

# Pre-Operations Report

**Operation Name: Wakefield**  
**County: Tillamook**  
**Management Basin: North Fork Nehalem**

**Table 1. Operation Areas, Types and Acres**

Area	Type of Operation	Gross Acres	Net Acres <sup>1</sup>
1	Partial Cut – Light	228	215
2	Retention Cut	128	123
Total		356	338

*1. The net acres are based on orthophotos and GIS and exclude roads, stream buffers, reserve area and non-required thinning areas.*

## **I. PHYSICAL DESCRIPTION OF OPERATION AREA:**

Slopes have a varied aspect and range from 5% to 70%. Elevations range from 440 feet to 1960 feet. The major soil types are Rye and Killam.

The sale is located on the narrow ridgeline and moderate to steep side-slopes of the divide between Helloff Creek and Bastard Creek tributaries of the Nehalem River. There are steep slopes throughout the sale and scattered very steep slopes especially on the east flank of the ridge above Bastard Creek and its tributaries. The sale is underlain by igneous origin rocks of the Tillamook Volcanics Formation. Refer to the Overview of Harvest Operations in the Summary document for information.

## **II. CURRENT STAND CONDITION:**

**Table 2. Stand Inventory Information<sup>4</sup>**

Area	Prescription	Stand ID <sup>1</sup>	Species	Age	DBH	BA	TPA	SDI	Net Acres <sup>2</sup>
1	PC	222	DF, RA, WH	60	16.9	285	182	71	215
		Target <sup>3</sup>	DF, RA, WH	60	20.6	152	66	35	215
2	RC	223	RA, DF, WH	60	15.8	214	157	54	123
		Target <sup>3</sup>	DF, WH	60	29.4	66	14	13	123

*1. The source of stand inventory information is from field reconnaissance cruise plots taken in 2006.*

*2. The net acres are based on orthophotos and GIS and exclude roads, and stream buffers, reserve area and non-required thinning areas.*

*3. The Target identifies expected stand characteristics (DBH, BA, TPA and SDI) after harvesting has been completed.*

*4. These numbers are based on plot data taken to this point and final numbers may differ significantly. The directive for minor and major modifications will be followed for further review.*

The sale areas were logged in the early 1900's and naturally regenerated. They have had no prior stand management. There is no Stand Level Inventory (SLI) available for either area. The sale areas are classified as 100% Closed Single Canopy (CSC) according to the district stand summary information (1999). Area 2 will be further evaluated (as defined by the July 2004 guidance, "*Planned Sale Inventory Requirements – Alternative to Full Stand Level Inventory*"). See Table 2 for specific stand data.

Area 1 is predominately a Douglas-fir stand that has pockets and stringers of alder scattered throughout. There is also scattered hemlock and spruce. The Douglas-fir is very dense (approx. 71% SDI) and is causing mortality in the understory conifer and shrub species, receding live crown ratios on dominant trees, and reduced diameter growth. Height to diameter ratios may be an issue and will need to be looked at closer during sale layout.

Area 2 is an alder stand with several large pockets of dense conifer (primarily Douglas-fir). There is also Douglas-fir and other conifer scattered throughout the unit. The pockets of conifer are becoming overstocked resulting in the loss of live crown ratios and slowed diameter growth. Due to stand age, the alder in this stand has poor height and diameter growth. There are several large areas of alder. The actual size and location of these will be determined during sale preparation and will be treated as modified clearcuts if they are larger than 5 acres. The understory is comprised of salmonberry and conifer species and is found mostly under the alder overstory.

There are some large snags in various states of decay and some hard snags created from wind damage. Down wood consists of scattered large old logs (36"+) in Class 3 and 4 stages of decay and some windthrow in decay classes 1 and 2. There is no SLI data for current snag and down wood levels in these areas.

### III. DESIRED STAND CONDITION AND VISION:

**Table 3. Stand Structure Information**

Area	Stand ID	Current	Post Harvest <sup>1</sup>	Desired Future	Net Acres
1	222	CSC	UDS	LYR	135
1	222	CSC	UDS	OFS	80
2	223	CSC	REG	OFS	123

1. The stand is expected to develop into this condition in the five to ten years after this operation is completed except in REG stands which occur after harvest.

See Section IV: Proposed Management Prescription for more information on Green Tree, Down Wood, and Snag Strategies during operation. Also refer to

Landscape Design in the Summary document for more information on strategies to move the district toward Desired Future Condition (DFC) goals.

Area 1: The DFC for this stand is Layered (LYR) and Older Forest Structure (OFS). The vision for this stand is to have a mixed species stand, including Douglas-fir, western hemlock, spruce, cedar, and hardwoods. The different species within the stand are providing both horizontal and vertical diversity. Reducing stand density at this time results in a stand that will stimulate understory growth and maintain species diversity.

