

SUBJECT: Preliminary Biological Assessment South Rock Creek timber sale: potential impacts to Snowy South northern spotted owl site.

TO: Jerry Chetock

FROM: Rod Kraemer and Matt Gostin

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INTRODUCTION

Purpose. The ODF has proposed the South Rock Creek timber sale in the Santiam State Forest located in Linn County, Oregon. South Rock Creek timber sale is in the FY 2007 operations plan of the North Cascade District. Since South Rock Creek timber sale is located within the provincial home range of the Snowy South Northern Spotted Owl (NSO) site, a Biological Assessment (BA) is needed to evaluate impacts of the proposed timber sale to the owl site. The NSO is a state and federally listed 'threatened' species by the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Fish and Wildlife Service (USFWS), respectively.

Policy Direction. The Northwest Oregon State Forests Management Plan provides management direction for all Board of Forestry Lands and Common School Forest Lands in northwest Oregon. The resource management goals and strategies are intended to achieve the greatest permanent value through a system of integrated resource management. This plan is guided by legal and policy mandates. The ODF's management activities are conducted in compliance with all state and federal environmental laws, including the state and federal Endangered Species Act (ESA), respectively. 'Take' of threatened or endangered species is prohibited under Section 9 of the federal ESA. The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Such acts may include significant habitat modifications or degradation when it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. The policies and procedures for lands managed by the ODF in northwest Oregon are to avoid 'take' of NSO. 'Take' avoidance is accomplished on lands managed by the ODF in the North Cascade District through the application of the rescinded U.S. Fish and Wildlife Service (USFWS) take-avoidance guidelines (USFWS 1990).

The USFWS recommends the following stepwise approach to avoid or reduce the risk of incidental take:

1. Conduct NSO surveys during the breeding season and prior to any harvest activity according to protocols endorsed by the USFWS.
2. Avoid any harvest activity which results in less than 70 acres of the best available suitable owl habitat encompassing the NSO nest site and/or activity center of a pair of spotted owls.

3. Avoid any harvest activity which results in less than 500 acres of suitable NSO habitat within 0.7 mile radius (1000 acres) of a nest site and/or activity center. The 500 acres may include the 70 acres in No. 2 above and should be as contiguous as possible.
4. Avoid any harvest activity which results in less than 40% coverage (1182 acres) by suitable owl habitat within a circle with a radius centered on a nest site and/or center of activity and as prescribed by physiographic provinces. The 40% may include the acreage required in No. 2 and No. 3 above.

The ODF biologists also assessed the 'risk' that the proposed operation may pose to the Snowy South NSO site. A number of factors in addition to the USFWS take-avoidance guidelines, including the proximity of the operation to the owl site, the prescription proposed, the size of the operation, the history of activity near the site, and other relevant factors were used to determine the 'risk assessment'.

BACKGROUND

Survey Information. Kingfisher Ecological, Inc. conducted surveys for northern spotted owls in all potential owl habitat in and around planned timber sales and known owls sites in the ODF Cascade District. Potential spotted owl habitat was surveyed in accordance with the protocol for surveying proposed management activities that may impact NSO (USFWS 1992). As a result of these surveys, the Snowy South NSO site was located within 1.2 miles of the proposed timber sale (Figure 1).

Snowy South Northern Spotted Owl Site Information. The Snowy South NSO site was established in 1999, when a non-nesting pair was located. The Activity Center (AC) was located where the pair was first seen (Figure 1). In 2000, the historic female and a new unidentified male were found in the core, but no young were detected. In 2001, the historic female was found, but she was not nesting; no males were detected. In 2002, the historic female was paired with another new male that was banded at the Upper Rock site in 1995; no young were detected. In 2003, the historic pair was located, and they did not produce young. In 2004, a new sub-adult pair occupied this site; they did not nest. The male was unbanded, and the female had a red/white/red band on her left leg. There were no responses in 2005. Status (pair) and AC remain the same (Kingfisher Ecological, Inc. 2005).

Timber Sale Area Information. The South Rock Creek timber sale consists of three units (Area 1 = 263 acres, Area 2 = 23 acres, Area 3 = 45 acres). A portion of Area 1 is located within 1.2 miles of the Snowy South NSO site (Figure 1). The current stand condition of Area 1 is a 99 year-old stand currently classified as Understory (UDS). This stand type occurs after the stem exclusion stage has created small openings in the canopy, when enough light and nutrients become available to allow herbs, shrubs, and new trees to grow again in the understory. These stands have trees larger than sapling size. Tree canopies may range from a single species, single-layered, main canopy with associated dominate, codominate, and suppressed trees; to multiple species canopies. However, significant layering of tree crowns has not yet developed.

