

Preliminary Biological Assessment of the Table Mountain Timber Sale: Potential Impacts to the Table Mountain Northern Spotted Owl Site

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Purpose

West Oregon District is proposing a timber sale (Table Mountain, 77 acres gross), which is located within 1.5 miles of the Table Mountain northern spotted owl site (owl circle). The purpose of this memo is to summarize the habitat conditions within the owl circle and within the proposed sale area. I will discuss the biological risks that this activity may pose to this owl site, and will discuss implications with regards to the rescinded incidental take guidelines (U.S. Fish & Wildlife Service 1990).

Policy Direction

ODF Policy. Current policy ('Northern Spotted Owl Management Measures.' Memo from Ross Holloway, October 23, 2000) states: "In all cases, we will follow practices that 'avoid take' of northern spotted owls...The...area biologist will evaluate planned sales by applying the (incidental take guidelines) and considering the location of the activity (proximity to nest or activity center); the size of the operation; the nature of the silvicultural prescription; and other pertinent factors...Decisions on whether to proceed with sales within owl circles will be made by the Program Director and Area Director..."

Rescinded USFWS spotted owl take guidelines. The rescinded Federal Incidental Take Guidelines (U.S. Fish & Wildlife Service 1990) recommended that to avoid incidental take of northern spotted owls, managers avoid any harvest activity which results in less than 500 acres of suitable habitat within a 0.7-mile radius of a spotted owl activity center. The guidelines also recommended that within the Oregon Coast Range province, managers avoid any harvest activity which results in less than 1906 acres of suitable habitat within a 1.5-mile radius of the activity center. The difficulties of performing this analysis for the Table Mountain owl site include identifying which stands provide suitable habitat and anticipating the short-term effects of the proposed management prescription on spotted owl habitat quality.

Survey Information

The 'Table Mountain BLM' spotted owl site has been monitored by the U.S. Forest Service's PNW research lab since 1993. This pair nested in 1994, 1996, 1998, and 2001, fledging two juveniles in each year, except 1998 when they fledged one juvenile. There were no responses at this site in 2004. I do not have information about any possible turnover that may have occurred among the individual owls using this site.

The 2004 status of this site is 'Pair.'

Habitat Information

Defining the home range. The home ranges and habitat use of the Table Mountain spotted owls are poorly understood. Most surveying was conducted at or near the activity center, so the owl locations shown in Figure 1 do not represent the full home range of these birds. Anthony et al. (1999) found that spotted owls in 2nd growth forests in the northern Oregon Coast Range frequently have very large home ranges, extending well beyond 1.5 miles. However, in the absence of better information, the following discussion will describe stand conditions within 0.7- and 1.5-mile radius circles around the established activity center as suggested by the rescinded U.S. Fish & Wildlife Service Incidental Take Guidelines.

Defining Suitable Habitat. It is difficult to define suitable habitat for spotted owls in younger forests. Documentation provided with the “Procedures Leading to Endangered Species Compliance for the Northern Spotted Owl” (U.S. Fish & Wildlife Service, 1990) describes spotted owl suitable habitat as stands that exhibit: “...moderate to high canopy closure; a multilayered, multispecies 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 old growth, but they 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...”

The majority of stands used by spotted owls on ODF ownership do not meet the above definition of suitable habitat; however, some of the mature stands on BLM and USFS ownership within the Table Mountain owl circle likely do meet this definition.

ODF has some data on the use of younger forest types from North Coast spotted owl sites on ODF lands. An attempt to create a habitat suitability index (HSI) for spotted owls was conducted by Islam et al. (1997). Although this investigation was limited by various factors, the major finding was a positive correlation between owl site occupancy and the acreage of stands averaging 18 inches or greater in DBH (according to ODF’s OSCUR timber inventory database) within ¼ and ½ mile of the owl site activity center.

A telemetry study of several owls on the Clatsop State Forest (Anthony et al. 1999) found many spotted owl foraging locations in smaller diameter stands averaging 12-17 inches and greater. The investigators in the HSI study noted that many owl responses had occurred in stands ranging from 12-17 inches in average DBH, but that there was no correlation between this size class and owl occupancy. They thought that some stands less than 18 inches DBH probably were suitable to some degree, but the attributes that determine that suitability were not apparent. The telemetry study and a concurrent study of habitat in areas where owls were located (Tappeiner et al. 1999) have found that hardwoods, especially hardwood/conifer edges, are an important component of spotted owl foraging habitat in both the Clatsop and Elliott State Forests. The habitat study also found that spotted owl nesting and foraging sites had larger average DBH and fewer trees per acre than non-use areas. So, other factors in addition to DBH that contribute to spotted owl habitat quality likely include hardwoods (especially hardwood/conifer edges), stand age, snags, down wood, and horizontal diversity.

