy closure or road density within the project area and therefore would not change peak stream flow.

### **Flood Plains and Wetlands**

None of the alternatives will have any adverse affects on floodplains or wetlands.

Executive Orders 11988 and 11990: Floodplains and Wetlands:

Explanation: Executive Order 11988 requires government agencies to take actions that reduce the risk of loss due to floods, to minimize the impact of floods on human health and welfare, and to restore and preserve the natural and beneficial values served by floodplains. Executive Order 11990 requires government agencies to take actions that minimize destruction, loss, or degradation of wetlands. Streamside Riparian Reserves, seeps and other wet habitats are assessed too. All of the wetlands and streams near the project areas will remain buffered to protect the natural and beneficial values and minimize any detrimental effects to those wetlands and streams.

### **Illegal Household Trash Sites**

Alternative 1 – No Action: Because funding for trash cleanup is not dependable and is likely to be reduced in future years, trash dumping would become an even greater problem in the future on roads and sites in the trash site portion of the project. Trash sites would continue to be scattered along many miles of roads, making it difficult personnel to find all the trash sites under current under the current and likely future funding situation.

Alternatives 2 and 3 would close the most miles of road with trash site problems, closing access year-round or seasonally to 34 sites. The Rd. 5828 system would be closed during the Spring, which is when the highest level of illegal trash dumping takes place.

Alternative 4 would close fewer sites than Alternatives 2 and 3 (23 sites) because Roads 2404 and 5828 would not be closed.

**Figure 3-6: Effects on Water Quality**

	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Increase or decrease in aquatic risk by miles of road hydrologically stabilized (Echo Staley portion)	+20.7	-20.7	-20.7	-20.7
Increase or decrease in aquatic risk by acres no longer accessible to OHV's	+21.5	-21.5	-21.5	+21.5
Miles of road with high aquatic risk rating closed year-round and seasonally	0	20.8	14.1	13.8
Number of illegal trash sites blocked from access	0	34	34	23

**3.2.2.2 Cumulative Effects**

The cumulative effects analysis area used was the four fifth field watersheds affected by proposed activities. The proposed action alternatives (Alts 2, 3, and 4) would have beneficial cumulative effects when considered in context with past and reasonably foreseeable future road storage projects within the fifth field watersheds. The cumulative effects would be beneficial to improving road system drainage. These beneficial cumulative effects on aquatic habitat would contribute to the attainment of ACS objectives at the watershed scale.

**Aquatic Conservation Strategy Objectives**

This proposed action and alternatives are consistent with current management direction including Willamette National Forest Standards and Guidelines and attainment of Aquatic Conservation Strategy (ACS) Objectives at the watershed scale. Implementation of BMPs during project implementation would insure water quality is maintained adjacent and downstream of the project area.

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). Alternatives 2 and 3 would stabilize a greater area and would therefore contribute more toward long-term attainment of ACS objectives than would Alternative 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.

### 3.3 Access to Trails and Dispersed Sites

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#### 3.3.1 Existing Condition

Roads and dispersed sites in the project area are used by the public for recreational activities such as camping, pleasure driving, hunting, firewood gathering, berry picking, and mushroom gathering (see section 3.1 for impacts related to restricting public access to roads).

Trails in the area include the Alpine trail #3450, North Fork trail # 3666, and Flat Creek trail #3566, and Middle Fork trail # 3609. The Alpine trail is accessed from Rd. 5828. Flat Creek trail is accessed from Rd. 2404, and the North Fork trail and Middle Fork trails have numerous access points. All of these trails are relatively low elevation trails and can generally be accessed year-round. Flat Creek trail is open to hikers, equestrians, bicycles, and motorcycles. Motorcycle use is low.

Dispersed camping sites exist on some of the roads proposed for closure. There are also many dispersed sites on roads not proposed for closure.

#### 3.3.2 Environmental Consequences

Impacts resulting from restricting public access to roads is discussed in section 3.1, above. This section will deal with impacts resulting from changing access to trails and dispersed sites.

##### 3.3.2.1 Direct and Indirect Effects on Public Trail Access

###### Alternative 1 – No Action

This alternative would not have an effect on trail access in the area because no roads would be closed.

###### Alternatives 2 and 3:

All trails would remain accessible, although accessibility would change.

Alpine ridge trail access from Rd. 5828 would not be available to the public between Dec. 15 and July 1. Seasonal closure of this road would not have a large impact on access to the Alpine ridge trail. The main trail head is on the North Shore road (Rd. 5821) just west of Westfir. Road 5828 or its tributary spur roads cross the Alpine ridge trail in three places above the trailhead, so closure of the road would preclude access to this central portion of the trail, but would also provide for a better overall trail experience in that traffic would not be noticeable in the areas close to those road crossings. Rd. 5828 road is a popular system for local hunters that do not want to drive a long distance from home and this road would still be open during hunting season.

Access to Flat Creek trail would be changed with a year-round closure on Rd. 2404. Closure of the 2404 road system would somewhat degrade the Flat Creek trail hiking experience in that about 2/3 mile of gravel road would become trail route to access the trailhead. The trailhead for Flat Creek trail could be moved down to Salmon Creek Rd. in the future as funding is made

available. The effect to mountain bikers and equestrians would be positive because there would be less traffic on the road. Motorcycle use would be allowed on Rd. 2404 up to the Flat Creek trailhead. Motorcycle use beyond that point would not be allowed.

**Alternative 4:**

Accessibility to Alpine ridge trail and Flat Creek trail would not change because Rd. 5828 and Rd. 2404 would not be closed.