The overstory in Area 1 consists of mostly Douglas-fir, western hemlock and western red cedar trees, and has following average stand characteristics: diameter breast height (DBH)=18, basal area (BA)=237, trees per acre (TPA)=132, stand density index (SDI)=57. The understory contains vine maple, salal, oxalis, and sword fern. There are currently 7 snags per acre; 800 cubic feet per acre of sound down wood; and 3200 cubic feet per acre of down wood in all decay classes. Approximately 100 acres (40%) of Area 1 were thinned in 1978.

The desired future condition for Area 1 is Layered (LYR). This stand type occurs as the process of understory reinitiation progresses where openings in the canopy persist. Shrub and herb communities are more diverse and vigorous, and two or more distinct layers of tree canopy exist. The anticipated pathway to achieve LYR for Area 1 begins with moderately thinning the overstory which currently supports 131 trees per acre of trees 8 inches DBH or larger. The goal for this thinning will be to encourage the growth of all species in the stand. This will be the second commercial thinning of the stand. The stand is expected to develop into Layered condition in 5-10 years after this operation is completed. The understory in the stand will be evaluated for a possible precommercial thin (PCT) in 5-10 years, and the entire stand will be evaluated in 15-20 years for another possible entry to encourage the growth of the understory trees.

The proposed management prescription for Area 1 is:

- Thin all trees greater than 8 inches DBH. After harvesting, Area 1 is expected to have the following average stand characteristics: DBH=20, BA=153, TPA=61, and SDI=30.
- Keep all hardwoods and noble fir.
- Keep all western hemlock and western red cedar less than 10 inches DBH and greater than 30 inches DBH.
- Keep all Douglas fir greater than 30 inches DBH.
- Maintain existing down and snags where possible.

ASSUMPTIONS

Defining the Snowy South NSO Home Range. According to the procedures leading to ESA compliance for the NSO (USFWS 1990), the median home range size for spotted owls in the Oregon Cascades is 2500 acres, or the approximate equivalent of the area encompassed by a circle with a radius of 1.2 miles. Although NSO's generally do not have circular home home ranges, in the absence of more specific information about the home range of the Snowy South NSO, it is assumed that a 1.2 mile radius circle around the nest or AC approximates the home range of the Snowy South NSO site.

Defining Suitable Northern Spotted Owl Habitat. For the purposes of ESA compliance, the USFWS (1990) describes suitable NSO habitat as stands that exhibit the following characteristics:

- moderate to high canopy closure;
- a multi-layered, multi-species canopy dominated by large overstory trees
- a high incidence of large trees with large cavities, broken tops, and other indications of decadence;
- numerous large snags;
- heavy accumulations of logs and other woody debris on the forest floor; and
- considerable open space within and beneath the canopy.

These attributes are usually found in mature and old conifer forests, but are sometimes found in younger forests, especially those that contain remnant large trees or patches of large trees from earlier stands. It is important to note that the age of forests is not as important a factor in determining habitat suitability as are vegetational and structural components (USFWS 1990).

In ODF's experience, NSO occur in some forest stands that are less than 80 years old. Several studies have investigated NSO home range and habitat use in young forests on ODF lands in western Oregon (Islam et al. 1997, Anthony et al. 2000, Tappeiner et al. 2000, Glenn et al. 2004). Islam et al. (1997) investigated the relationship between demography of NSO and habitat characteristics at the landscape level on ODF lands, and reported that the minimum diameter of the dominant conifer trees in stands of NSO habitat should be at least 18 inches and stands should also contain about three size classes and have variation in stem density within the stand. Anthony et al. examined habitat in owl home ranges on ODF lands in the Northern Coast Range (NCR) of Oregon and Elliott State Forest (ESF) in south-central Oregon Coast Range. Individual owls in the NCR study area selected mature forest and hardwood forest, and avoided young and pole stands. At ESF, owls selected mixed-age conifer, mature conifer, old conifer, and hardwood forest, and avoided young and pole. Owls were also found close to conifer-hardwood ecotones more often than expected in both study areas. At NCR, Tappeiner et al. 2000 reported that nest and forage sites had larger trees, lower tree densities, and more hardwood stems than low use sites, and that higher owl success (combination of site occupancy and reproduction indices) was positively correlated with average tree size and negatively correlated with tree density. Glenn et al. 2004 reported that individual owls on their study areas in the NCR and ESF varied greatly in habitat use patterns and appeared to be using different strategies for surviving in younger forests. In younger, or less structurally diverse landscapes, the use of hardwoods was more frequent than in landscapes dominated by older conifer forest. Hardwoods may contribute structural diversity and prey base than are otherwise in short supply in relatively young, homogenous landscapes lacking remnant old-forest structures.