Area 2: The DFC for this area is LYR. The vision is for a stand of scattered Douglas-fir, western hemlock and alder. The stand will be composed of a mixture of species, size classes, and densities. A new cohort of western hemlock, alder, spruce, and cedar in the alder clearcut areas and larger gaps will provide both horizontal and vertical diversity. After thinning in approximately 20-30 years the stand will have a mixture of sizes, species and densities and likely be in a Layered condition.

#### **IV. PROPOSED MANAGEMENT PRESCRIPTION AND PATHWAY:**

The prescriptions described below are based on the current stand condition such as overall tree and stand growth, species mix, stand density, and stand health.

**See Table 2 for prescription targets.**

In Area 1, a partial cut will thin the alder, Douglas-fir and hemlock to a basal area range of 140 to 160 average basal area leaving the biggest and the best of all species. All other hardwood and conifer species will be reserved.

This partial cut prescription will reduce the amount of overstocking. The resulting stand will have a stand density of approximately 35-40% which will maintain stand vigor, and develop healthier and larger trees in the residual stand. The hardwoods and other conifer remaining in the stand will add to the species diversity. This is a first entry partial cut that will which will begin to move the stand along the pathway to more complex structures. It is likely that another thinning in 10-15 years will be needed to keep the stand on this trajectory. At this time managers will review density, stand health, and landscape goals to develop future management prescriptions.

In Area 2, a retention cut will remove the alder, all Douglas-fir less than 25 inches DBH, and all hemlock and spruce less than 16 inches DBH. All other hardwood and conifer are reserved.

This retention cut prescription will remove the slow growing alder and reduce density in the overstocked conifer pockets. The residual stand SDI will be approximately 13%. The harvest prescription is designed to achieve variable densities throughout the area. The resulting stand will have conifer thinning pockets of various sizes and large residual conifer scattered in the alder clearcuts. This is a first entry harvest that will begin to move the stand along the

pathway to a more complex structure. The openings and gaps will allow for understory reinitiation of shrubs and tree species creating horizontal and vertical diversity. A thinning will be needed in 25 to 30 years to keep this stand on a trajectory to complex stand structure. At this time managers will review density stand health, and landscape goals to develop future management prescriptions

### **Green Tree, Down Wood and Snag Strategies**

A variety of methods will be used to achieve green tree retention requirements in Area 2. These residual green trees will supplement the future stand by promoting growth of dominant/co-dominant leave trees. Small non-merchantable hardwood and conifer will also be retained where possible. These leave trees function as future source of snags and down wood recruitment across the landscape. Green trees will be left on precipitous slopes, headwalls, and those areas not reached by conventional logging methods. Stream buffers adjacent to small perennials and the outer Riparian Management Area (RMA) will also contribute additional green trees. Many of these areas will be posted so they are outside of the timber sale boundary.

Existing down wood will be left in the sale areas. Down wood recruitment is expected through mortality and windthrow of residual or leave trees, felled snags and tops left during harvest. Obvious defect in conifer logs will be bucked out in all harvest areas to enhance down wood levels. Small non-merchantable hardwood and conifer will be retained where possible in harvest units with the expectation they will become short term snags and down wood. Tops resulting from ground yarding will also be left in the unit. Down wood in decay class 1 will be created in Areas 1 and 2. A prescription will be developed after the cruise has been completed.

Existing snags not determined to be a safety hazard will be retained and any felled snags will be left for down wood. Creation of snags is expected during harvest activities (rub trees, lift trees, or tail trees) and over time by natural processes. Snags will be created in Areas 1 and 2. A prescription will be developed after the cruise has been completed.

**V. ESTIMATED TIMBER AND REVENUE INFORMATION:**

**Table 4. Timber and Revenue**

Ownership		Sale Type	
BOF	CSL	Cash	Recovery
100%	0%	<input type="checkbox"/>	X
Planned Quarter:		3	

	Conifer	Hardwood	Total
Net Volume (MBF)	2913	1783	4696
Stumpage Value (\$/MBF) *	\$238	\$200	
Estimated Gross Value	\$693,294	\$356,600	\$1,049,894
		Project Costs:	\$432,438
		Estimated Net Value:	\$617,456

*\*Combined Douglas-fir and hemlock stumpage values based on harvest type.*

**VI. HARVESTING AND ACCESS CONSIDERATIONS:**

The sale areas are accessed via Rector Ridge Road and Wakefield Road. These are currently all weather, crushed rock (Rector) and pit run (Wakefield) roads. See maps for specific road locations and conditions.

Approximately 4.5 miles of existing surfaced road will be improved which includes grading, rocking, culvert replacement, spot rocking, and adding new culverts. This work will bring all roads up to standards described in *the Forest Roads Manual*.