My observation is that within many of the younger stands used by spotted owls on ODF ownership, suitable habitat occurs at the patch rather than at the stand level. This may help explain why spotted owls living in landscapes on ODF ownership, with amounts of 2nd growth ‘habitat’ that greatly exceed the minimum recommendations of the Incidental Take Guidelines, have such poor demographic performance (Anthony et al. 2000). It may take many more acres of younger stands to provide the number of suitable habitat patches that would be contained in a much lesser acreage of old-growth forest. The energetics of a bird moving between the more sparsely distributed habitat patches also may reduce viability. Therefore, retaining 2nd growth ‘habitat’ at or near the minimum standards could result in negative impacts to individual spotted owl sites.

Because of the correlation between acreage of 18”+ DBH stands to spotted owl occupancy (Islam et al. 1997), it may be reasonable to assume that these stands provide suitable habitat for spotted owls. However, the majority of the 18”+ DBH stands on ODF ownership do not contain all the structural components described in the earlier paragraph. From a biological perspective, not all stands averaging 12”+ DBH provide suitable habitat for spotted owls. Indeed, I routinely make determinations that 12-17” DBH stands within and adjacent to proposed sale areas do not provide suitable spotted owl habitat based upon stand density, structural diversity, and tree diversity (Northern Spotted Owl Surveying on State Forest Lands, General File # 3-2-1-330.2).

Habitat on BLM, USFS, and Private Ownership. Habitat acreages on Bureau of Land Management (BLM), USDA Forest Service (USFW) and on private ownership within this owl circle were estimated using aerial photo analysis combined with ground truthing. I had access to stand inventory data from the BLM and the USFS, and that information helped me in making suitable habitat determinations. Unfortunately, there are no common fields

between the ODF, BLM, and USFS timber inventories, so I was not able to compare the stands directly using these data. I conducted the habitat assessment with Dan Borg and Mike Totey from West Oregon District using recent stereo aerial photographs. We ground truthed several stands where habitat suitability could not be determined from aerial photo interpretation. The standard that we used for habitat suitability was the same as that used when determining survey requirements: "If ODF were proposing a timber sale in a comparable stand, would I recommend spotted owl surveys?"

Evaluation of Habitat on ODF Ownership. As directed by current policy (Northern Spotted Owl Surveying on State Forest Lands, General File # 3-2-1-330.2), I have conducted a site-specific evaluation of habitat suitability on the 11-17" DBH stands on ODF ownership, using the same techniques as described in the previous section on non-ODF ownership. I have determined that the entire ODF ownership within the Table Mountain owl circle provides suitable spotted owl habitat.

All stands were digitized and acreages were calculated using ArcView.

Landscape Condition. Figure 1 shows the spotted owl activity center, timber sale location, ages, and average stand diameters (based on ODF's OSCUR timber inventory database) on ODF ownership within the Table Mountain owl circle. Figure 1 also shows suitable spotted owl habitat on BLM and USFS ownerships. I also have classified some of the stands on Private ownership as 'suitable'. These acreages are summarized in Tables 1, 2, 4 & 5, but location of private habitat is not shown in Figure 1.

Tables 1-3 summarize the landscape condition (average stand DBH and age) on ODF ownership within 0.7- miles of the Table Mountain activity center. Tables 4-6 summarize the landscape condition (average stand DBH and age) on ODF ownership within 1.5- miles of the AC. These tables use ODF's OSCUR timber inventory database to estimate stand age and average DBH. Average DBH is estimated using a growth model, so these estimates may not be entirely accurate.

Tables 1 2, 4 & 5 also report the results of the habitat analysis on non-ODF ownerships.

Stand age, as presented in Tables 3 and 6 is presented as another index to spotted owl habitat quality on ODF ownership. Unfortunately, stand age is not available for other ownerships, but ages provide some information on relative quality of 'suitable' habitat present on the ODF ownership; habitat stands with older ages, in general, provide higher quality habitat than do habitat stands with younger ages.

Acreages reported in these tables are approximate.

Due to lack of suitable habitat within 1.5 miles of the AC, it is likely that spotted owls living within this landscape would range beyond 1.5 miles from the AC.