Northern spotted owl habitat determinations within 1.2 miles of the Snowy South northern spotted owl AC were made by ODF wildlife biologists and foresters using results of NSO research on ODF lands, information about forest stand age and average stand diameter on ODF lands from aerial photo interpretation, ODF's computerized forest inventory system databases (Figure 2), and ground-truthing. Based upon these findings, NSO habitat for this assessment was defined as:

- Forest stands greater than 18 inches average DBH provided suitable habitat for NSO.
- Forest stands between 12-17 inches average DBH provided suitable or non-suitable habitat for NSO depending on the presence/absence of structural characteristics needed to accommodate owls. ODF biologists, using professional judgment, determined the suitability of habitat for these stands by considering stand density, structural diversity, and tree diversity. Extremely dense stands may preclude spotted owl use because of the difficulty for owls to maneuver through the stand. Stands lacking in vertical and horizontal diversity and tree species diversity may provide poor habitat for prey species and/or few perching/hunting opportunities for spotted owls.
- Forest stands less than 12 inches average DBH provided non-suitable habitat for NSO.

IMPACT ASSESSMENT AND DISCUSSION

Landscape Analysis. Approximately, 673 acres of suitable owl habitat occurs within 0.7 miles, and 1680 acres of suitable owl habitat occurs within 1.2 miles of the Snowy South NSO nest site (Table 1)(Figure 3).

Table 1. Total acres of suitable and non-suitable northern spotted owl (NSO) habitat within 0.7 mile and 1.2 mile radii of Snowy South NSO site.

| <u>Landowner</u> | <u>0.7 mile radius</u> | | <u>1.2 mile radius</u> | |
|------------------|------------------------|---------------------|------------------------|---------------------|
| | <u>Suitable</u> | <u>Non-suitable</u> | <u>Suitable</u> | <u>Non-suitable</u> |
| ODF | 673 | 308 | 1502 | 844 |
| BLM | 0 | 0 | 77 | 103 |
| Other | 0 | 0 | 101 | 253 |
| TOTAL | 673 | 308 | 1680 | 1200 |

Forest habitat in the South Rock Creek timber sale Area 1 is dominated by a mature, densely stocked stand of Douglas fir, mixed with varying amounts of western hemlock, western red cedar, noble fir, and hardwoods. The forest habitat possesses important structural components, including moderate to high canopy closure, a multi-layered canopy dominated by large overstory trees, snags, and large down logs. The size and diversity of trees species and structural components in this stand are adequate to provide nesting, roosting, and foraging opportunities for northern spotted owls. Therefore, forest habitat in South Rock Creek timber sale Area 1 is suitable NSO habitat.

South Rock Creek timber sale will impact and modify 0 acres of suitable owl habitat within 0.7 miles and 55 acres of suitable owl habitat within 1.2 miles of the Snowy South NSO AC, respectively. Approximately, 673 acres of suitable owl habitat will remain

within 0.7 miles and 1625 acres of suitable owl habitat will remain within 1.2 miles of the Snowy South NSO AC following completion of the South Rock Creek timber sale (Figure 3).

CONCLUSIONS AND RISK ASSESSMENT

Biological Risk. The South Rock Creek timber sale poses a ‘low’ risk to the continued viability of the Snowy South NSO site. Total acres of suitable spotted owl habitat are 35% higher than the USFWS recommendations to reduce potential risk of incidental ‘take’ within 0.7 miles, and 37% higher than USFWS recommendations to reduce potential risk of incidental ‘take’ within 1.2 miles of the Snowy South NSO nest site, respectively. In addition, the proposed action is consistent with management recommendations provided by several researchers investigating NSO on ODF lands. Anthony et al. 2000 recommended that habitat for NSO may be enhanced or created through active management, and suggested that carefully designed thinning operations developed after detailed site evaluations may accelerate the development of stands into forests with structural attributes more likely to accommodate NSO. Tappeiner et al. 2000 reported that low stand density, whether achieved naturally or created through management appeared to be important in the formation of stand structural characteristics associated with NSO use on ODF lands in the NCR and ESF. Glenn et al. 2004 recommended that timber harvest be avoided in NSO core areas.

Compliance. The proposed action is consistent with ODF’s legal and policy mandates to maintain existing NSO sites on ODF lands. The total acres of suitable owl habitat are sufficient to avoid incidental ‘take’ under the federal ESA (USFWS 1990). Specifically, South Rock Creek timber sale will avoid timber harvest which:

- results in less than 70 acres of the best available suitable owl habitat encompassing the AC.
- results in less than 500 acres of suitable NSO habitat within a 0.7 mile radius of the AC; and
- results in less than 1182 acres of suitable NSO habitat within a 1.2 mile radius of the AC.

CONSULTATION

Oregon Department of Fish and Wildlife. Comments to be provided by Charlie Bruce.

LITERATURE CITED

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