

**Appendix B**  
**UPPER CLACKAMAS THIN ENVIRONMENTAL ASSESSMENT**  
**BIOLOGICAL EVALUATION**

**FOR THOSE WILDLIFE SPECIES LISTED AS THREATENED, ENDANGERED, OR PROPOSED UNDER  
SECTION 4 OF THE ENDANGERED SPECIES ACT & SENSITIVE SPECIES UNDER THE REGIONAL  
FORESTER'S LIST**

**DATE: May 29, 2008**

**Clackamas River Ranger District**  
**Mt. Hood National Forest**

Written by:  /s/ Sharon Hernandez Date:  5/29/08  
Sharon Hernandez, Supervisory Wildlife Biologist

## EXECUTIVE SUMMARY

Forest management activities that may alter the habitat for threatened, endangered, sensitive or proposed species are required to undergo review in a Biological Evaluation (FSM 2671.44 and FSM 2670.32) as part of the National Environmental Policy Act process. The Biological Evaluation process (FSM 2672.43) is intended to document that proposed management actions will not jeopardize the continued existence or cause adverse modification of habitat for listed or proposed species, or (for sensitive species) lead towards the likelihood of Federal Listing.

The attached Executive Summary serves as documentation to display the effects of the Upper Clackamas Thin on threatened and Forest Service Regional Forester’s sensitive species that are documented or suspected to occur within the Mt. Hood National Forest. A more detailed analysis of project effects to species that have a May Impact / May Affect conflict determination can be found in the body of this biological evaluation. (Note: No wildlife proposed or endangered species exists on the Mt. Hood National Forest.)

**Table 1: Executive Summary: Upper Clackamas Thin**

<b>Listed or Regional Forester’s Sensitive Species</b>	<b>Field Review – Presence of Potential Habitat for Species</b>	<b>Action Alternative Conflict Determination</b>
<b>Threatened</b>		
Northern Spotted Owl ( <i>Strix occidentalis caurina</i> )	Yes	May Affect, Not Likely to Adversely Affect
<b>Sensitive</b>		
Johnson’s Hairstreak ( <i>Callophrys Johnsoni</i> )	No	No Impact
Mardon Skipper ( <i>Polites mardon</i> )	No	No Impact
Oregon Slender Salamander ( <i>Batrachoseps wrightii</i> )	No	No Impact
Larch Mountain Salamander ( <i>Plethodon larselli</i> )	No	No Impact
Cope’s Giant Salamander ( <i>Dicamptodon copei</i> )	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
Oregon Spotted Frog ( <i>Rana pretiosa</i> )	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
Bald Eagle ( <i>Haliaeetus Leucocephalus</i> )	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
White-headed Woodpecker ( <i>Picoides albolarvatus</i> )	No	No Impact
Lewis’ Woodpecker ( <i>Melanerpes Lewis</i> )	No	No Impact
Bufflehead	No	No Impact
Harlequin Duck	Yes	No Impact
American Peregrine Falcon	Yes	May Impact Individuals, but not likely to cause a trend towards Federal listing or loss of viability
Townsend’s Big-eared Bat ( <i>Corynorhinus townsendii</i> )	No	No Impact
Fringed Myotis ( <i>Myotis thysanodes</i> )	Yes	No Impact
California Wolverine ( <i>Gulo gulo luteus</i> )	No	No Impact

Puget Oregonian*	No	No Impact
Columbia Oregonian*	No	No Impact
Evening Fieldslug*	No	No Impact
Dalles Sideband*	No	No Impact
Crater Lake Tightcoil*	No	No Impact
Crowned Tightcoil (Pristiloma Pillsbryi)	No	No Impact

## **PROJECT BACKGROUND AND ALTERNATIVE SUMMARY**

This timber sale is located within the Clackamas River Ranger District of the Mt. Hood National Forest. The proposed action is to thin and harvest wood fiber from approximately 1094 acres of young managed plantations. Thinning would be designed to maintain diversity by applying variable density prescriptions.

The following gives a brief description of the alternatives:

**ALTERNATIVE A:** Under the no-action alternative, current management plans would continue to guide management of the project area. No timber harvest or associated actions would be accomplished under this proposal.

**ALTERNATIVE B:** Variability – Thinning would be conducted to introduce structural diversity through variable spaced thinning. Diversity and variability would be introduced in several ways. This list is a summary of practices that are described below and in the design criteria.

- Leave tree spacing would vary within units and between units.
- Skips and gaps would be created in a variety of sizes. (Skips are areas where no trees would be removed; Gaps are areas where few or no trees would be retained. Gaps may also include areas of heavy thinning where 50 or fewer trees per acre are retained.)
- Leave trees would include minor species.
- There would be a greater emphasis for hardwood retention in LSRs than in matrix.
- Leave trees would include trees with the elements of wood decay.
- Leave trees would include some live trees where their crowns touch certain key snags.
- All non-hazardous snags would be retained.
- All existing down logs would be retained and key concentrations of woody debris in the older decay classes would be protected.
- Some snags and down logs would be created.

**STREAMSIDE RIPARIAN RESERVES** - For this project, riparian reserve widths are 180 feet for non-fish-bearing streams and 360 feet for fish-bearing streams. In the riparian reserves, the thinning would be designed to create conditions suitable for increased diameter growth and enhance the potential for large wood recruitment. The intention is to enhance riparian reserves by accelerating the development of mature and late-successional stand conditions. Trees would be thinned to a relative density of 30.

**Skips & Gaps** - The protection buffers along streams would be considered skips. Gaps would be created within riparian reserves but they would be 100 feet or farther from a stream. Gaps would be 0.1 to 0.25 acre in size and would make up 0-10% of the available riparian component.

**Protection Buffers** – The width of protection buffers would vary depending on site conditions. Streams adjacent to listed fish habitat would have 100-foot wide buffers (this applies to unit 21 adjacent to Last Creek, and to units 22, 23, 24, 33, 34, 38 adjacent to Pinhead Creek). All other perennial streams and intermittent streams would have 50-foot wide buffers. Most of the remaining units have these types of streams either within or adjacent to their boundaries.

Within 50 feet of the stream protection buffers, only low impact harvesting equipment such as, but not limited to, mechanical harvesters or skyline systems, which have minimal ground disturbance would be allowed. Mechanical harvesting equipment would be required to operate on slash-covered paths. Trees in this zone would be directionally

felled away from the protection buffers to minimize the disturbance to the forest floor. These requirements would maintain the indicators for sediment, stream temperature, stream bank condition, and large woody material indicators.

**OTHER RIPARIAN RESERVES** – There are some small seeps and wet areas that are too small to show on maps. Riparian features that are not perennial or intermittent streams such as seeps, springs, ponds or wetlands would be protected by the establishment of protection buffers that incorporate the riparian vegetation. Certain perennially wet features that are habitat for rare and uncommon aquatic mollusks would be protected by the establishment of 50-foot wide protection buffers. The protection buffers along ponds, seeps and wet areas may be considered skips.

**LATE-SUCCESSIONAL RESERVES** - In the approximately 641 acres of late-successional reserve, the thinning would be designed to accelerate the development of mature and late-successional stand conditions. Trees would be retained at a relative density of 25 to 35. Where riparian reserves overlap late-successional reserves, the design features for riparian reserves would take priority in the riparian reserve component. In late-successional reserves (including where riparian reserves overlap) trees would not be cut if they are greater than 20 inches in diameter (at a height of 4.5 feet). If larger trees need to be cut for skyline corridors, skidtrails, landings or temporary roads they would be left in place. Hardwood trees across a range of size classes would be favored, including large trees that occupy mid-canopy and higher positions.

**Skips & Gaps** - Skips would be created that would vary in size and would comprise a minimum of 10% of each unit. Skips would be 0.25 to 1.25 acres or larger where appropriate based on site-specific features. Where riparian reserves overlap late-successional reserves, the protection buffers adjacent to streams may be counted as skips. Gaps would be created on 3 to 10% of each unit: Openings would be 0.1 to 0.25 acre in size would have 6 or fewer trees and heavy thinning (25 to 50 trees per acre) would vary in size from 0.25 and 1.25 acres.

**MATRIX** - In the matrix (approximately 1,066 acres), thinning would be designed to increase health and growth that results in larger wind-firm trees. Trees would be retained at a relative density of 25 to 35.