Sale Prescription

The following is from West Oregon District's draft 2006 Annual Operations Plan:

"...the thinning prescription is designed to maintain suitable habitat and leave the overall integrity of the stand intact.

The proposed thinning prescription would result in the retention of about 100 Douglas-fir and hemlock trees that average 21" DBH. The relative density of the stand would be approximately 52 after harvest.

All hardwood trees and conifer trees other than Douglas-fir will be retained.

The hemlock seedlings that are present in the understory will receive some minor release as a result of the thinning. Some additional seedlings may also become established following harvest."

After discussing the situation with the spotted owl site and potential impacts of the harvest, Dan Borg has suggested an addition to the sale prescription in the draft Annual Operations Plan: “The natural formation of snags and down wood will be monitored in the operation area five years after the operation. If natural recruitment of these elements is not considered sufficient by the area wildlife biologist, snags and down wood will be created.”

Assessment

Landscape Condition. Within a 0.7-mile radius around the Table Mountain AC, there are 514 acres of suitable spotted owl habitat on all ownerships. The Table Mountain sale will impact 2 acres, leaving 512 habitat acres unmanaged; this is 10 acres in excess of the 500 acres recommended by the Incidental Take Guidelines.

Within a 1.5-mile radius around the Table Mountain AC, there are 1388 acres of suitable spotted owl habitat on all ownerships. The Table Mountain sale will impact 77 acres, leaving 1311 habitat acres unmanaged; this is 595 acres less than the 1906 acres recommended by the Guidelines.

I have classified all of the ODF and BLM ownership within the Table Mountain owl circle as ‘suitable’ habitat. Therefore, there is no future opportunity for increased suitable habitat acreage on these two ownerships. However, the habitat quality on much of the ODF ownership is relatively low, so there certainly is room for improvement in the quality of the suitable habitat on the ODF ownership. There are several young plantations on the USFS ownership, so the acreage of suitable habitat on USFS may increase sometime in the future.

Anticipated Thinning Impacts.

Short Term. The short-term effects of the thinning prescription on spotted owl habitat quality are difficult to anticipate. The thinning will leave a fully stocked stand, so the thinning activity should not render suitable habitat unusable for the owl. In a case study of a thinning (Walker Ridge Stand Improvement) near an owl core area in Clatsop County, spotted owls displaced their foraging activity for at least a couple of years after the harvest, suggesting a short-term detrimental effect. The length of this displacement is not well understood (Anthony, et al. 2000). The Table Mountain sale is located farther from the AC than was the Walker Ridge Stand Improvement, so any short-term impact may be less than observed in the Walker Ridge case study.

My past observation is that logging activities may result in mechanical damage to existing snags and down wood, especially those in more advanced stages of decay. This may result in some short-term impacts to habitat for spotted owl prey species. In some stands, I have observed natural recruitment of hard snags and down wood over the first few years after thinning, which over the long term may replace any lost components. This natural recruitment is highly variable between stands and years, dependent on initial stand condition, thinning intensity, aspect, occurrence of severe storms, etc.

Long Term. Over the long term, the thinning prescription should promote growth of larger trees and help develop establishment and growth of a tolerant conifer understory within the sale area. This should increase spotted owl habitat suitability over the long term. The proposed snag and down creation (if natural recruitment is not sufficient after 5 years) also should enhance long-term habitat potential for spotted owl prey; ultimately increasing habitat suitability for spotted owls, as well.

Risk Assessment

Biological Risk. The Table Mountain sale will impact 77 acres of suitable owl habitat within the Table Mountain owl circle, which currently encompasses a relatively low amount of suitable habitat. The sale will not impact any core use area and is located beyond 600 m from the AC. The sale is located barely inside, and just outside of the 0.7-mile radius circle around the AC. The sale is located within the largest block of contiguous suitable habitat within the circle. Any negative impacts within this large contiguous habitat block likely would be greater than impacts of a similar operation that occurred within an isolated patch of habitat on the edge of the circle.

For these reasons, I anticipate that harvest of the Table Mountain sale will result in a ‘High’ short-term risk to the

Table Mountain spotted owl site.