Approximately 1.5 miles of road will be constructed in order to provide access to cable yarding areas. Approximately 0.7 miles of spur roads will be blocked following harvest operations roads. The remaining portion of new road construction will be reviewed for closure after reforestation. Ground yarding roads will be closed and water-barred following harvest. See summary document for more information on road closure. The operation will be approximately 98% cable yarding and 2% ground yarding.

**Table 5. Transportation Planning Summary (Miles)<sup>4</sup>**

Activity	Mainline	Collector	Rocked Spur <sup>1</sup>	Dirt Spur <sup>1</sup>
Construct			1.5	
Improve		4.5		
Maintain <sup>2</sup>		1.2		
Close/Block <sup>3</sup>			0.7	
Vacate <sup>3</sup>				

1. *Additional roads may be built by the operator at the time of harvest and will be approved by the State through the Operations Plan. These will be short dead end spurs and closed or blocked after harvest*
2. *All roads accessing the sale area will be maintained during the life of the timber sale contract. Maintenance miles in the table are those roads not being constructed or improved.*
3. *Roads not closed/blocked or vacated at the end of the sale will be reviewed for closure after reforestation is established.*
4. *The numbers in this table reflect planned Project Work associated with the sale.*

## **VII. AQUATIC RESOURCES AND WATER QUALITY:**

Bastard Creek is a Type F stream that is located adjacent to the non-required thinning area in Area 1. Helloff Creek is a Type F stream that is located adjacent to Area 2. There are two assumed Type F Streams, one located in Area 2 and one located adjacent to Area 2. The inner and outer riparian zones of these Type N streams will be managed towards mature forest condition.

The Oregon Department of Fish and Wildlife (ODFW) will be requested to complete stream surveys prior to sale layout. Streams of unknown status will be treated as Type F until surveys are completed to verify fish use.

Stream buffers within or adjacent to harvest unit boundaries will be managed according to *Forest Management Plan* Riparian Strategies. The riparian areas will be reviewed during sale layout for current stand conditions and/or operational constraints for implementing FMP strategies.

The ODFW fish biologist has identified this sale as having some possible stream enhancement project areas. These opportunities will be looked at during sale contract preparation.

Refer to Aquatic Resource Protection Strategies in the Summary document for information on in the "in stream work period" road work and stream improvement projects.

## **VIII. T&E SPECIES CONSIDERATIONS:**

The sale areas have been reviewed with the ODF Northwest Oregon Area Biologist.

It was determined that in the sale areas there is potential marbled murrelet habitat within or adjacent to the sale boundary. Surveys have been and will be conducted during the 2006 and 2007 survey season for marbled murrelets. All surveys for marbled murrelet were and will be conducted in accordance with Pacific Seabird Group (PSG) protocol. There have been no marbled murrelet detections during the 2006 survey season.

It was determined that in the sale areas there is potential northern spotted owl habitat within or adjacent to the sale boundary. Surveys have been and will be conducted during the 2006 and 2007 survey season for northern spotted owl. All northern spotted owl surveys were and will be conducted in accordance with USFWS endorsed protocol. There have been no northern spotted owl detections during the 2006 survey season.

A portion of this sale is located in a northern spotted owl circle. A Biological Assessment (BA) is being prepared by the Area Biologist and will be reviewed U.S. Fish and Wildlife Service (USFWS) in accordance with the *Agreement for the Conservation of Northern Spotted Owls* (2001).

T & E Plant species: The sale areas were checked against the Oregon Natural Heritage Program (ONHP) database of known threatened or endangered listed plant locations as well as local records in the Land Management Classification System (LMCS). No listed plants were identified within or adjacent to the sale areas.

**IX. SLOPE STABILITY AND GEOTECHNICAL ISSUES:**

Many steep and very steep slopes are present especially in the eastern portion of Area 1 associated with the tributary streams to Bastard Creek. The initial risk assessment by the geotechnical specialist for the sale is high. The geotechnical specialist will be consulted during sale layout field work.

**X. RECREATION RESOURCES:**

The sale areas are designated as Non-Motorized in the *Tillamook State Forest Comprehensive Recreation Plan* (1993). This sale has been reviewed by the District Recreation Coordinator. No OHV trails were identified within or adjacent to the sale areas. Recreational use common to this area includes hiking, fishing, and hunting.

**XI. CULTURAL RESOURCES:**

The *Tillamook State Cultural Assessment* does not list any cultural sites within or adjacent to the proposed sale boundary.

**XII. SCENIC RESOURCES:**

The sale areas have a visual classification of Level 3, low sensitivity. No scenic impact is expected.