**Skips & Gaps** - Skips would be created that would vary in size and would comprise up to 5% of each unit. Where riparian reserves cross through matrix, the protection buffers adjacent to streams may be counted as skips. Gaps would be created within matrix; they would be 0.1 to 0.25 acre in size and would make up 0-5% of each unit's matrix component.

**ROADS** – After use, temporary roads will be bermed at the entrance; decompacted and roughened with the jaws of a loader or excavator; and debris such as rootwads, slash, logs and boulders placed near the entrance and along the first portion of the road.

**Temporary Roads** - Temporary roads are roads that are built by timber operators to access landings and are closed upon completion of logging until they are needed again. They are not considered part of the Forest's system of permanent roads. The units proposed for thinning are plantations, many of which were accessed by temporary roads during the original clear cut logging. These existing temporary roads are closed and in some cases have vegetation, brush and trees growing on them. Even though all of the proposed units were clear cut logged before, there are cases where it is not feasible or desirable to use the same roads, landings or logging method used before. To protect the residual trees and soil and water resources, in some cases new temporary roads are proposed to access the landings where the existing system roads and old temporary roads do not adequately access the ground.

- Approximately 1.51 miles of old existing temporary roads would be reopened. They would be obliterated upon completion of the harvest units they access.
- Approximately 0.55 miles of temporary roads would be constructed on old existing skid trails. They would be obliterated upon completion of the harvest units they access.
- Approximately 0.31 miles of new temporary roads would be constructed. They would be obliterated upon completion of the harvest units they access.

**System Roads** - Many system roads are currently closed with berms or other devices. They would be temporarily reopened and would be reclosed upon completion of the harvest units they access.

- Approximately 1.75 miles of old system roads that were decommissioned would be reopened and treated as temporary roads. They would be obliterated upon completion of the harvest units they access.
- Approximately 1 mile of system roads would be used and then decommissioned.
- Approximately 6.63 miles of system roads that are open or have ineffective closures would be used and then closed with effective berms.

**Road Repair and Stabilization** - To facilitate safe use, several roads are in need of repair and are as follows: Roads. In addition, most haul roads would receive road maintenance including ditch and culvert cleaning and brushing. Gravel roads would be bladed and shaped where needed.

**OTHER PROJECT DETAILS** - Fuels treatment would be minimal: where a mechanical harvester is used, branches would be crushed under the equipment. Elsewhere there would be no fuels treatment except the piling and burning of incidental quantities of slash and debris at landings.

## SPECIES SPECIFIC DISCUSSIONS

### Northern Spotted Owl (*Strix occidentalis caurina* – threatened)

#### A. HABITAT

Old-growth coniferous forest is the preferred habitat of spotted owls in Oregon. Old-growth habitat components that are typical for spotted owls are: multilayered canopies, closed canopies, large diameter trees, abundance of dead or defective standing trees, and abundance of dead and down woody material.

Habitat for the owl is further defined as either nesting/roosting/foraging (NRF) or dispersal habitat. Generally this habitat is 80 years of age or older, multi-storied and has sufficient snags and down wood to provide opportunities for nesting, roosting and foraging. The canopy closure generally exceeds 60 percent. Dispersal habitat for the owl generally consists of mid-seral stage stands between 40 and 80 years of age with a canopy closure of 40 percent or greater and an average diameter of 11". Spotted owls use dispersal habitat to move between blocks of suitable habitat; juveniles use it to disperse from natal territories. Dispersal habitat may have roosting and foraging components, enabling spotted owls to survive, but lack structure suitable for nesting.

#### B. FIELD REVIEW

##### Habitat Available on the District

The last time extensive field surveys were conducted on the District was from 1979 to approximately 1994; in which the Regional protocol per Regional Forester's direction of March, 1993 was followed. During that time period there had been many documented sightings of adults and young produced on the District. (Historic records are on file at the District office).

##### Existing Condition of Proposed Harvest Units

Approximately 357 acres within the units are considered non-habitat for the spotted owl due to their young age and resultant lack of structure and small diameter trees. The remaining 737 acres proposed for harvest are providing

dispersal-only habitat for the spotted owls. None of the units are currently proving NRF habitat for the species. The stands lack a multi-storied structure, large diameter trees and appropriate levels of snags and down required for nesting. The following is a table displaying the amount of dispersal habitat within the late-successional reserve and spotted owl habitat units (e.g. CHU's) found within the project area. Dispersal habitat described below is dispersal-only habitat.

Snags and down woody debris are an important component of spotted owl habitat. Field data was collected in the summer of 2007 to determine down wood and snag levels within the project area. The units within the project area had an average down wood percent cover of 4.2% in the LSR and 3.6% cover in the Matrix. Snag levels of 10" diameter or greater within the LSR and Matrix were at 2.1 and 1.2 trees per acre, respectively. Most snags are small to medium size. Few large legacy snags exist in the plantations.

**Existing Condition of Upper Clackamas Late-Successional Reserve 207B**

A portion of this project occurs within Upper Clackamas LSR (207B) and is within the High Cascades Province. This portion of LSR 207 lies in the Upper Clackamas Watershed and has a long narrow band along the Upper Clackamas River and a wider portion near the Olallie Lake area. LSR 207 as a whole (Roaring River and Upper Clackamas combined) has 104,108 acres, of which 86,942 are capable and 46,395 acres are suitable habitat for the spotted owl. The proposed project is in a section of the LSR that is narrow along the Clackamas River. Most of the existing late-successional forest in this complex is within the Western Hemlock Zone associated with the river corridor. This habitat is relatively unfragmented (USDA 1996).

Road 46 runs along the Clackamas River. This creates a barrier for some species and a hazard for others. It is especially a concern where the LSR narrows along the river corridor (USDA1996).

**Existing Condition of Critical Habitat Units OR-10 and OR-11**

Spotted owl critical habitat units serve to identify lands that are considered essential for the conservation and recovery of the spotted owl. The functional value of the critical habitat is to preserve options for species recovery.

CHU OR-10 occurs on the Mt. Hood National Forest and BLM Cascades Resource area. It was designated to maintain and provide essential NRF habitat and support a cluster of owl pairs. CHU OR-10 provides an important link to the north-south continuum of owl habitat between CHUs OR-12 and OR-2 to the south and OR-9 and OR-1 to the north as well as within the Western Cascades province as a whole. Approximately 57% of this CHU overlaps the LSR (RO207). This CHU consists of 88,821 acres; 39,289 acres of which is considered suitable habitat for owls. Approximately 44 percent of the capable lands in this CHU are providing nesting/roosting/foraging habitat for spotted owls (USDA 2006).

CHU 11 occurs on the Clackamas River Ranger District and borders the western edge of the Warm Springs Indian Reservation on the crest of the Cascade Range. This CHU is designed to provide for essential nesting/roosting/foraging habitat and to support clusters of owl pairs. It is in an area believed to lack sufficient connection for maintaining a range-wide distribution of owl nesting habitat. For this reason the Olallie Lake area of concern was designated. (The proposed thinning is not in the area of concern.) The CHU consists of 50,189 acres; 21,469 acres of which is considered suitable habitat for owls. Approximately 43 percent of the capable lands in this CHU are providing nesting/ roosting/foraging habitat for the spotted owls (USDA 2006).

**Acres Affected**

The following is a table displaying the amount of dispersal habitat within the LSR and CHUs affected by the proposed action. Dispersal habitat described below is dispersal-only habitat. No suitable habitat exists in the proposed harvest units. Capable habitat (i.e. habitat that usually has the potential to become suitable in the future) for this area has been designated as forested habitats generally below 4500 feet in elevation.

**Table 2: Acres Affected**

Land Allocation or Habitat Unit	Total Acres	Dispersal Habitat	Capable Habitat (i.e. non-habitat)
Total Project Area	1094	746	348
Matrix and Non-LSR Riparian Reserve	450	248	202
Upper Clackamas LSR	644	498	146
CHU OR-10	34	34	0
CHU OR-11	761	511	250

**Analysis Area**

The project proposal involves the degradation and temporary removal of dispersal habitat for spotted owls. Thinning of second-growth mixed conifer stands within proximal use to nesting areas of spotted owls may result in short term adverse impacts (Meiman et. al. 2003). Since there are no recent surveys for spotted owls that show the locations of the active nest sites, historical spotted owl information was used. Historical activity centers are used because studies show nest sites are used for many years. The analysis will examine effects to spotted owls from alteration of their home ranges and core areas.