Consistency with the Incidental Take Guidelines. The landscape surrounding the Table Mountain spotted owl site has considerably less than 1906 acres of suitable spotted owl habitat. Thus, any activity within the owl circle that renders suitable owl habitat unsuitable would not be consistent with the Guidelines. The sale prescription is similar to a prescription developed in conjunction with the U.S. Fish & Wildlife Service in the Black Rock area. The intent of the proposed sale prescription is to maintain suitable habitat over the short-term and to enhance habitat suitability over the long term. It is arguable that any activity which would reduce habitat quality, but not render it unsuitable, also might be considered inconsistent with the Guidelines. However, Incidental Take ultimately is a legal standard, and I am not qualified to offer advice on legal issues.

Consultation with ODFW

Doug Cottom with ODFW has reviewed the final draft of this Biological Assessment. Doug's comments are included as 'Attachment 1.'

Literature Cited

- Anthony, R.G., B. Glenn, K. Swindle, & M. Hansen. 1999. Home range and habitat use of northern spotted owls on state forest lands in the Oregon Coast Range. Final research report to the Oregon Department of Forestry. 114 pp.
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Table 1. Average Stand DBH (according to ODF's OSCUR timber inventory database -- 'Stand99' and photo/ground review on non-ODF) within a 0.7-mile radius of the Table Mountain Northern Spotted Owl activity center.

Note: On non-ODF ownerships, this table assumes that all 'non-suitable' is <12" DBH and 'suitable habitat is 12-17" DBH. On USFS and BLM ownerships, actual DBH of older stands likely exceeds this assumption.

DBH	-----ODF Ownership-----				-----Non ODF Ownership-----						Total Suitable Habitat after ODF timber sales
	Total Acres		Table Mountain		BLM		USFS		Private		
	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable	
0-11	0	0	0	0	--	0	--	0	--	465	--
12-17	127	0	0	0	364	--	0	--	0	--	491
18-25	2	0	2	0	--	--	--	--	--	--	0
26"+	21	0	0	0	--	--	--	--	--	--	21
Total	150	0	2	0	364	0	0	0	0	465	512

Table 2. Suitable Spotted Owl habitat within 0.7 miles of the Table Mountain Northern Spotted Owl activity center on all ownerships.

	Suitable	Non-Suitable
ODF	150	0
BLM	364	0
USFS	0	0
Private	0	465
Total	514	465
Table Mountain Sale	2	0
Total Suitable after	512	

Table 3. Stand age (according to ODF's OSCUR timber inventory database -- 'Stand99') on ODF ownership within a 0.7-mile radius of the Table Mountain Northern Spotted Owl activity center.

Age	ODF Acres	Acres Within Table Mountain	ODF Acres Outside of Sales
0-39	0	0	0
40-49	0	0	0
50-59	0	0	0
60-69	0	0	0
70-99	129	2	127
100+	21	0	21
Totals	150	2	148

Table 4. Average Stand DBH (according to ODF's OSCUR timber inventory database -- 'Stand99' and photo/ground review on non-ODF) within a 1.5-mile radius of the Table Mountain Northern Spotted Owl activity center.

Note: On non-ODF ownerships, this table assumes that all 'non-suitable' is <12" DBH and 'suitable habitat is 12-17" DBH. On USFS and BLM ownerships, actual DBH of older stands likely exceeds this assumption.

DBH	-----ODF Ownership-----				-----Non-ODF ownership-----						Total Suitable Habitat after ODF timber sales
	Total Acres		Table Mountain		BLM		USFS		Private		
	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-Suitable	
0-11	0	0	0	0	--	0	--	151	--	3286	0
12-17	218	0	0	0	619	--	361	--	84	--	1282
18-25	77	0	77	0	--	--	--	--	--	--	0
26"+	29	0	0	0	--	--	--	--	--	--	29
Total	324	0	77	0	619	0	361	151	84	3286	1311

Table 5. Suitable Spotted Owl habitat within 1.5 miles of the Table Mountain Northern Spotted Owl activity center on all ownerships.

	Suitable	Non-Suitable
ODF	324	0
BLM	619	0
USFS	361	151
Private	84	3286
Total	1388	3437
Table Mountain Sale	77	0
Total Suitable after	1311	

Table 6. Stand age (according to ODF's OSCUR timber inventory database -- 'Stand99') on ODF ownership within a 1.5-mile radius of the Table Mountain Northern Spotted Owl activity center.

Age	ODF Acres	Acres within Table Mountain	ODF Acres Outside of Sales
0-39	0	0	0
40-49	0	0	0
50-59	0	0	0
60-69	0	0	0
70-99	295	77	218
100+	29	0	29
Totals	324	77	247