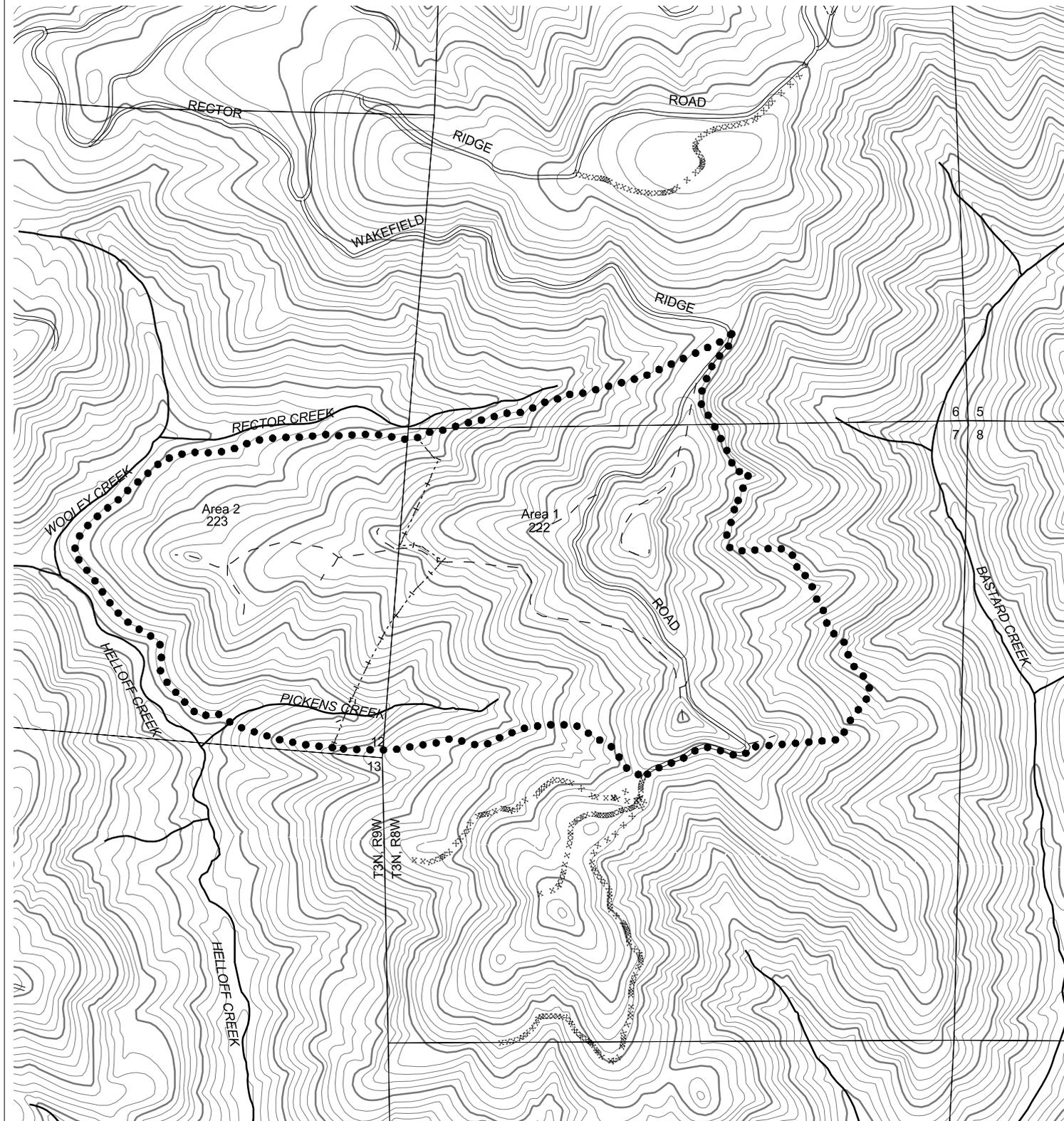
**XIII. OTHER RESOURCE CONSIDERATIONS:**

There is a Permanent inventory plot within the eastern portion of Area 1. Permanent plot markings will be protected according to guidelines.

**XIV. LAND MANAGEMENT CLASSIFICATION SUMMARY:**

The sale areas contain Focused and Special, Aquatic and Riparian Habitat. See Section VII, Aquatic Resources and Water Quality, for the management guidelines to be utilized. The sale areas also contain Focused, Wildlife Habitat. See Section VIII, T&E Species Considerations.

LMCS boundary lines depicted on Attachment C are approximate; exact locations and site specific management activities will be determined during the sale preparation process.