While it is usually the degradation or removal of suitable habitat that potentially results in harm to a territorial pair of spotted owls, the loss or degradation of dispersal habitat may also incur short-term impacts to an owl pair. The U.S. Fish and Wildlife Service has guidelines for how much removal of suitable habitat would result in take. There are no such guidelines for dispersal habitat.

For the Willamette Province, the home range is a 1.2 mile radius circle (2,955 acres) centered on the historic owl nest activity center. The proposed project is within the home range of 15 historical pairs. Incidental take would be presumed to occur when suitable habitat is removed from a home range in which suitable habitat comprises less than 40% of that home range.

A core area has been defined as the area within a home range that receives disproportionately high use (e.g. 503 acres or 0.5 mile radius circle around the nest site). Incidental take would be presumed to occur when suitable habitat is removed from a core in which suitable habitat comprises less than 50% of the core.

Out of the 15 historical pair’s home range circles, 5 are currently considered to be below take thresholds by the U.S. Fish and Wildlife Service.

In addition to the analysis of home range and core areas, an analysis will be displayed for LSR’s and CHU’s.

**C. ANALYSIS OF DIRECT/INDIRECT EFFECTS**

**Alternative A (No action)**

No short-term effects to the spotted owl would be predicted with this alternative. For the short term, the units would continue to function as dispersal or non-habitat; snag and down wood levels would remain essentially unchanged. In the long term (20-40 years), the stands would start to differentiate to varying degrees and show an increase in the levels of snags, down wood and understory development. Where these developments occurred, they would improve the dispersal habitat characteristics being provided within the stands. The quality of dispersal habitat would improve only slightly in some stands while improving much more in others. Most of the stands currently providing capable habitat would become dispersal habitat in the next 10-20 years. Some of the stands may eventually develop nesting habitat characteristics and become suitable spotted owl habitat. However, with no action, the development of these stands into suitable habitat could take as much as 60-100 years; much longer than with the action alternatives. Refer to Growth and Productivity and Diversity sections of EA for further discussions of the response of trees to no action.

With no action there would also be no noise related disturbance to owls as a result of project implementation.

**Alternatives B (Action Alternative)**

**Effects to Habitat on a Stand Scale**

The following table displays the acres of spotted owl habitat affected within the project area

**Table 3: Estimated Loss of Spotted Owl Habitat**

	<b>TOTAL ACRES</b>	<b>ACRES OF DISPERSAL HABITAT POTENTIALLY REMOVED</b>	<b>ACRES DISPERSAL DEGRADED</b>
<b>Project Area</b>	1094	171	575
<b>Upper Clackamas LSR</b>	644	78	420
<b>Matrix and Non-LSR Riparian Reserve</b>	450	93	155

The proposed treatments outside the LSR would include a variable density thinning prescription that would improve the growth rate of the residual stand. Larger trees would eventually be provided in these young managed plantations in a much faster timeframe than they would if no management occurred. Skips and gaps would be incorporated into the prescriptions as well as the creation of snags and down woody debris; also adding to the potential for increased habitat diversity in the future.

The plantations within the Late-Successional Reserves would be thinned as described in section 2.3.5 of the Upper Clackamas EA. The incorporation of larger and more frequent skips and gaps, and the creation of additional snags and down woody debris would all add to the complexity of the stand and the acceleration of these proposed harvest units into developing spotted owl suitable habitat. In addition, a variable density thin would occur both between trees in the units and between stands, adding to the potential that the units would eventually provide diverse habitat attributes. These silvicultural techniques are more likely to push the stands to an accelerated trajectory that would result in suitable habitat sooner compared to treatments outside LSRs, and much sooner when compared to no action.

The proposed harvest treatments would temporarily degrade approximately 575 acres of dispersal habitat from the analysis area. This degradation of habitat would occur as a result of opening up the canopy from its current condition of 80-100% down to 40-55%; as well as the loss snags and down woody debris currently in the stands. The Design Criteria require the retention of down logs and non-hazardous snags. Although the 575 acres of dispersal habitat within these units would be reduced in quality as described above, they would still function as dispersal habitat for the owl. It is estimated that these units would again provide the same quality of habitat in approximately 10 to 15 years after harvest.

Due to the intensity of thinning within some of the units, 171 acres of dispersal habitat would be temporarily removed in the stands. Even though the structural components (snags, remnant trees, down wood) would be retained, portions of these stands would be reduced to just less than 40% canopy cover, the overall affect being a temporary loss of dispersal habitat within these stands. There would be a short-term loss of approximately 171 acres of dispersal habitat as a result of project implementation. This temporary loss of dispersal habitat would occur in both the Matrix and LSR. These units would regain dispersal habitat attributes in approximately five years after harvest.

While dispersal habitat would be temporarily removed in the LSR, the benefits of thinning would outweigh this temporary loss. Incorporating variable-density thinning (ranging from RD 25-40) with skips and gaps would create a mosaic of small openings with unthinned, moderately thinned and heavily thinned patches. This prescription helps generate complex structures by promoting tree growth at different rates. It also encourages understory development and diversity. Variable-density thinning with skips and gaps would also improve forest health by increasing resistance to disturbance and improving the stand's ability to recover after disturbance. Thinning would result in stands more quickly growing into late-successional forests than if no treatment occurred. It is presumed the stands would develop the minimum habitat characteristics necessary for spotted owl suitable habitat within 40 years and they would become quality spotted owl habitat within 60 years.

### **Effects to Spotted Owls in the Vicinity of the Project Area**

There is suitable habitat adjacent to the many of the proposed thinning stands and it is currently providing nesting, roosting and foraging habitat. In addition, most of the units are within the mean home range (1.2 miles) of historic activity centers. Research has shown that activity centers that have been utilized in the past are likely to continue to be utilized in the future. All the proposed harvest units, except units 6, 7, and 8, are within the home range of a historic spotted owl activity center. Two units are within 200 meters (e.g. nest patch) of an activity center.

A recent study by Meiman (2004) reports changes in spotted owl use following a commercial thinning in stands near core areas in Clatsop State Forest. Although sample sizes were not large, proportional use of the thinned area was significantly less during and after harvest operations than during the pre-harvest period. The nature of this effect is not clear, but it may include an influence on prey availability, microclimate conditions, or higher vulnerability to predation. In addition, home range expansion of one spotted owl was observed, and a shift of the core use area away from the thinned stand. These effects suggest that commercial thinning in proximity to spotted owl activity centers may have a short-term effect on home-range and habitat-use patterns of individuals.

The loss of dispersal habitat would preclude spotted owl movement through these stands where the habitat has been removed. The removal or reduction of quality of dispersal habitat within the proposed units could also change the habitat use and home-range of any spotted owls residing in or near the proposed treatment areas. Since most of the units are within the home range or a pair, the loss of habitat or reduction in quality of dispersal habitat could alter the



birds foraging habitats; or shift the core use area of an individual away from the thinned stand. However, since there would be no suitable habitat impacted by project activities, it is unlikely that the proposed harvest activities would substantially negatively impact the health or resultant survival of any birds residing close to the project area.

**Effects to the Historic Owl Activity Centers in the Vicinity of the Project Area**

There are 15 historic owl activity centers whose home range (1.2 miles) overlaps the project area. The following table displays the current condition and project effects to the nest stand, core area, and home range of each historic nest site. Incidental take thresholds for suitable habitat are 40% for the home range and 50% for the core. The **bolded text** indicates the pair is below the threshold. There is no threshold for dispersal habitat.