**3.3.2.2 Direct and Indirect Effects on Dispersed Sites**

Closure of the remainder of trash dumping sites would not affect any specific recreational activities in that none of these short spurs or pullouts access recreational features, with three exceptions, site #7, site #10, and Rd. 2400019. Site #7 is a dispersed camping site and Rd. 240019 has two dispersed camping sites along the road. Access to these sites would be changed. Site #7 is adjacent to Rd. 1910. The site would still be useable with a short walk. The sites on Rd. 2400019 are a 0.1 to .3 mile walk from the junction with Rd. 2400018. Site #10 is a short spur road accessing an area that was formally used in the past as a shooting range under a special use permit. That special use permit has since been closed out. The gun club that used that range is now located in a different location in Oakridge. Site #10 is still informally used as a site for plinking and gun sighting. Closing this road and restoring the site would change the accessibility of the site to motorized vehicles. There are other options available for shooting and target practice in the area, including a designated shooting range available by membership at the Oakridge Gun Club.

**3.3.2.3 Cumulative Effects**

The only cumulative effects to trail access and dispersed site access would be from the road and site closures proposed in each alternative.

**3.4 Wildlife** \_\_\_\_\_

**3.4.1 Existing Condition**

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.

3.4.1.1 Threatened, Endangered, and Sensitive (TES) Species

Figure 3-7: Summary of the Biological Evaluation process for Willamette TES (or Proposed) fauna associated with this project.

	STEP 1	STEP 2	STEP 3	STEP 4	STEP 6
	<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 <sup>1</sup> /BO <sup>2</sup>
Northern Spotted Owl <i>Strix occidentalis caurina</i>	ALL Actions to occur within road prism	Unknown	No Conflict	NLAA-most of project area is outside the 0.25 mile disturbance /disruption restriction	NA BA 7/28/05 BO Ref. # 1-7-05-F-0663
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>	ROAD PRISM	Unknown	No Conflict	NE	NA
Yellow Rail <i>Coturnicops noveboracensis</i>	No				
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				

	STEP 1	STEP 2	STEP 3	STEP 4	STEP 6
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				
Red Tree Vole	No				

1 Date Consultation was initiated with USFWS

2 Date Biological Opinion or Concurrence issued from USFWS

NA = not applicable

NE = No Effect

NLAA = May Affect, Not Likely to Adversely Affect (requires informal consultation with the U.S. Fish and Wildlife Service)

#### Northern Spotted Owl

Knowledge of spotted owl activity center locations near the project area is largely a result of past survey efforts associated with timber sale planning. The survey history shows numerous spotted owl activity centers located adjacent to the proposed activities. Only three such centers are located within 0.25 mile of the project treatment sites to be implemented and must be considered as occupied based on recent U.S. Fish & Wildlife Biological Opinions when considering some proposals that may disturb spotted owls. The roads with segments within 0.25 mile are 2135297, 2135294, and 2143319.

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 an 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 to 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 dbh of 11 inches or greater. Older stands lacking structural development that supports nesting may be considered dispersal habitat, however 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).

**Figure 3-8: Spotted Owl Activity Centers**

	<b>Alt. 1 No Action</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>
<b>Number of spotted owl activity centers within 0.25 mile of noise generating activities</b>	0	3	3	3

**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 will 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 (Davis Pers. Comm. 2007). 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.

#### **3.4.1.2 Big Game**

This project occurs within 12 big game habitat areas (BGEAs) as listed below in Figure 3-9. 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 fourteen Big Game Emphasis Areas (BGEA). Spider Plus and Tire BGEAs are designated as high level emphasis areas. Noisy, Simpson, Indian Steeple, Gorge-Echo, Staley Dome, West Goodman, and East Goodman BGEAs are designated as moderate level emphasis areas, and Short-Hemlock, Shitepoke, and Flat BGEAs are designated as low level emphasis areas. 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.

Spider Plus, Tire, Noisy, Simpson, Indian Steeple, Gorge-Echo, Staley Dome, West Goodman, and East Goodman all have H<sub>E</sub>r values lower than the desired level in the Forest Plan standard and guidelines.

#### **3.4.1.3 Survey and Manage Species**

All Survey and Manage wildlife species known or suspected on the Middle Fork RD have been shifted to the Sensitive Species Program (ISSSP 2004), however, they are currently back under the purview of the 2001 ROD, due to litigation. Following the litigation, a Judgment was issued by Judge Marsha Pechman’s stipulation and judgment on 10-11-06, re: case #04-CV-00844-ORD which further clarified that certain projects will be exempt from performing Survey and Manage Surveys. Three species under the previous direction of Survey and Manage program (Great Gray Owl, Crater Lake Tightcoil, and Red Tree vole) were reviewed with regard to the proposed activities. Since all the activities occur solely within the road prism and will not cause ground disturbing activities outside the road prism, it was determined that no habitat for these species exists within the road prism and therefore, does not “trigger” the need to survey.

Consequently, Survey and Manage Species will not be discussed further within this document.

### **3.4.2 Environmental Consequences**

#### **3.4.2.1 Direct and Indirect Effects to TES species**

##### **Northern Spotted Owls:**

The project area is located entirely within road prisms and some locations occur within or adjacent to the LSR networks denoted in the ROD or within designated critical habitat. Areas proposed for treatment would not modify suitable habitat and occur within the road prism only. Seasonal Restrictions for the three road sections discussed above will be enforced and documented in the contract language for the Critical (early) breeding season (March 1-July 15th).

This project proposes no habitat modification that would affect spotted owls. Activities that may disturb spotted owls within 0.25 miles of known activity centers (AC) located within any Land

allocation (Biological Assessment for Disturbance Willamette Provincial Document FY2006-2007, p. 8) would be restricted for the duration of the breeding season. This will only affect timing of proposed treatment activities on Roads 2135297, 2135294, and 2143319. All other treatment sites are greater than 0.25 miles from known activity centers. Therefore it is determined that activities proposed under this project would not likely adversely affect (NLAA) northern spotted owls.