Contour Interval 40'

- +--- Area boundary
- Sale boundary
- Ownership boundary
- Perennial Type-F stream \*
- ..... Perennial Type-N stream \*
- ==== Unsurfaced road
- ===== Surfaced road
- State/Federal highway
- ××××× Legacy road
- ××××× Blocked road
- - - Road construction
- County road
- T T Transmission line

**Wakefield**  
**-- Topography --**  
**2008 SALE PLAN**  
**TILLAMOOK DISTRICT**

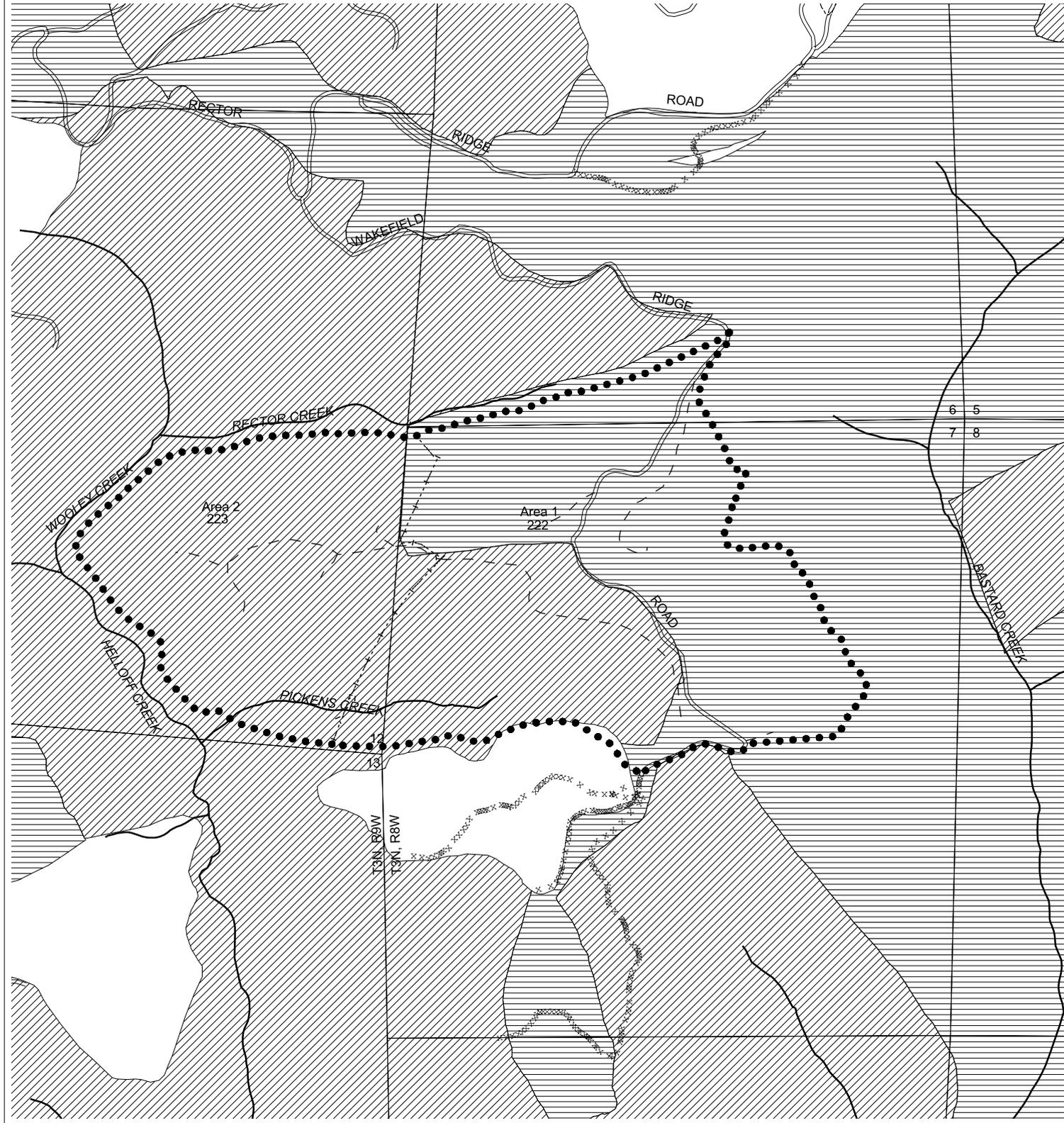
Portions of Sections 5, 6, 7, and 8, T3N, R8W,  
 and Portions of Sections 12, T3N, R9W, W. M.,  
 Tillamook County, Oregon

Area	Type of Operation
1	PC
2	RC



Tillamook District GIS  
 Jan. 2007  
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 may not have been prepared for, or suitable  
 for legal, engineering, or surveying purposes.