**Table 4**

Owl Pair	Distance	Current Suitable – Acres and Percentage	Current Take Thresholds	Current Dispersal	Dispersal Post-Harvest
3058	Nest Stand	31 acres (100%)	N/A	31 acres	No Change
	Core Area	301 acres (60%)	Above 50% take threshold	301 acres	No change
	<b>Home Range</b>	<b>909 acres (31%)</b>	<b>Below 40% take threshold</b>	<b>912 acres</b>	<b>865 acres (64 acres degraded)</b>
3116	Nest Stand	25 acres (80%)	N/A	25 acres (80%)	No Change
	Core Area	328 acres (65%)	Above 50% take threshold	351 acres (70%)	No Change
	Home Range	1421 acres (49%)	Above 40% take threshold	1695 acres (59%)	No Change
3131	Nest Stand	17 acres (54%)	N/A	17 acres (54%)	No Change
	Core Area	228 acres (45%)	Below 50% take threshold	228 acres (45%)	No Change
	Home Range	1357 acres (47%)	Above 40% take threshold	1658 acres (57%)	1640 acres
3145	Nest Stand	10 acres (32%)	N/A	10 acres (32%)	No Change
	Core Area	286 acres (57%)	Above 50% take threshold	306 acres (61%)	No Change
	Home Range	1606 acres (55%)	Above 40% take threshold	1682 acres (58%)	No Change
3286	Nest Stand	18 acres (56%)	N/A	31 acres (100%)	31 acres (10 acres degraded)
	Core Area	343 acres (68%)	Above 50% take threshold	344 acres (68%)	344 acres (35 acres degraded)
	Home Range	1332 acres (46%)	Above 40% take threshold	1462 acres (51%)	1420 acres (194 acres degraded)
3320	Nest Stand	22 acres (70%)	N/A	22 acres (70%)	No Change
	Core Area	162 acres (32%)	Below 50% take threshold	316 acres (63%)	No Change
	Home Range	925 acres (32%)	Below 40% take threshold	1577 acres (54%)	No Change
3538	Nest Stand	14 acres (46%)	N/A	14 acres (46%)	No Change
	Core Area	222 acres (44%)	Below 50% take threshold	338 acres (67%)	No Change
	Home	1198 acres (41%)	Above 40% take	1919 acres	1901 acres

Owl Pair	Distance	Current Suitable – Acres and Percentage	Current Take Thresholds	Current Dispersal	Dispersal Post-Harvest
	Range		threshold	(66%)	
3557	Nest Stand	31 acres (100%)	N/A	31 acres (100%)	No Change
	Core Area	441 acres (88%)	Above 50% take threshold	477 acres (95%)	No Change
	Home Range	1895 acres (65%)	Above 40% take threshold	2025 (70%)	1968 acres (94 acres degraded)
3656	Nest Stand	24 acres (79%)	N/A	24 acres (79%)	No Change
	Core Area	281 acres (56%)	Above 50% take threshold	317 acres (63%)	No Change
	Home Range	1516 acres (52%)	Above 40% take threshold	1619 acres (56%)	1619 acres (19 acres degraded)
3660	Nest Stand	28 acres (92%)	N/A	28 acres (92%)	No Change
	Core Area	405 acres (81%)	Above 50% take threshold	405 acres (81%)	No Change
	Home Range	1867 acres (64%)	Above 40% take threshold	1986 acres (69%)	No Change
3670	Nest Stand	20 acres (63%)	N/A	24 acres (77%)	No Change
	Core Area	349 acres (69%)	Above 50% take threshold	392 acres (78%)	No Change
	Home Range	1839 acres (64%)	Above 40% take threshold	1985 acres (69%)	1953 acres (85 acres degraded)
3677	Nest Stand	26 acres (82%)	N/A	26 acres (82%)	No Change
	Core Area	374 acres (74%)	Above 50% take threshold	390 acres (78%)	No Change
	Home Range	1886 acres (65%)	Above 40% take threshold	1976 acres (68%)	No Change
3681	<b>Nest Stand</b>	<b>0 acres</b>	<b>N/A</b>	<b>31 acres (100%)</b>	<b>31 acres (18 acres degraded)</b>
	<b>Core Area</b>	<b>120 acres (24%)</b>	<b>Below 50% threshold</b>	<b>120 acres (24%)</b>	<b>107 acres (28 acres degraded)</b>
	<b>Home Range</b>	<b>1117 acres (39%)</b>	<b>Below 40% threshold</b>	<b>1175 acres (41%)</b>	<b>1080 acres (140 acres degraded)</b>
3727	Nest Stand	23 acres (75%)	N/A	31 acres (100%)	No Change
	Core Area	323 acres (64%)	Above 50% take threshold	366 acres (73%)	No Change
	Home Range	1559 acres (54%)	Above 40% take threshold	1875 acres (65%)	1875 acres (31 acres degraded)
5354	Nest Stand	11 acres (34%)	N/A	11 acres (34%)	No Change
	Core Area	308 acres (61%)	Above 50% take threshold	330 acres (66%)	No Change
	Home Range	1475 acres (51%)	Above 40% take threshold	1683 acres (58%)	1683 acres (27 acres degraded)

Based on current conditions, 5 pairs are currently below take thresholds in either their core area or home range. Within 2 of these owl activity circles, dispersal habitat will be removed and degraded. Since these two pairs are currently lacking in suitable habitat, the impact on dispersal habitat might have a greater effect on these pairs than in the others. However, since suitable habitat will not be impacted, the impacts are still not predicted to be substantial.

As shown above, there are two potential nest sites identified in 1991 (Owl pair #3681 and 3286) that are within very close proximity to two of the thinning units. The nest stands (200 meter radius circle from the nest tree) for these owls overlap portions of the two units. Surveys have not been conducted recently to verify the accuracy of the mapped locations or whether the owls are still using the sites. Even though the plantations are not considered nesting, roosting, or foraging (i.e. suitable) habitat for the owls, thinning them could result in adverse effects to the individuals based on recent science. Because surveys take multiple years to complete, it is presumed at this time that the owls are present and that the portions of the units within 200 meters of the mapped nest locations would be deferred. These adjustments could be waived if the sites are surveyed to protocol and found to be unoccupied.

The proposed actions could have a measurable effect of the ability of the spotted owls to forage or shelter in their core area or home range. In terms of dispersal habitat, the proposed action **may affect, but is not likely to adversely affect spotted owls.**

#### **Effects Due to Noise Disturbance**

Effects to spotted owls resulting from noise, human intrusion, or smoke-related disturbance are largely unknown. Based on anecdotal information and effects to other bird species, significant noise, smoke and human presence can result in a disruption of breeding, feeding, or sheltering behavior of the spotted owl such that it creates the potential for injury to individuals. For a significant disruption of spotted owl behavior to occur as a result of disturbance caused by the proposed actions, the disturbance and owl(s) must be in close proximity to one another. A spotted owl that may be disturbed at a roost site is presumably capable of moving away from a disturbance without a substantial disruption of its behavior. Since spotted owl forage primarily at night, projects that occur during the day are not likely to disrupt its foraging behavior. The potential for effects is mainly associated with breeding behavior at active nest sites.

The proposed actions for this project that generate noise above the local ambient levels are heavy equipment, chainsaw and helicopter use. Disruption distances of 35 yards for heavy equipment use, 65 yards for chainsaw, and 120 yards for most helicopters have been set by the Fish and Wildlife Service. If disturbance were to occur during the critical breeding period for the spotted owl (March 1 – July 15<sup>th</sup>) near a nest site, breeding could be adversely affected. A small portion of two historic activity centers occurs within these disruption distances. Restrictions on chainsaw and heavy equipment use would only apply to small portions of units 27 and 31. It is likely that harvester equipment would be used instead of chainsaws in these units. Less than one acre in each unit would be affected by harvester equipment restrictions.

Proposed activities will occur within ¼ mile (440 yards) of spotted owl activity centers and unsurveyed suitable habitat; and have the potential to disrupt the normal behavior patterns of individual owls or breeding pairs potentially at the site. The risk of adversely affecting a nest site in unsurveyed suitable habitat, given a density of 1 pair per 2,377 acres and relatively short disruption distance from these activities is quite low. Furthermore, spotted owls do not breed every year, so the density of actively nesting spotted owls will be less than the density of territorial pairs. The percent of the population breeding in any year varies, but averages about 50 percent. Additionally, all known and predicted nest patches will be protected from adverse impacts, greatly reducing the risk of adversely impacting nesting spotted owls.

Due to the protection of known and predicted nest patches and the low density of actively nesting spotted owls, implementation of these proposed activities **may effect, but are not likely to adversely affect the spotted owl due to disturbance.**

#### **Project Effects to Dispersal Habitat within Critical Habitat Unit OR-10 and OR-11**

The following table displays the total dispersal acres proposed for treatment within both Critical Habitat Units and the effects of treatment.