Communication with U.S. Fish and Wildlife Service (USFWS) is not required. This project is covered under the Programmatic Disturbance BA/BO for FY2006-2007 and a Letter of Concurrence from USFWS dated March 1, 2006.

**American Peregrine Falcon**

No known peregrine nest sites are directly associated with these sites within the project area, adjacent sites are monitored annually throughout the breeding season.

Natural events, as opposed to human activities, generally define the ambient baseline which influences behavior of potential avian prey throughout the project area. No suitable peregrine nesting habitat will be affected by this project. The action activities are all outside the zones of influences and therefore, are considered insignificant to the peregrine nest sites.

Activities as proposed in this project would not result in modification of peregrine nesting habitat, and would avoid disturbance to the species during the breeding season. In addition, monitoring will be performed at sites near the project area.

Communication with U.S. Fish and Wildlife Service is not required.

**3.4.2.2 Direct and Indirect Effects to Big Game**

Pre- and post-project habitat effectiveness - roads factor (HEr) are listed in the table below. While not all BGEAs currently meet the Willamette NF guidance for HEr (habitat effectiveness-roads factor), in most instances the post-project HEr would provide a slight improvement in the overall quality of the big game emphasis areas listed below and would increase the HEr value nearer to the desired level in the Forest Plan standards and guidelines (FW-148, 151,153). Alternative 2 would provide the highest increase in HEr for the most BGEAs. Alternative 2 would provide no increase in HEr because no roads would be closed. Alternatives 3 and 4 would fall somewhere between Alternatives 1 and 2.

**Figure 3-9: Direct and Indirect Effects on HEr by Big Game Emphasis Area**

Big Game Emphasis Area (BGEA)	Emphasis	Habitat Effectiveness -roads (HEr)			
		Alt.1 No Action	Alt. 2	Alt. 3	Alt. 4
Noisy	Moderate	0.36	0.38	0.36	0.38
Simpson	Moderate	0.34	0.37	0.34	0.37

Big Game Emphasis Area (BGEA)	Emphasis	Habitat Effectiveness -roads (HEr)			
		Alt.1 No Action	Alt. 2	Alt. 3	Alt. 4
Indian Steeple	Moderate	0.29	0.29	0.29	0.29
Spider Plus	High	0.34	0.37	0.34	0.37
Gorge-Echo	Moderate	0.38	0.40	0.38	0.40
Staley Dome	Moderate	0.37	0.40	0.37	0.40
West Goodman	Moderate	0.29	0.29	0.29	0.29
East Goodman	Moderate	0.35	0.49	0.49	0.49
Short-Hemlock	Low	0.35	0.37	0.37	0.37
Tire	High	0.36	0.47*	0.47*	0.36
Shitepoke	Low	0.30	0.32	0.32	0.31
Flat	Low	0.32	0.39	0.39	0.32

\*The increases in HEr for Alternatives 2 and 3 in the Tire BGEA are only for the portion of the year when the seasonal closure would be in effect (Dec.15-July1).

**3.4.2.3 Cumulative Effects**

The cumulative effects analysis area for big game is the twelve BGEAs affected by road closures, listed in Figure 3-9, above. In a reasonably foreseeable future action, the Upper Middle Fork Stormproofing project proposed to close and stabilize roads for resource protection and are also displayed below as a cumulative effect. Together (the Echo Staley Road Storage/Trash Site project and the Upper Middle Fork Stormproofing project) these projects have the potential to positively influence big game habitat within these areas by providing additional security through these road closures. These projects would also move these areas in a positive direction with regard to providing additional forage (as roads close in and are re-seeded). The BGEAs that are affected by both the Echo Staley/Trash Site project and the Upper Middle Fork Stormproofing project are Noisy and Gorge-Echo, as displayed below. Cumulative effects for HEr values for all the other BGEAs would be the same as in Direct and Indirect Effects, above.

**Figure 3-10: Cumulative Effects on HEr by Big Game Emphasis Area**

Big Game Emphasis Area (BGEA)	Emphasis	Habitat Effectiveness -roads (HEr)			
		Alt.1 No Action	Alt. 2	Alt. 3	Alt. 4
Noisy	Moderate	0.36	0.38	0.36	0.38
Gorge-Echo	Moderate	0.38	0.40	0.38	0.40

## 3.5 Vegetation

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### 3.5.1 - Sensitive Plants - Introduction

Forest management activities that may alter habitat for Sensitive plant 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 72 plants listed on the Regional Forester's Sensitive Plant List that are documented or suspected to occur on the Willamette National Forest (Attachment 1).

### 3.5.2 Existing Condition - Sensitive Plants

Pre-field review of the project area was performed March 2007 in order to determine the presence of habitat or sites for survey and manage and sensitive plant species. Results of the pre-field review form the basis for analyzing effects.

Using the Willamette National Forest list of potential Sensitive plant species (compiled from current 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, aerial photos and topographical maps were scrutinized for potential habitat.

Habitat exists for 24 of the 72 botanical species listed as sensitive on the Willamette National Forest. Most of the habitat identified within road prism and dispersed site areas is marginal at best for many of these species, and is in some form of disturbance. There are some project sites where more suitable habitat is found adjacent at forested edges. There are a few species potentially found in or at the edge of these types of open/edge/gappy settings, that can also be associated with vegetation or ground disturbance of some kind. The forested plant series within the vicinity of project sites generally contain western hemlock, with scattered pockets of Douglas-fir, grand fir and Pacific silver fir, Pacific yew, western red cedar and incense cedar. Bigleaf maple, Oregon white oak and other hardwood tree and shrub species are subdominants. All are important host species components in plant series/associations where numerous survey and manage and sensitive botanical species are found to reside. The watersheds are host to an abundance of fungi, bryophytes and lichens, including cyanolichens. Documented sensitive and survey and manage species sites in the watersheds but not within proposed project areas include: *Cimicifuga elata*, *Lewisia columbiana* var. *columbiana*, *Montia howellii*, *Romanzoffia thompsonii*, *Rhizomnium*

nudum, and *Usnea longissima*. No site specific management recommendations relative to this project for any of these sites is deemed necessary at this time.