\* Streams of unknown fish presence are not shown but will be surveyed prior to the sale

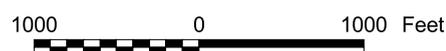


- Desired future condition
- Layered
  - Older forest
  - Area boundary
  - Sale boundary
  - Ownership boundary
  - Perennial Type-F stream \*
  - Perennial Type-N stream \*
  - Unsurfaced road
  - Surfaced road
  - State/Federal highway
  - Legacy road
  - Blocked road
  - Road construction
  - County road
  - Transmission line

**Wakefield**  
**-- Current and Future Condition --**  
**2008 SALE PLAN**  
**TILLAMOOK DISTRICT**

Portions of Sections 5, 6, 7, and 8, T3N, R8W,  
 and Portions of Sections 12, T3N, R9W, W. M.,  
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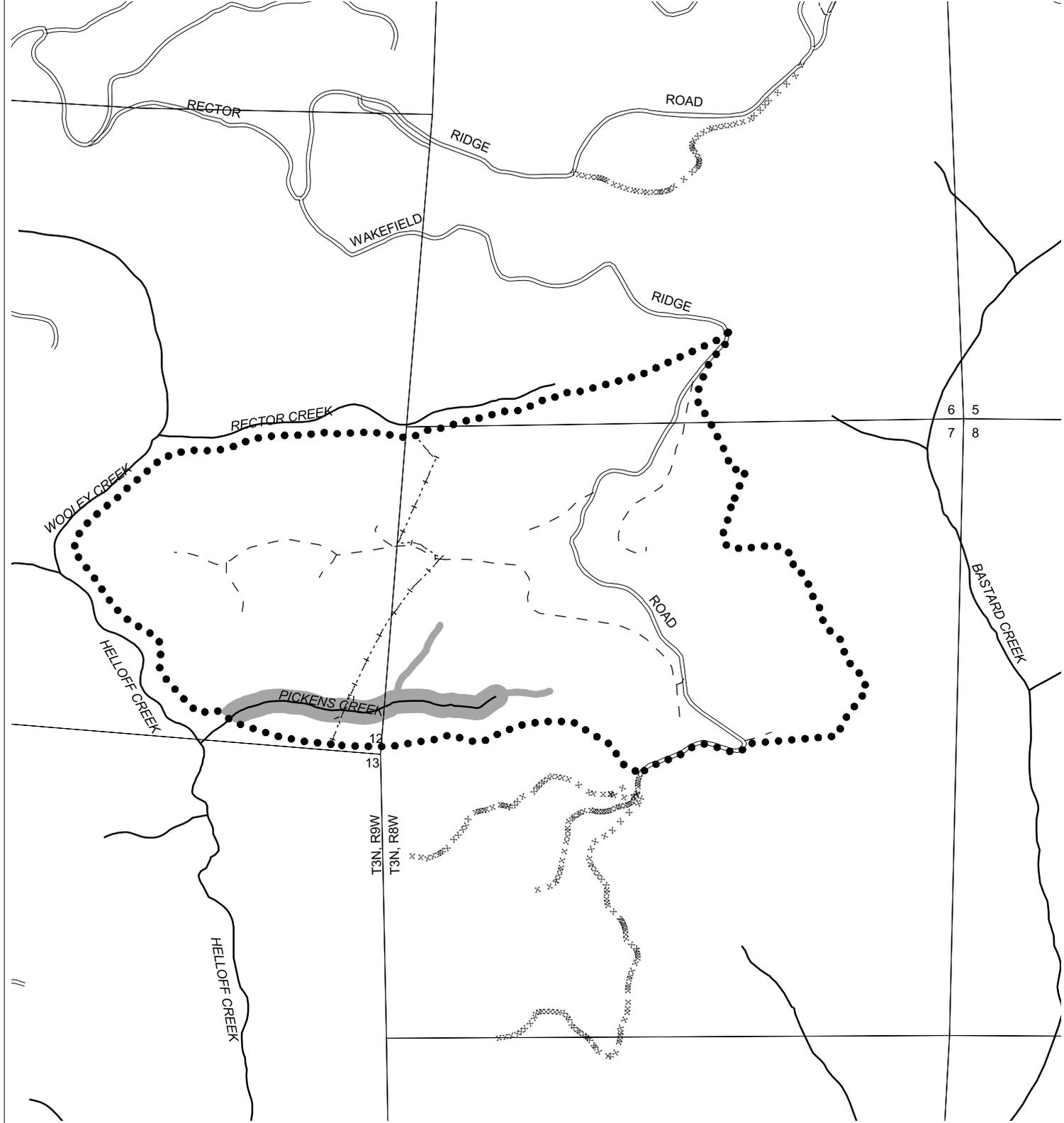
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**Wakefield**  
**-- Key Resources --**  
**2008 SALE PLAN**  
**TILLAMOOK DISTRICT**