**Table 5: Existing condition and effects to Critical Habitat Units**

CRITICAL HABITAT UNIT	DISPERSAL HABITAT (INCLUDES SUITABLE AND DISPERSAL-ONLY HABITAT)					TOTAL REMAINING ACRES
	TOTAL ACRES OF HABITAT	TOTAL ACRES REMOVED	PERCENT OF HABITAT REMOVED	ACRES DEGRADED	PERCENT ACRES DEGRADED	
OR-10	55,902	0	0	34	.06%	55,902
OR-11	25,329	122	0.5%	389	389	25,207

**Effects to critical habitat**

The effect determination for the action alternatives on northern spotted owl critical habitat units OR-10 is, “**May Affect, Not Likely to Adversely Affect**”. Approximately 34 acres of dispersal habitat will be degraded. No loss of dispersal habitat will occur. Within OR-11, the effects call is “**May Affect, Likely to Adversely Affect.**” This determination is due to the removal of currently functional dispersal habitat. The proposed harvest treatments would open up the canopy cover to just less than 40% in some areas, making them unsuitable for dispersing owls. Within this CHU, the proposed actions would in the short-term add cumulatively to the decline of dispersal habitat, a primary constituent element of northern spotted owl critical habitat.

However, the resultant spotted owl habitat within CHU OR-11 as a whole after project completion would be sufficient to provide spotted owl nesting and dispersal. The action alternative would not appreciably diminish the functionality of this CHU to provide habitat conditions that support the recovery of the northern spotted owl. Long-term effects would overall be beneficial because the proposed harvest treatments are predicted to eventually improve the quality of dispersal habitat in many of the units and speed up the succession of these stands within this CHU into suitable habitat.

**Effects Call to Spotted Owl at the Project Scale (Habitat and from Disturbance)**

The effects call is **May Affect, Not Likely to Adversely Affect** to both habitat and from disturbance as a result of project implementation.

**Effects to Spotted Owl on a Province Scale (Willamette Province)**

The United States Fish and Wildlife Service (USFWS) issued a Biological Opinion that included the Upper Clackamas Thin (USDI, 2006). The conclusion reached after considering the cumulative effects of this and other projects is that the action alternatives are not likely to jeopardize the continued existence of the spotted owl and are not likely to destroy or adversely modify designated critical habitat for the spotted owl.

**Effects to the Spotted Owl on the Entire Range of the Species (Washington, Oregon, and California)**

The Northwest Forest Plan established a system of land allocations and a rate of timber harvest (probable sale quantity) that is considered to be consistent with maintaining viability for the northern spotted owl across its range (USDA, USDI 1994b). The action alternatives would not significantly alter the landscape’s capability to provide for the continued viability of the northern spotted owl on Federal Lands.

A report titled “Scientific evaluation of the status of the Northern Spotted Owl” was published by Sustainable Ecosystems Institute (Courtney 2004). The report is a review and synthesis of information on the status of the Northern Spotted Owl. The report was prepared to aid the U.S. Fish and Wildlife Service in their 5-year status review process, as set out in the Endangered Species Act. The report did not make recommendations on listing status or on management, but focused on identifying the best available science and the most appropriate interpretations of that science. The focus is on new information developed since the time of listing in 1990. The report relied on demography studies summarized in a report titled “Status and Trends in Demography of Northern Spotted Owls, 1985-2003” (Anthony 2004).

One of the topics discussed in this Report was the barred owl and the species’ expansion into northern spotted owl territory from northeastern Canada since about 1900 and its subsequent movement into Washington, Oregon and Northern California; in some cases displacing spotted owls. Barred owls may be expanding their range because of

changes to forest structure from logging, wildfire or climate change. Barred owls are known to be present on the District. By casual observation and incidental surveying since 1994, barred owls do appear to be more common on the district than they were since surveying began on 1979. Since routine surveys have not been completed for owls since approximately 1994, it is unknown as to what extent their presence has affected the population of spotted owls on the District.

This barred owl information and all other topics discussed in the Report do not reveal effects concerning the impacts of the Upper Clackamas Thin thinning proposal in a manner or extent not previously considered. See wildlife biological assessment for more detail on this report.

## D. ANALYSIS OF CUMULATIVE EFFECTS

Since the Forest has emphasized the thinning of this type of habitat in recent years, a cumulative effects analysis for dispersal habitat has been conducted. The proposed project would have no effect on suitable habitat, and therefore, no cumulative effects analysis is necessary for this habitat type.

Home ranges are the appropriate analysis area for this analysis. An analysis has been conducted separately for each of the historic activity center home ranges as well as an analysis that combines all of the home ranges into one analysis area. For the purpose of cumulative effects analysis, all land within the home ranges would be included regardless of ownership or land allocation.

Stands that have a canopy cover greater than or equal to 40 percent and conifer trees greater than or equal to 11 inches average diameter are considered dispersal habitat for spotted owls. As plantations grow, these conditions would be met at approximately age 40. Stands older than this would be considered functioning dispersal habitat and would not enter into this analysis unless their canopy has been reduced to less than 40%.

**Table 6: Past, Present and Foreseeable Future Projects and Actions**

<b>Project Name</b>	<b>Extent, Size, Type, &amp; Distance</b>	<b>Overlap In Time Or Space</b>	<b>Type Of Potential Effect To Dispersal Habitat</b>	<b>Measurable Effect To Dispersal Habitat</b>	<b>Rationale For Inclusion Or Exclusion From Analysis Below</b>
Past – regeneration harvest	Throughout Analysis Area	Yes, all plantations less than 40 years*	Loss of dispersal habitat	Yes	Include. A loss of dispersal habitat has occurred.
Past – other commercial thinning not listed above	Throughout Analysis Area	No. Older thinning prescriptions used a light thinning which have recovered to dispersal habitat already.	Loss or degradation of dispersal habitat	No	Exclude. Effects no longer evident. Stands have recovered.
Past – road construction	Throughout Analysis Area	Yes. roads occur throughout the Analysis Area	Permanent loss of dispersal habitat	Yes. Many acres of dispersal habitat has been converted to roads	Include. A permanent loss of dispersal habitat has occurred.
Past – rock quarries	Throughout Analysis Area	Yes. Rock quarries are permanent and occur throughout the Analysis Area	Permanent loss of dispersal habitat	Yes	Include. A permanent loss of dispersal habitat has occurred.
Past – Power Line	Southern portion of Analysis Area	Yes. Power lines are permanent	Permanent loss of dispersal	yes	Include. Trees that grow under power line are cut for safety

Project Name	Extent, Size, Type, & Distance	Overlap In Time Or Space	Type Of Potential Effect To Dispersal Habitat	Measurable Effect To Dispersal Habitat	Rationale For Inclusion Or Exclusion From Analysis Below
			habitat		before they can become dispersal habitat.
Past – road decommissioning	Throughout Analysis Area	Yes	Trees begin to grow in road	No	Exclude. No detrimental effect to dispersal habitat. Roads eventually would become dispersal habitat.
Past and present watershed restoration projects	Culvert replacement, road repairs, etc.	Yes.	None	No	Exclude. No effect to dispersal habitat.
Activities on other ownerships	Past logging. No known foreseeable future logging.	Yes, Less than 100 acres of private ownership	Loss of dispersal habitat	Yes	Include. A loss of dispersal habitat has occurred from past logging.
Future timber harvest	Unknown, but potential for timber harvest occurs within all parts of the Analysis Area except for Wilderness.	Unknown location	Unknown of intensity of treatments	No	Exclude. No site specificity. Can not be modeled at this time. The appropriate time to conduct a cumulative effects analysis would be in a future EA after a firm proposal is developed.
Off highway vehicle use	Minimal dispersed use throughout the Analysis Area	Yes	Compaction and disturbance	No	Exclude. No effect to dispersal habitat.

\* Regeneration harvest occurring more than 40 years ago would likely have already grown into dispersal habitat.

The following table shows the quantities of habitats before active management, now, and after project implementation

**Table 7**

Spotted Owl Habitat Type	Acres of Owl Habitat in Analysis Area Prior to Active Management	Current Condition of Owl Habitat in Analysis Area	Condition of Owl Habitat in Analysis Area Post-Harvest
Suitable	30,491 acres (92%)	16,998 acres (51%)	No Change
Total Dispersal	31,899 acres (97%)	20,014 acres (59%)	19,869 acres* (59%)

**Effects of Past Actions:**

The landscape pattern of vegetation has been affected by past timber harvest, fires, etc, substantially impacting the habitat for spotted owls. Some ecologically important features of landscape pattern are: amount of edge habitat, degree of fragmentation of late-successional forest, and amount of interior forest. As fragmentation of a landscape pattern increases, the amount of interior forest habitat decreases and the amount of edge habitat increases. As fragmentation increases, the amount of interior forest habitat decreases, impacting organisms that prefer large patches of interior habitat, such as the spotted owl.