The lichen *Usnea longissima* (Category F species) is found nearby FS Road 2404 along FS Road 24 at several locations draped on oaks and conifers. The vascular tiny annual plant *Montia howellii* is found nearby the 2404 road at Flat Creek compound. It is found growing scattered in parking areas, but germinates in an ever-changing pattern from year to year, due to its seed being shifted around and is very tolerant of traffic disturbance.

Survey level for the project was Level A (attachment 2), which consisted of aerial photo interpretation and review of existing site records. No field surveys were conducted for vascular, bryophyte and lichen species. Determination was low to moderate or no potential for a listed species to occur within or adjacent to the proposed project area.

Surveys were not conducted for 17 ephemeral fungi because single pre-disturbance surveys for these species have been deemed impractical (USDA 1998; USDA, 2000; USDA, 2004) because fungi fruit inconsistently and would require multiple year surveys to determine their presence. All fungi except *Bridgeoporus nobilissimus*, which is a perennial conk, are Category B Survey and Manage Species (rare but pre-disturbance surveys impractical). In general, the habitat requirements of fungal species found on the Willamette National Forest sensitive species list are poorly understood. The literature provides very general habitat characteristics for most of these species; therefore, they are listed in Table 1b as having potential habitat in the project area

### **3.5.3 Environmental Consequences – Sensitive Plants**

#### **3.5.3.1 Direct and Indirect Effects**

##### **Alternative 1 – No Action**

Alternative 1 is the No Action alternative where the proposed project does not take place. This Alternative is used as a point of reference for describing the environmental effects between the action alternatives. Under this alternative, there should not be direct or indirect effects to sensitive vascular, lichen, bryophyte or fungi species.

##### **Alternatives 2, 3, and 4**

Vascular Plants:

Direct or indirect impacts to vascular sensitive species, if species are present in areas where potential habitat has been identified, would be localized destruction or displacement of individuals from removal of vegetation, including species associates, or soil disturbance during project activities.

Lichens and Bryophytes:

Changes in hydrology, including water temperature and sediment may affect aquatic lichens found on submerged rocks in clear, cold streams (USDA, USDI 2003). Persistence of the other lichen species may be threatened by host tree removal, wind-throw, changes in microsite conditions, changes in epiphyte ecology and competition in more open stands, and by dispersal limitations in more widely spaced stands (USDA, USDI 2003). Direct or indirect impacts to non-vascular sensitive lichen and bryophyte species, if species are present in site specific areas where potential habitat has been identified, would be localized destruction or displacement of individuals from removal of substrate or species associates (trees, other vegetation, rocks, etc.), soil disturbance or movement of rock in streams during culvert work and other road storage activities. Some lichens such as *Usnea longissima* are found in the branches of conifers and hardwoods overhanging road edges; any disturbance to branches could also disrupt lichen populations.

Fungi:

Most fungi form mycorrhizal relationships with conifers, and thinning has been shown to have negative short term (5-7 years) impacts to fungi (Pilz et al 2003). It is likely that individual sites of fungi may be negatively affected in the short term by host tree removal, physical disturbance, soil compaction, and disruption of mycelial networks if the fungi are present (Kranabetter and Wylie 1998, Amaranthus and Perry 1994). Activities associated road storage may cause some disturbance to soil-dwelling fungi through direct disturbance and potential removal of habitat, but in a much localized area.

**3.5.3.2 Cumulative Effects**

The area analyzed for cumulative effects to botanical TES and Survey and Manage resources are the four fifth field watersheds, the Upper Middle Fork Willamette (01), Middle Fork Willamette River/Lookout Point (07), North Fork of Middle Fork Willamette River (06), Salmon Creek (04). These watersheds contain several sensitive and survey and manage species and similar habitats that increases the likelihood for those species suspected to be in project areas. Information about species elsewhere in the watersheds helps further define the local relative degree of rarity of species suspected or known to be in the project area. Watershed Analyses contain some background information regarding known species sites. New sites have been identified through other projects that have since been surveyed for botanical species including those associated with various timber sale projects, Survey and Manage Regional Random Grid surveys, and various other district projects. Some of these survey efforts have resulted in identification of new sites of vascular and non-vascular species.

**Alternative 1 – No Action**

There would be no cumulative effects to sensitive plants other than what has occurred from past actions.

**Common to Alternatives 2, 3, and 4**

None of the action alternatives would result in little to no additional cumulative effects to TES and Survey and Manage botanical species, if any species happen to be present in project work areas. Most of the areas involved are within road prism and dispersed sites, which are marginal habitat at best for most of the species suspected or known to be in or near these areas.

Additionally, no or a low amount of habitat disturbance is involved in most of those areas where potential habitat would be affected.

**3.5.3.3 Conclusions**

In summary, for the species listed in the following table, all action alternatives were given a determination of May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species (MIIH) rating because existence of populations at project sites where there is potential habitat is unknown. Implementation of this project is expected 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.