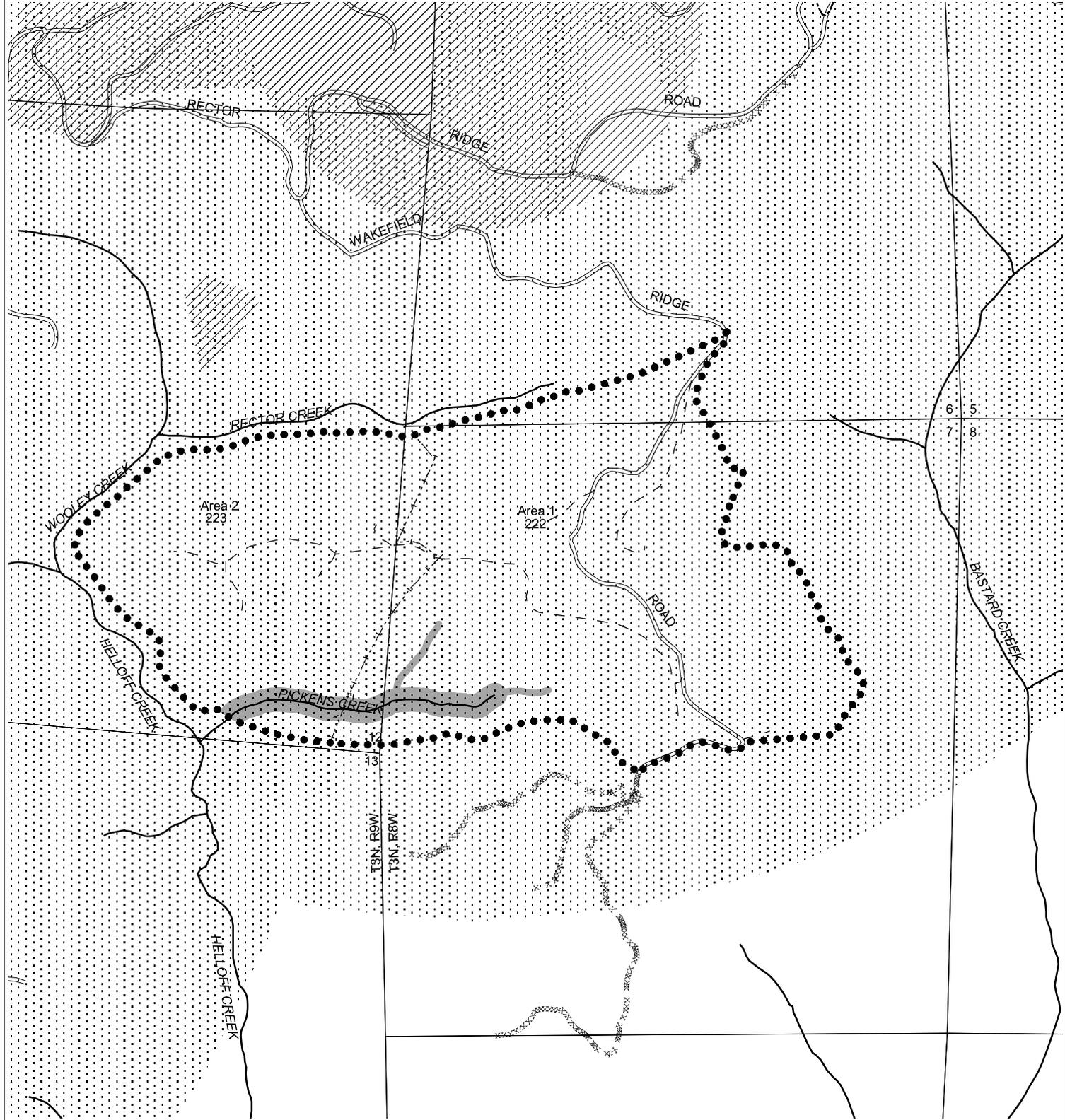
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Area	Type of Operation
1	PC
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- |             |         |                           |
|-------------|---------|---------------------------|
| Stewardship | ---+--- | Area boundary             |
| Focused     | ●●●●●   | Sale boundary             |
| Special     | -----   | Ownership boundary        |
|             | =====   | Perennial Type-F stream * |
|             | =====   | Perennial Type-N stream * |
|             | =====   | Unsurfaced road           |
|             | =====   | Surfaced road             |
|             | =====   | State/Federal highway     |
|             | =====   | Legacy road               |
|             | xxxxx   | Blocked road              |
|             | -----   | Road construction         |
|             | =====   | County road               |
|             | T T     | Transmission line         |

**Wakefield**  
**-- Key Resources/Wildlife Habitat --**  
**2008 SALE PLAN**  
**TILLAMOOK DISTRICT**  
 Portions of Sections 5, 6, 7, and 8, T3N, R8W,  
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Area	Type of Operation
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# Preliminary Biological Assessment of the Proposed Wakefield Timber Sale: Potential Impacts to the Bastard Creek Northern Spotted Owl Site