Past management actions and previous wildfires have reduced the amount of dispersal habitat within the analysis area by approximately 11,885 acres. Currently there is still adequate dispersal habitat for spotted owls.

The temporary loss of approximately 171 acres of dispersal habitat from the current proposal would preclude spotted owl movement through these stands where the habitat has been removed. However, the ability of the owls to move across the landscape in the analysis area would still be adequate since adequate dispersal still exists in the appropriate quantities and juxtaposition. Abundant dispersal habitat would remain in the analysis area to allow the birds to adequately disperse between suitable habitat blocks.

There would be a degradation of approximately 575 acres of dispersal habitat from the current proposal. The loss of dispersal habitat described above as well as reduction of quality of dispersal habitat within the proposed harvest units and on-going projects listed above could change the habitat use and home range of spotted owls residing within the analysis area. Where activity centers are close to thinning proposals that would remove or reduce the quality of dispersal habitat, it could alter the birds foraging habitats; or shift the core use area of an individual away from the thinned stand. Since dispersal habitat would still be available in the analysis area in adequate quantities and distribution, it is unlikely that these actions would substantially impact the health or resultant survival of any birds residing within the analysis area.

The cumulative effects on dispersal habitat would be minor, mainly because dispersal habitat is not the limiting factor for owls in the area. In this analysis area, the more likely limiting factor for spotted owl occupancy of the area is the lack of spotted owl suitable habitat and lack of connectivity between these suitable habitat blocks. In the long term, thinning treatments in the LSR with the action alternatives would accelerate the development of suitable spotted owl habitat.

## **E. CONFLICT DETERMINATION**

The action alternatives for the Upper Clackamas Thin Commercial Thinning Project has a **“May Affect, and is Not Likely to Adversely Affect,” the spotted owl, its habitat, critical habitat, and from disturbance.**

## **F. COMMUNICATION WITH U.S. FISH AND WILDLIFE SERVICE**

The northern spotted owl is listed as threatened throughout its range under the endangered species act (55 CFR 26114) on June 22, 1990. Any action that would result in a beneficial effect or could result in an adverse impact to the spotted owl would result in a may effect determination and would require consultation with the U.S. Fish and Wildlife Service.

Consultation with the U.S. Fish and Wildlife Service was initiated for the Upper Clackamas Thin in July of 2006 through the document titled “Biological Assessment for Projects with the Potential to Modify the Habitats of Northern Spotted Owls and/or Bald Eagles or Modify Critical Habitat of the Northern Spotted Owl” The Fish and Wildlife Service issued the Biological Opinion in October of 2006.

# **Cope’s Giant Salamander (*Dicamptodon copei* - Sensitive) & Oregon Spotted Frog (*Rana pretiosa* – Sensitive)**

## **A. HABITAT**

Cope’s Giant Salamander: The Cope’s Giant salamander prefers streams and seepages in moist coniferous forests. They limit their occurrence to waters with temperatures in the 8 to 14 degrees Celsius range. They will also inhabit cold clear mountain lakes and ponds. They occur in suitable areas from sea level up to 1,350 meters elevation. The Cope’s salamander breed and rear its young within the cracks and crevices of the rocky substrates within the stream course. They sometimes leave streams on wet rainy nights but remain on wet rocks and vegetation near the stream. This salamander is most frequently found on pieces of wood in streams, under logs, bark, rocks or other objects near streams.

Oregon Spotted Frog: The range of this species is from Northern British Columbia and coastal southern Alaska south to the Rocky Mountains of Idaho, Montana, and Utah. Populations are also present in both the interior and coastal mountains of the Pacific Northwest.

The Oregon Spotted Frog is a highly aquatic species that is rarely found far from permanent water. The elevation range of the Oregon spotted frog is from < 50m above sea level in British Columbia to just over 1500m in Oregon. Breeding habitats used by Oregon spotted frog are generally moderate to large wetlands with extensive emergent marsh coverage that warms substantially during seasons when Oregon spotted frogs are active at the surface. Sites always include some permanent water juxtaposed to seasonally inundated habitat (Cushman and Pearl 2007).

## **B. FIELD REVIEW**

### **Habitat available on the district:**

Cope's Giant Salamander: This species' range is predominantly west of the Cascade Range. Potential habitat for this species does exist within the Clackamas River Ranger District. The more desirable habitat consists of perennial rocky streams and seeps with large boulders to the less desirable pebble/cobble streambed.

The Cope's Giant Salamander is difficult to identify and can be easily confused with the Pacific Giant Salamander (*Dicamptodon tenebrosus*). There have been numerous sightings reported from streams on the Clackamas River Ranger District, only a few of which have been positively identified (USDA 1995).

Oregon Spotted Frog: Potential habitat for this species does exist within the Clackamas River Ranger District.

### **Habitat available within the project area (proposed harvest units) and surrounding area:**

Yes. The Upper Clackamas River watershed and areas close to the proposed harvest units contain potential habitat for the Cope's Giant Salamander and possibly Oregon Spotted Frog. Some of the units within the Upper Clackamas Thin include perennial streams and associated seeps and wetlands that have potential habitat for these species.

## **C. ANALYSIS OF DIRECT/INDIRECT EFFECTS**

### **Alternative A (No Action)**

No effects to the Cope's Giant salamander or Oregon Spotted frog would occur with implementation of this alternative. The streams and wet areas within the stands would continue to provide potential habitat for the species.

### **Alternative B (Proposed Action)**

#### **Effects to Individuals**

There are short segments of perennial streams occurring within many of the Upper Clackamas Thin units. The riparian reserves associated with these streams will have active management occurring within them except for the no-cut buffers described below. A 50-100 foot no-harvest buffer will be established along the active channel of all perennial streams. Seeps and meadows will also be buffered. Larger buffer widths may be needed on a site-specific basis to prevent any increase in sediment delivery rates or a decrease in stream shading.

These buffers described above would be in place during the length of the timber sale and post-sale activities, including road construction. It is likely that the potential habitat for the Cope's Giant Salamander and Oregon Spotted frog would be present within these no-treatments buffers. These no-cut areas should prevent any un-intentional extirpation or injuring of individuals that may be present near the water sources during on-the-ground activities.

#### **Effects to Habitat**

The Oregon Spotted frog and Cope's Giant salamander have the potential to be negatively affected by increased sedimentation resulting from timber sale activities adjacent to or intersecting streams and water sources. Sediment deposition within the substrate could impair preferred habitat characteristics. Also, sedimentation of streams can lead



to asphyxiation of embryos and larvae as well as a degradation of overwintering habitat that may result in local extinctions.

Ground disturbing activities associated with the temporary road building and reconstruction has been designed to minimize the risk of erosion and the potential for sediment into streams. Road construction would be restricted to the dry season between June 1 and October 31. This restriction would reduce the risk of any surface erosion due to ground disturbance. The proposed temporary roads are located on dry ground, would not cross any stream channels, and would have no hydrological link to any water source. These roads would be constructed on relatively flat terrain along ridgetops, which would not cause an increase in roads within the drainage network. Because of the distance of the proposed temporary roads to any water source; and that these roads do not cross any perennial or intermittent streams, vegetative buffers would act as an effective barrier to any sediment being transported into stream channels by surface erosion or runoff. All temporary roads would be obliterated and revegetated following completion of harvest operations to help reduce compaction and increase infiltration rates.

Impacts to the habitats for the Cope's Giant Salamander and Oregon Spotted Frog caused by sedimentation from road construction or obliteration, if any, would be short-term and minor. No measurable or meaningful degradation of habitat would occur with the temporary road building, reconstruction and eventual obliteration.

Thinning within the riparian reserves is a ground disturbing activity that has the potential to allow sediment to enter the stream channel from surface erosion or run-off. No-cut buffers described above have been established within the Upper Clackamas Thin Project. Buffer width design would take into account the stream influence zone, steepness of slope, size and location of trees, aspect, slope stability, and stream bank stability. No-cut areas would include any hardwood vegetation occurring along the stream bank. These 50-100 foot minimum vegetative buffers on either side of the streams would act as an effective barrier and likely retain any displaced and eroded soil before it is transported to the stream channel. Seasonal restrictions on ground-based operations would further reduce the risk of soil disturbance and run-off.

Impacts to the habitats for the Cope's Giant Salamander and Oregon Spotted Frog caused by sedimentation from thinning in riparian reserves, if any, would be short-term and minor. No measurable or meaningful degradation of habitat would occur with the proposed silvicultural treatments.