**Figure 3-11: Sensitive Plants Summary of Effects Determination by Alternative**

Species	Alternative 1 – No Action	Alternative 2 - Proposed Action	Alternative 3	Alternative 4
<i>Cimicifuga elata</i>	NI	MIIH	MIIH	MIIH
<i>Dermatocarpon luridum</i>	Ni	MIIH	MIIH	MIIH
<i>Eucephalis(Aster) vialis</i>	NI	MIIH	MIIH	MIIH
<i>Iliamna latibracteata</i>	NI	MIIH	MIIH	MIIH
<i>Lycopodium complanatum</i>	NI	MIIH	MIIH	MIIH
<i>Montia howellii</i>	NI	MIIH	MIIH	MIIH
<b>Mycorrhizal Fungi</b>	NI	MIIH	MIIH	MIIH
<b>Parasitic Fungi</b>	NI	MIIH	MIIH	MIIH
<b>Saprophytic on Litter Fungi</b>	NI	MIIH	MIIH	MIIH
<b>Saprophytic on Wood</b>	NI	MIIH	MIIH	MIIH
<i>Usnea longissima</i>	NI	MIIH	MIIH	MIIH

NI = No Impact

MIH = May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species

### **3.5.4 Invasive Plants - Introduction**

An invasive plant is defined as “a non-native plant whose introduction does or is likely to cause economic or environmental harm or harm to human health” (Executive Order 13122). An estimated 420,000 acres of Forest Service lands in Region 6 are infested with invasive plants (USDA 2004). Invasive non-native plants, including noxious weeds, are a threat to native plant communities. These species thrive in a new environment because they arrive without the complement of predators, disease, and other ecosystem components found in their native region of the world. Most of these species take advantage of disturbance gaps such as logged units, roads, rock quarries, burned areas, the areas surrounding human structures, and trails. Weed seeds and other propagules can be introduced into an area by a variety of agents, most notably wind, highway and off-road vehicles, and construction equipment. They can also disperse by way of water, animals, and humans. Once established, these populations serve as a seed source for further dispersal, generally along road and trail corridors.

Contractors are now required to include provisions (B/BT6.35 - Equipment Cleaning) to minimize the introduction and spread of invasive plants. Weed populations in the units and along transportation routes must be mapped on the project map and equipment-cleaning areas need to be identified.

### **3.5.5 Existing Condition – Invasive Plants**

Invasive plants in the project area that pose the most serious threat to native vegetation are both new invader and established species: Slender false brome (*Brachypodium sylvaticum*), Scot’s broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus discolor*), evergreen blackberry (*Rubus laciniatus*), knapweeds (*Centaurea debeauxii*, *C. maculosa*, *C. diffusa*), English ivy (*Hedera helix*) and everlasting peavine (*Lathyrus polyphyllus*). Reed canarygrass (*Phalaris arundinacea*), tansy ragwort (*Senecio vulgaris*), oxeye daisy (*Leucanthmum vulgare*), St. John’-wort (*Hypericum perforatum*), Periwinkle (*Vinca major*) foxglove (*Digitalis purpurea*), Common mullein (*Verbascum thapsus*), White sweet clover (*Melilotus alba*), Canada and Bull thistle (*Cirsium arvense* and *C. vulgare*) are also present in the project area. These species are commonly associated with forest openings such as road corridors, clearcuts and young plantations. For more detailed information on these species, refer to the Botany Report in the Analysis File.

Many of the illegal trash dumping sites have become sites where invasive plants become established as a result of yard waste being dumped at these sites. Yard waste often contains seeds of weed species.

The following summarizes known new invader weed species locations relative to roads, quarries and other areas that were botanically surveyed in the past. This list is not a complete inventory of weeds in the entire project area, as not all areas have been surveyed for noxious weeds.

Site 1- Hwy 58 MP 15 - none identified, not yet surveyed.

Sites 2, 3, 4 - Off Rd 5835, spurs 514, 520, unnumbered spur (site 4) - none identified, not yet surveyed.

Site 6 - 1910-698 - none identified, not yet surveyed

Site 7 – Road 1910, first dispersed site on right across bridge - suspected false brome, not yet surveyed.

Site 10 - old Salmon Cr shooting range - Scot's broom, blackberries.

Site 11 – all Rd 2404, 2404-212, old helicopter landing, old Mule Meadow, Flat Cr trailhead - Scot's Broom, blackberries, everlasting peavine.

Site 12 – Rd 5828 Buckhead seed orchard - Scot's broom, blackberries, not yet surveyed

Site 14 – 2400-015 - none identified, not yet surveyed

2137039 - Known site Spotted knapweed RI-34 within 1 mile on 2137

### **3.5.6 Environmental Consequences – Invasive Plants**

The action alternatives incorporate all the standards associated with the 2005 Forest Plan amendment for invasive plants and the corresponding mitigation measures identified in Chapter 2.

#### **3.5.6.1 Direct and Indirect Effects**

##### **Alternative 1 – No Action**

The No Action alternative would not manage for any invasive plant populations that persist in the project area. It is unknown whether invasive species are increasing, decreasing or stable because there is no available data on rates of weed spread on federal or non-federal lands in the watershed. Long-term data collection and monitoring of weed populations has not been done on road systems in the project area. False brome has been manually treated at Flat Creek for the past several years, and though it appears that patches are diminishing, conclusive eradication results cannot be determined as yet. Because no machinery would be dispatched to sites, there should be no risk of additional introduction from contaminated off-road equipment. Alternative A does not provide any treatment activities that could promote new short term weed flushes; no new ground would be opened to provide a seed bed for invasive species. No roads or trash sites would be closed either. Established weed populations already present in open dispersed and road prism areas would remain growing unchecked and left largely unmanaged, unless some other funding

provided treatment opportunities. Only specific new invader sites already under a treatment plan through the forest Invasive Species Program would be managed.

### **General Effects Common to Action Alternatives**

Implementation of any action alternatives that include road and dispersed site closures decreases risk of invasive plant seed dispersal and establishment from development of more closed vegetation conditions that discourage invasive plants to pioneer disturbed sites and eventually out-compete native plants. A combination of soil disturbance and transport of seed constitutes the direct effects of site use on weed introduction and persistence. The alternatives that do not close some of the problem areas (roads and dispersed areas where weeds are already growing) contribute the higher risk of continued and expanding weed infestations from continual use by vehicles and other vectors that may bring seed in, and the greater the number of disturbed acres/miles of road left open, the higher the acreage of early seral habitat maintained for invasive weeds. The old Mule Meadow of Rd. 2404 is one such example. Weed invasion into adjacent forested areas could lead to competition with tree and shrub seedling establishment and growth, which in turn could affect future potential vegetation associated with sensitive botanical species. Weeds also directly compete with sensitive species like tall bugbane should they invade sensitive plant habitat.

Of particular concern are road systems that contain new invader species such as English ivy, false brome and knapweeds as it has been theorized that vehicular traffic facilitates movement of weed seed up and down road systems by moving seed caught in mud on vehicle undercarriages. Closure work could potentially bring in weed seed from contaminated machinery or materials. For example, road culverts may have to be removed, water as these increase the risk of noxious weed introduction through potential contamination from off-road equipment that is not cleaned off prior to entry, or during movement between work areas. There is one documented new invader site, and several established species located at or near proposed illegal trash closure areas. Most are either English ivy, blackberries and scattered or linear false brome sites. Flat Creek Trailhead # 3566 has a few weeds associated with this trail, mostly blackberries and Scot's broom. However, this trail has not been checked for new weed sites in recent years. Roads are well documented as vectors of weeds and where new populations could easily establish. There are no documented new invader sites identified within Echo Staley road closure areas, though there are knapweed populations within one to several miles of roads to be closed. Because weeds most often travel along road systems, risk of weed infestation decreases in areas where roads and landings are closed, rehabilitated, and seeded with desirable species.

Closing these trashy dispersed and roaded areas would help eventually decrease the risk of new weed establishment and continued growth when native vegetation is allowed to re-grow, with the provision that any current populations of invasive plants are treated effectively prior to closing. The old Salmon Creek shooting range is an example of a closure scenario where an improvement

to weed infested habitat would occur. One spotted knapweed site (RI-34) on 2137 is within a mile of Douglas County Road 2137-039.

### **Alternative 2 - Proposed Action**

These actions will eventually help contribute to a decrease the risk of permanent weed establishment when native vegetation is allowed to re-grow, with the provision that any current populations of invasive plants are treated effectively prior to closing. One spotted knapweed site (RI-34) on 2137 is within a mile of Douglas County Road 2137-039.

### **Alternative 3**

Alternative 3 is the same as the Proposed Action except that roads in the Echo Staley portion of the project would not be closed. They would be left open, but treated with rolling dips. This Alternative will also eventually contribute to a decrease in the risk of permanent weed establishment when native vegetation is allowed to re-grow, with the provision that any current populations of invasive plants are treated effectively prior to closing. One spotted knapweed site (RI-34) on 2137 is within a mile of Douglas County Road 2137-039.

### **Alternative 4**

Of the action alternatives, this alternative has the highest risk of promoting weed infestations due to leaving more acres of open areas more easily accessible to habitat disturbance from unauthorized and uncontrolled off road activity in the 2404 area, e.g. the old Mule Meadow. This unregulated use has likely contributed to an increase in weed habitat and degradation of meadow habitat in the area, and would continue to progressively worsen over time.

#### **3.5.6.2 Cumulative Effects**

Cumulative effects for weeds are analyzed on a watershed scale since the entire watersheds contain habitat and weed species similar to those in the project area. It would be reasonable to assume that modes and patterns of dispersal and rate of spread of species would be similar to that found elsewhere in the watersheds, thus it would be prudent to consider cumulative effects to all species found in the project area collectively with the other sites in the watersheds.

Past actions that created habitat for weeds within the watersheds include clear-cut and shelter wood harvesting by the Forest Service. It is assumed that clear-cut harvesting (stands < 20 years are assumed to be un-recovered) and management activities such as tractor yarding, temporary road construction, road maintenance and upgrade, soil restoration treatments, hand-piling, grapple piling and burning, and under burning contribute to an overall increase in early seral (potential weed) habitat in the watersheds.

Foreseeable future actions include repair of off road vehicle damage in old Mule Meadow off of and installation of drivable waterbars on Rd. 2404 under the Oakridge Thinning and Fuel Reduction Project. These actions will eventually help contribute to a decreased risk of permanent

weed establishment when native vegetation is allowed to re-grow, with the provision that any current populations of invasive plants are treated effectively prior to closing.

The FS road systems in the watersheds are the main travel routes along which infestations are moving. Road maintenance activities occur in these watersheds on an as needed basis depending upon level of use. There are 1,678.4 miles of open roads in the four watersheds. The Upper Middle Fork Stormproofing project is a foreseeable future action that proposes to close 23.2 miles of road, which will reduce the amount of road open to spread of weeds.

**Alternative 1, No Action:**

No project activities would take place in Alternative A, the no action alternative. This alternative would not reduce the open road system and would also not create any additional habitat (zero percent), so this alternative should contribute no additional cumulative effects. Weeds are spread through a combination of human and wildlife activities, and natural events including wind and rain. Foreseeable activities within the project area are expected to be similar to past and current activities. Human activities that would vector weeds onto and within federal and non-federal lands in the watershed such as recreational use (such as off road vehicle traffic, etc.), road travel, road construction and maintenance, forest product collection would all continue to occur regardless of whether or not any of the action alternatives occur. Incremental measures of weed infestations, whether by human or natural disturbances, cannot be accurately predicted because of all the variables involved in vectoring weeds.

**Alternatives 2, 3, and 4:**

The general cumulative effect on invasive plants by project implementation will be to decrease the overall amount of area infested because more area will be closed off from ground disturbing activities and will overgrow over time into a more closed canopy vegetation condition.