Log hauling would not measurably increase the amount of fine sediment in streams. The roads along the haul route are rocked or paved at stream crossings and road ditches are well vegetated. Any sediment that would enter a stream during haul activities would be at crossings along aggregate surfaced roads. The majority of these crossings are at small streams that would not be flowing, or would have very little flow during the normal season of operation (June 1 to October 31). Any sediment that leaves the road surface due to run-off is expected to disperse over land or be stored within these small channels. It is very unlikely that any measurable amount of sediment produced during log haul would be transported to stream channels that have potential habitat for the Cope's Giant Salamander and Oregon Spotted Frog.

Impacts to the habitats for the Cope's Giant Salamander and Oregon Spotted Frog caused by sedimentation from log haul, if any, would be short-term and very minor. No measurable or meaningful degradation of habitat would occur with the log haul.

The no-cut buffers along these streams would insure that the majority of shade producing vegetation would remain. Since the majority of the streams within the project area are relatively small, the no-cut buffers would provide adequate canopy cover to maintain existing shade components, thus maintaining stream temperatures. The Riparian Reserves along the larger streams within the Upper Clackamas Thin Project Area have a hardwood component within the stream influence zone (one site potential tree height) that will provide adequate buffer width to maintain stream shading. There is a low probability that implementation of the project would increase solar radiation. Current stream temperatures in all streams within the project area are expected to be maintained.

Although there is the potential that very small micro-climate changes would occur with implementation of this project, the change is not predicted to be measurable or meaningful enough to affect habitation of the areas by Cope's Giant Salamander and Oregon Spotted Frog.

## D. CUMULATIVE EFFECTS

No cumulative effects are anticipated due to lack of meaningful or measurable direct/indirect effects.

## E. CONFLICT DETERMINATION

Action alternative of the Upper Clackamas Thin will have a “**May Impact but is not Likely to Cause a Trend Toward Listing or Loss of Viability**” to the Cope’s Giant salamander and Oregon Spotted frog or their habitat.

### **Northern Bald Eagle** (*Haliaeetus leucocephalus* – sensitive)

#### A. HABITAT

The bald eagle is a permanent resident in Oregon. Their nests are usually located in multi-storied stands with old-growth components, and are near water bodies that support an adequate food supply. Nests, which usually consist of a bulky platform of sticks, are usually located in the super-canopy of trees, or even on a cliff. Nest sites are usually within ¼ mile of water in the Cascades.

Adequate forage sources are possibly the most critical component of bald eagle breeding and wintering habitat. Fish, waterfowl, rabbits, and various types of carrion comprise the most common food sources for eagles in the Pacific Recovery Plan area. Wintering bald eagles perch on a variety of substrates, proximity to a food source being the most important factor influencing perch selection. Eagles tend to use the highest perch sites available that provides a good view of the surrounding area. These perch sites typically are snags and trees with exposed lateral limbs or dead tops (USFWS 1986). Communal roosts are invariably near a rich food source and in forest stands that are multi-storied and have at least a remnant old-growth component.

#### B. FIELD REVIEW

##### **Habitat Available on the District**

Bald eagles are observed occasionally on the District, especially in late summer through late winter. Due to low numbers and sporadic use, no communal roost areas are known to exist on the District. There has been consistent use by adults in two areas of the Clackamas River Ranger District, one of which has had recent nesting success by a bald eagle pair. These areas are greater than 10 miles away from the proposed project site.

##### **Habitat Available within the Project Area (proposed harvest units) and Surrounding Area:**

The project area is in close proximity to the Clackamas River, an area that bald eagles are observed during the spring/summer period. Bald eagles are more likely to utilize the lands within ¼ mile from the stream banks of the Clackamas River. Nine proposed harvest units occur within ¼ mile of the River and are the more likely to have bald eagle activity than the units that occur farther away.

Habitat for bald eagles is described in terms of foraging, nesting, roosting, and perching. Habitat conditions through most of the Upper Clackamas River corridor are marginal to poor for bald eagle occupancy, due mainly to limited prey density and prey availability. In these areas there are few to no opportunities for enhancement, since the limiting factors are inherent to the topography and physical features of the upper river (e.g. narrow strip of open water and low flows) and represent significant obstacles to successful eagle foraging (USDA1995).

**Existing Condition of Proposed Harvest Units:** Some of the proposed harvest units occur within ¼ mile the Clackamas River, a potential foraging source. Portions of units 1, 10, 11, 14, 15, 16, 18, 36, and 38 are within ¼ mile of the Clackamas River. None of these proposed harvest units have the structural components necessary for potential bald eagle nesting or communal roosting habitat. The units lack a mature multi-story structure with old-growth or old-age second-growth trees. However, these units may provide potential perching habitat due to their proximity to these two rivers. This potential perching habitat is considered poor quality due to the minor amounts of snags and trees providing a good view of the surrounding area. In addition, many of the proposed harvest units within ¼ mile are directly adjacent to potential bald eagle nesting habitat (i.e. late-seral stands that within ¼ mile of these two rivers).

## **C. ANALYSIS OF DIRECT/INDIRECT EFFECTS:**

### **Alternative A (No Action)**

There would be no effects to the northern bald eagle with this alternative. In the short term, some of the units would continue to provide poor/fair quality perching habitat. In the long-term (20-40 years), the stands would somewhat increase in tree size and show an increase in the levels of snags. When these developments occurred, they would improve the perching habitat characteristics being provided within the stands adjacent to the Clackamas River. In 100+ years, some of the stands may eventually develop nesting habitat characteristics and become potential nesting or communal roosting habitat for the bald eagle. However, the development of these stands into improved perching habitat and eventual suitable nesting habitat would take much longer in the no action alternative due to the current densities of the stands and their resultant slower growth rates. Refer to Growth and Productivity and Diversity sections of EA for further discussions of the response of trees to no action.

### **Alternative B (Proposed Action)**

#### **Effects to Habitat**

There would be no project effects to potential nesting or communal roosting bald eagle habitat due to the lack of these habitats within the proposed harvest units. Some of the units listed above could have a few remnant trees or snags still remaining in the units that could serve as potential perch trees. Although no potential perch trees would be proposed for harvest, it is possible a few, mainly snags, would need to be cut down due to safety concerns during harvest operations. It is also possible that a few potential perch trees would blow down as a result of helicopter logging or "opening up the stand."

Perch trees along these portions of the Clackamas River are currently abundant and have moderate to high densities of relatively large trees with irregular crowns. Because there is currently moderate to high qualities of perch trees present within ¼ mile of this portion of the Clackamas River, the loss of a few perch trees as a result of the proposed harvest treatments is not predicted to meaningfully impact the quality of perching habitat for bald eagles within the area. It is unlikely that this loss of perch trees would meaningfully lower the availability of potential bald eagle habitat currently being provided in the area. In addition, the action alternatives contain would create some snags.

Approximately 4.12 miles of roads would be built or re-opened. A few of these roads would be built or re-opened within ¼ mile of the Clackamas River. The construction and temporary use of these road would cause a slight increase in potential disturbance to bald eagles potentially using this habitat or the surrounding stands for perching and foraging. However, this increase in disturbance would create no meaningful impacts to the bald eagle. There would be no meaningful decrease in potential perching habitat available for bald eagles in the area. All other roads built would be beyond ¼ mile of the two rivers and have no effect on bald eagles or their habitat.

All other proposed activities associated with this project that fall outside of this analysis area would have no impacts to bald eagle habitat.

#### **Effects to Individuals**

If a bald eagle were present in any of the units or surrounding area during project implementation, it would have the ability to quickly move to adjacent acceptable habitat. No harm would come to the individuals. Several of the proposed harvest units within ¼ mile of the rivers are directly adjacent to potential nesting, communal roosting and high quality perching habitat. Disturbance caused by project implementation could cause these potential habitats to be temporarily unavailable to bald eagles. Since the availability of a high quality foraging source is the limiting factor for bald eagle in the area and not the habitat components comprising roosting, nesting and perching habitats, the temporary unavailability of a small percentage these habitats is not predicted to impact bald eagles. Because of the high visibility of bald eagles, it is unlikely that this project would be implemented in an area with an undiscovered bald eagle nest or roost. If a new bald eagle nest or roost is discovered within 0.25 mile (or 0.5-mile sight distance) of the project, the situation would immediately be evaluated by the District biologist for potential effects on bald eagles and mitigated to prevent disturbances.