Alternative 2 would close the most miles of road year-round (40.9), representing the most acres of closed weed corridor. Alternative 4 is next with 32.3 miles closed. Alternative 3 closes the least miles of road year-round (17.6), representing the least acres of closed weed corridor.

**3.5.6.3 Conclusion**

All alternatives, including No Action, would result in new and continued disturbances that promote introduction and colonization of new weed species and expansion of existing species in the project area. Affected acres can be quantified; however, the rates of spread and densities of noxious weeds in the watershed cannot be reliably predicted with any accuracy. The risk of future weed infestation can be reduced by implementation of Best Management Practices (BMPs) that are incorporated into project design. The mitigating measures to be applied would cumulatively lower the risk of invasive plants within the watersheds. Weed populations that have been treated for the past several years using appropriated weed treatment funds, and irregardless of alternative

design and implementation, treatment will continue when monitoring documents new localized populations.

## **3.6 Fisheries**

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### **3.6.1 Existing Condition**

Fish species currently inhabiting these Middle Fork Willamette Watersheds include spring chinook salmon, bull trout, Oregon chub, rainbow trout, cutthroat trout, sculpin, lamprey, mountain whitefish, largescale suckers, dace, redbreast shiners, and northern pikeminnow. Spring chinook salmon are listed as Threatened and are indigenous to many of these watersheds, however upstream migration was blocked in the late 1950's and early 1960's by the construction of Fall Creek, Dexter, Lookout Point, and Hills Creek Dams. Spring chinook salmon are stocked into 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 areas downstream of the project area. In 2001 a similar trap and haul program was started on the North Fork of the Middle Fork Willamette. Adult salmon spawn in the North Fork and the progeny of those fish disperse downstream throughout the mainstem of the Middle Fork Willamette River, Lookout Point and Dexter reservoirs.

Historically, bull trout inhabited the Middle Fork Willamette River and associated tributaries. These fish are also currently listed as Threatened. Since 1997, the Forest Service and ODFW have reintroduced more than 10,000 bull trout fry into several sites above Hills Creek Dam. Bull trout currently occupy areas within and also downstream of the project area.

Oregon chub, listed as Endangered, may occupy habitat within the reservoirs and associated ponds within or near the project area. Oregon chub are native to the Willamette Valley of Western Oregon. The preferred habitat is slow moving water as is commonly associated with backwater sloughs and ponds with depositional substrates and an abundance of aquatic vegetation. Historically, Oregon chub were found in many of the side channels and backwater areas, possibly colonizing areas during flood events. Dam and highway construction have changed most of the original habitat, and the species now resides in Lookout Point and Dexter Reservoirs and shallow ponds where the highway has cut off side channels from the Middle Fork of the Willamette River.

### **3.6.2 Environmental Consequences**

Road Decommissioning and Obliteration and Repair of Storm Damaged Road 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. All activities of the illegal household trash sites portion of the project are covered under the programmatic as well. The effects determination for activities associated with the Echo Staley Road Storage and Illegal Household Trash Project is May Affect, Not Likely to Adversely Affect (NLAA) bull trout and spring chinook salmon, due to the fact that this type of project does not typically transmit sediment to stream channels and the work will largely be completed outside of riparian reserves.

#### **Critical Habitat**

National Marine Fisheries Service (NMFS) has designated critical habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho (70 FR 52630; effective January 2, 2006). Critical Habitat has been designated for both Upper Willamette River Chinook salmon in areas that the projects occur. However, based on the amount of sediment transport prevention measures taken and the overall distance the project is from the stream networks and listed critical habitat there will be no effect on spring Chinook salmon critical habitat.

Critical Habitat has been designated for bull trout by the US Fish and Wildlife Service (70 FR 56212; effective October 26, 2005). The USFWS designated critical habitat for bull trout in the Willamette River basin in the following streams: Blue River, Horse Creek, Lost Creek, McKenzie River, Middle Fork Willamette River, South Fork McKenzie River, Swift Creek, West Fork Horse Creek, and Willamette River. However, they excluded (pursuant to section 4 (a)(3) of the ESA) all stream reaches flowing through Federal land in the basin stating that it is adequately protected by the Northwest Forest Plan Aquatic Conservation Strategy. All aspects of the above listed project occur on Federal lands and are therefore excluded from bull trout critical habitat consideration.

Consultation requirements for the Echo Staley Road Storage and Illegal Household Trash 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 does include habitat above Fall Creek Dam. However, the proposed project effects are short-term in nature with the long-term benefits out weighing short-term effects resulting from the project. It is further determined

that the project will not exceed the “May Adversely Affect” EFH threshold and is therefore not subject to EFH consultation with NMFS.

### **3.7 Heritage Resources**

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A number of the activities proposed in this project are specifically addressed in the 2004 PA (Programmatic Agreement) with the SHPO (State Historic Preservation Office), under the road decommissioning activities described in Appendix B (5, 7, and 8), as well as Appendix A (23, 27, and 29). Since the proposed project activities 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 the PA. Activities in the vicinity of the historic Oregon Central Military Wagon Road (along Forest Road 21), as well as other areas determined to be potentially culturally sensitive, should be monitored by the district archaeologist or cultural resource technician, as previously discussed with the project manager. Hence, the district archaeologist must be notified when operations are scheduled begin, in order to schedule such monitoring. In the event that heritage properties are located during the course of this project, all work in the area of the find shall be suspended immediately, while an archaeologist is notified to assess the find.

### **3.8 Economics**

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#### **3.8.1 Existing Condition**

This project incorporates by reference the Willamette National Forest Road Analysis Report (USDA, 2003). One of the key findings in the report is the dilemma of managing an extensive forest road system with limited operating funding. The Forest Road Analysis Report estimates \$3,400,000 per year is needed “on the ground” to perform the necessary annual maintenance on the Willamette National Forest. Total funding to the Forest is \$1,400,000 per year, leaving an estimated budget shortfall of \$2,000,000 per year. The direction in Forest Service Manual 7703 establishes policy to determine and provide for the minimum forest transportation system 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 \$1,000,000 annual shortfall even if the network of Key Forest roads are fully maintained to their current objective maintenance levels.

Another key finding 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.

Cleanup of illegal household trash sites costs the Middle Fork Ranger District approximately \$20,000 to \$30,000 annually.

### **3.8.2 Environmental Consequences**

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.

#### **3.8.2.1 Direct and Indirect Effects**

##### **Alternative 1 – No Action**

An estimated \$82,800 would be needed to maintain the roads in the Echo Staley portion of the project area for the next 25 years if no road storage treatments are applied at this time. This cost would be slightly higher than Alternatives 2 and 4, but about one-fourth the cost of Alternative 3. This cost does not include the potential value of degraded water quality and aquatic habitat.

##### **Alternative 2 – Proposed Action:**

Alternative 2 would cost an estimated \$68,305 to implement the road storage treatments prescribed in the Echo Staley portion of the project area. Road and site closures to discourage trash dumping would cost about \$10,200. Total cost for this alternative would be about \$78,505, slightly less than Alternative 1, slightly more than Alternative 4, and about one-fourth the cost of Alternative 3.

##### **Alternative 3:**

Alternative 3 would cost an estimated \$202,000 to install the rolling drain dips prescribed in the Echo Staley portion of the project area. Estimated future maintenance to keep the drain dips in good condition would cost about \$82,800 over a 24 year period. Road and site closures to discourage trash dumping would cost about \$10,200. Total cost for this alternative would be \$295,000 the highest cost for all of the alternatives.

##### **Alternative 4:**

Alternative 4 would cost an estimated \$68,305 to implement the road storage treatments prescribed in this alternative. Road and site closures to discourage trash dumping would cost about \$7,200. Total costs for this alternative would be about \$75,505, slightly less than Alternatives 1 and 2, and about one-fourth the cost of Alternative 3.

**Figure 3-12: Direct and Indirect Costs of Implementing the Alternatives**

	<b>Alt. 1 - No Action</b>	<b>Alt. 2 – Proposed Action</b>	<b>Alt. 3</b>	<b>Alt. 4</b>
Cost of road storage and stabilization treatments	0	\$68,305	\$202,000	\$68,305
Future maintenance costs for Echo Staley portion	\$82,800	0	\$82,800	0
Cost of road and site closures for trash management	0	\$10,200	\$10,200	\$7,200
<b>Total Direct and Indirect Costs</b>	<b>\$82,800</b>	<b>\$78,500</b>	<b>\$295,000</b>	<b>\$75,505</b>

**3.8.2.2 Cumulative Effects**

Cumulative effects would be due to the cost of re-opening hydrologically stabilized roads if and when they are needed in the future.

**Alternative 1 – No Action**

There would be no cumulative costs for Alternative 1 other than the future maintenance described above, since roads would not be hydrologically stabilized and roads would not need to be re-opened. Total cumulative costs would be the same as Direct and indirect costs at about \$82,800.

**Alternative 2 – Proposed Action**

Direct and indirect costs for Alternative 2 would be an estimated \$78,500 as discussed above. If and when the Echo Staley roads are needed in the future, the estimated cost to restore these roads would be about \$68,305. Total cumulative costs would be about \$146,810, slightly more than Alternative 4, but about half the cost of Alternative 3.

**Alternative 3**

Direct and indirect costs for Alternative 3 would be an estimated \$295,000 as discussed above. If and when the Echo Staley roads are needed in the future, the cost of restoring these roads (remove rolling drain dips) would be less than in Alternatives 2 and 4 (remove water bars, ditches, berms) at about \$13,950. Total cumulative costs would be about 308,950, the highest of all alternatives.

**Alternative 4**

Direct and indirect costs for Alternative 4 would be an estimated \$75,505 as discussed above. If and when the Echo Staley roads are restored, the estimated cost to restore these roads would be about \$68,305. Total cumulative costs for this alternative would be about \$143,810, slightly less than Alternative 2 and about half the cost of Alternative 3.

**Figure 3-13: Cumulative Costs of Implementing the Alternatives**

	<b>Alt. 1 - No Action</b>	<b>Alt. 2 – Proposed Action</b>	<b>Alt. 3</b>	<b>Alt. 4</b>
Direct and indirect costs (from figure 3-12, above)	\$82,800	\$78,500	\$295,000	\$75,505
Cost to re-open and restore roads in the future	0	\$68,305	\$13,950	\$68,305
<b>Total Costs</b>	<b>\$82,800</b>	<b>\$146,810</b>	<b>\$308,950</b>	<b>\$143,810</b>

### 3.9 Air Quality

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

### 3.10 Other Disclosures

#### 3.10.1 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 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.

### **3.10.2 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

### **3.10.3 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

### **3.10.4 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.

### **3.10.5 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, or women with implementation of any of the alternatives.

### **3.10.6 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 and 7 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”.

### 3.10.7 Effects on American Indian Rights

The Confederated Tribes of Grand Rhonde, Confederated Tribes of Siletz Indians, Confederated Tribes of Warm Springs, and the Klamath Tribe were notified of the project during the scoping of issues as part of the public participation process. No specific comments were received from these tribes as a result of scoping letters.

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 Sites Executive Order 13007.

### 3.10.8 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.

### 3.10.9 Monitoring

Based upon the purpose and need for the action and 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 and Forest Road Analyses?

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

#### **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 it 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)?

**Illegal Household Trash Sites**

Did the project reduce the number of illegal trash sites requiring annual cleanup in the project area?