All other proposed activities associated with this project that fall outside of this analysis area would have no disturbance impacts to bald eagles.

### **Effects to Population**

None expected since there would be no meaningful effects to bald eagles and their habitat.

## **D. Cumulative Effects**

The action alternatives would have no cumulative effects on potential bald eagle nesting or communal roosting habitat. The loss of a few perch trees would reduce the total amount of potential perch trees available; but the change would be so minor it would essentially have no effect to the available habitat for bald eagle foraging or perching. A cumulative effects analysis is not needed for bald eagle habitat since there is no meaningful change in bald eagle habitat with implementation of the action alternatives.

## **E. CONFLICT DETERMINATION**

The action alternatives of the Upper Clackamas Thin Timber Sale will have “**May Impact Individuals but not Likely to Cause a Trend Toward Federal Listing or Loss of Viability**” to the bald eagle.

## **American Peregrine Falcon** (*Falco peregrinus anatum* – Sensitive)

### **A. HABITAT**

The most critical habitat components for Peregrine Falcons are suitable nest sites, usually cliffs; and overlooking fairly open areas with an ample food supply. Peregrines are not forest-dwelling birds but hunt in forest openings or above the canopy. They commonly use a mixture of successional stages that provide hunting opportunities near the eyrie. They nest along seacoasts, near marshes, and even in cities, but are not well suited to life in interior forests. They usually nest or roost near a marsh, lake, or coast where water birds are plentiful.

### **B. FIELD REVIEW**

#### **Habitat available within the project area (proposed harvest units) and surrounding area:**

Yes. There is an active peregrine falcon eyrie within close proximity to one of the harvest units. One harvest unit falls within the Peregrine Falcon Zone Protection Zone 2, and one within Zone 3.

### **C. ANALYSIS OF DIRECT/INDIRECT EFFECTS**

#### **Alternative A (No Action)**

No effects to the Peregrine Falcon would occur with implementation of the no action alternative. Although for other reasons peregrines could stop using this nest site, the cliff would continue to provide potential habitat for the species.

#### **Alternative B (Proposed Action)**

##### **Effects to Individuals:**

The Draft Peregrine Falcon Management Direction Document for this eyrie provides direction for the management of this site. Two of the harvest units occur within a protection zone for the site.

Unit 1 occurs within the secondary protection zone and will need a seasonal restriction for helicopter use. Helicopter use is restricted in this area from January 1<sup>st</sup> to October 31<sup>st</sup>. Helicopter logging of this unit will only be allowed in November and December. No other restrictions will be required for this unit. This restrictions may be waived if the site is unoccupied or if nesting effort(s) fail and there is not possibility of re-nesting. Documentation of nesting failures can be finalized no earlier than June 30<sup>th</sup> due to the possibility of re-nesting. Unit 3 occurs on the edge of the tertiary zone but will not require a restriction of any kind.

The above seasonal restriction have been incorporated into the Design Criteria for this project. For this reason, project activities are predicted to have a reduced impact to the known peregrine falcons in the area. Although the potential for disturbance is still present, the seasonal restrictions have been incorporated into the Design Criteria for the project and are predicted to prevent any adverse affects.

**Effect to Habitat:**

None of the proposed harvest units are within the primary protection zone of the eyrie. Project implementation will not degrade the habitat associated with this peregrine falcon nest site (i.e. eyrie) or any other potential falcon nest site. The unit proposed for harvest within the secondary protection zone occurs within the foraging distance of the eyrie site. This stand is a relatively dense, young managed plantations that have reached a closed mid-seral structural stage. It is currently providing little prey for the falcons. Thinning this stands would improve the overall prey base available to the nesting pair. Thinning within the riparian reserves could especially be beneficial since riparian corridors are often favored hunting location for peregrine falcons. Overall, increased habitat diversity means an increase in prey diversity and availability of prey for the peregrine falcon.

Since the overall landscape in the area is comprised of somewhat homogeneous second-growth stands less than 80 years old, the proposed timber harvest that occurs within foraging distance of the eyrie site should increase habitat diversity in the area.

Providing large diameter snags within the secondary and tertiary zones of this active eyrie would also maintain or improve on the existing prey base for foraging falcons. Direction is given within the Draft Peregrine Falcon Management Plan that snags will be managed at the 100% biological potential level to provide for cavity-nesting birds. It also states that course woody debris will be maintained at levels totaling a minimum of 240 linear feet per acre. Although the proposed harvest units present within these areas are managed plantations and have few large diameter snags and course woody debris, there is the potential to create snags and down wood through restoration projects connected with this project. Priority will be given for snag and down woody debris creation within the units proposed for treatment within the Late-Successional Reserves. However, if any money becomes available beyond that, second priority will be given to units within the primary and secondary projection management zones.

**D. CUMULATIVE EFFECTS**

No cumulative effects are anticipated due to lack of substantial direct/indirect effects.

**E. CONFLICT DETERMINATION**

The action alternatives of the Upper Clackamas Thin Timber Sale will have “**May Impact Individuals but not Likely to Cause a Trend Toward Federal Listing or Loss of Viability**” to the peregrine falcon or its habitat.

**Harlequin Duck**  
(*Histrionicus histrionicus* – Sensitive)

**A. HABITAT**

Harlequin Duck: This species occurs from Iceland and Greenland west to eastern Canada. It is absent from the central part of North America, and the “western” population ranges from eastern Siberia east through Alaska and south to the Sierra Nevada of California and the mountains of southwestern Colorado. In the Northwestern United States, the Harlequin duck breeds along relatively low-gradient, slower-flowing reaches of mountain streams in forested areas.

**B. FIELD REVIEW**

This species is highly aquatic and needs a permanent water source to survive. Potential habitat for this species does exist within the Clackamas River drainage and within some of the potential harvest units. Harlequin ducks are occasionally sighted within Clackamas River Ranger District.

**Habitat available within the project area (proposed harvest units) and surrounding area:**

Yes. Several of the units contain perennial streams, of which are considered potential habitat for the harlequin duck. The remainder of the streams that are within or adjacent to the proposed harvest units have too high of a gradient and are too fast-flowing in this area to be considered potential habitat for the species. In addition, some of the perennial streams are too small in size and headwater characteristics that they are also not considered potential habitat for the species.

A 50 – 100 foot no-harvest buffer will be established along the active channel of all perennial streams. These buffers described above would be in place during the length of the timber sale and post-sale activities, including road construction. All potential habitat for the harlequin duck would be present within these no-treatments buffers. These no-cut areas should prevent any un-intentional extirpation or injuring of individuals that may be present near the water sources during on-the-ground activities. This species is highly mobile and could easily move to another site if disturbed by elevated noise levels created from project implementation. Sedimentation would be minimal or non-existent and would have no meaningful effect on the quality of harlequin duck habitat.

No impact due to lack of meaningful effect to either individuals or habitat of the harlequin duck.

**Fringe-tailed Bat**  
(*Myotis thysanodes* – Sensitive)

**A. HABITAT**

Although the Fringed *Myotis* is found in a wide variety of habitats throughout its range, it seems to prefer forested or riparian areas. Most Oregon records are west of the Cascade Mountains. Its nursery colonies and roost sites are established in caves, mines, and buildings. The species is thought to forage by picking up food items from shrubs or the ground. It consumes beetles, moths, harvestmen, crickets, craneflies, and spiders.

**B. PRE-FIELD REVIEW**

**Habitat available within the project area (proposed harvest units) and surrounding area:**

Yes. No breeding or roosting sites are available within the project area. There is the potential for the project area to contain foraging habitat, although foraging usually occurs near the species’ breeding and roosting sites. Species would only occur in area during dispersal or possibly foraging.

**C. ANALYSIS OF DIRECT/ INDIRECT EFFECTS & CUMULATIVE EFFECTS**

No effects in any alternative due to lack of nesting or roosting habitat. In the event that individuals were dispersing or foraging through the area, they would likely be able to quickly disperse from the area during project implementation. Foraging habitat is not limiting and if individuals happened to be displaced, they could easily find other areas to forage within nearby. In addition, it is likely that the thinned units would still provide foraging habitat after project implementation.

**D. CONFLICT DETERMINATION**

The action alternatives of the Upper Clackamas Thin will have a “**No Impact**” to the Pacific Fringe-tailed bat or its habitat.

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