Prepared by: Clint Smith

Date: 11 January 2007

## Introduction

Purpose. A portion (409 of 462 gross sale acres) of Tillamook District's planned Wakefield timber sale is located within 1.5 miles (owl circle) of the Bastard Creek northern spotted owl activity center (A.C.). The purpose of this Biological Assessment (B.A.) is to summarize the biological situation at the Bastard Creek site. I will discuss anticipated effects of the sale prescription on spotted owl habitat quality. I also will discuss implications with regards to the "Agreement for the Conservation of Northern Spotted Owls" ("Agreement") between the Oregon Department of Forestry (ODF) and the U.S. Fish & Wildlife Service (USFWS) dated 5 September 2001 and offer an assessment of potential biological risk of harvesting this sale to the Bastard Creek site.

Policy Standards. On 5 September 2001, ODF signed an "Agreement for the Conservation of Northern Spotted Owls" with the U.S. Fish & Wildlife Service. Requirements of this Agreement relevant to this Biological Assessment include:

- Where information is lacking on actual home ranges, the Department agrees to use a circle with a 1.5-mile radius around an active spotted owl site to represent the home range.
- For Pair sites without telemetry information, a 250 acre core use area may be designated...All owl (pair) sites which do not have a core use area determined...shall have core use areas consisting of a 600 meter radius around the center of each owl site.
- The Department agrees not to log or authorize logging on current and future state lands when the logging results in less than 500 acres of suitable owl habitat within a 0.7 mile radius of an owl site; or that results in less than 40 percent coverage of suitable owl habitat within the home ranges of owls in the North Coast.
- Additionally, the Department agrees not to log medium and high quality habitat within a .7 mile radius of an owl site when these habitats constitute less than 500 acres within the .7 mile radius.
- And, the Department agrees not to log medium or high quality habitat within a northern spotted owl home range when these habitats constitute less than 40% of the acreage within the home range. (Note: 40% of a 1.5 mile radius circle is 1809 acres.)
- Suitable northern spotted owl habitat is defined for purposes of this Agreement as low, medium and high quality habitat the Department identified as suitable owl habitat in its 1998 mapping of State Forest lands (Exhibit 3 in the Agreement), provided the area in question has not been logged since the mapping. Areas within an owl home range which do not occur on State Forest lands shall be evaluated for suitability on the same method used to generate the 1998 maps... (Note: Although the Agreement defines suitable habitat slightly differently, Exhibit 3 has been updated using 2002 grow forward OSCUR data and using the following criteria (Mike Wilson, ODF, pers. comm.):
  - Non-habitat <12" DBH
  - Low Quality Habitat 12-17" DBH
  - Medium Quality Habitat 18-25" DBH
  - High Quality Habitat 26"+ DBH)

## Background

Survey History. Spotted owls have been observed in the Nehalem/Rector Ridge area of Tillamook District since the early '90s. However, the true status and location of owl sites established over the years always has been in question for two reasons:

- Until 2003, there never had been a daytime spotted owl observation in this area. (Throughout the '90s there were three well-established sites in Astoria District, north of Rector Ridge, but there were no daytime observations at owl sites established within Tillamook District.)
- The birds rarely were observed in the same location year after year.

Beginning in 2002, ODF contract surveyors have conducted walk-in surveys into some of the areas with no current road access along the fringes of Gods valley, most notably in the Bastard Creek drainage. These surveys have helped to clarify some of the uncertainties associated with some of the historic spotted owl detections.

Owl Site Information. Because the male currently located at the Bastard Creek site formerly was associated with the Sweethome Creek site, I will summarize information for both these sites.

*Sweethome Creek.*

- In 1993, three female responses were heard, and the site was assigned resident single status.
- In 1994, an un-banded pair was found on a daytime follow-up visit near the Sweethome Activity Center (A.C.). The male was a sub-adult; he was banded during that visit. Based upon this and other 1994 observations, pair status was assigned.
- There were no responses at the Sweethome Creek site in 1995. In 1995, the 1994 Sweethome male paired with an un-banded female at the Lost Creek site about 3 miles to the west.
- In 1996, two male responses were detected at night at the Sweethome A.C. Two other male night responses were attributed to this site. One of these responses was located between the Lost Creek and North Rector Ridge sites. On a daytime visit, surveyors observed the 1994 male between the Sweethome and Lost Creek sites.
- In 1997, a pair was found nesting in the Sweethome area; they fledged two young. The 1997 male was a juvenile banded at the Hopinhome site in 1992. The female and juveniles also were banded. In addition, radio transmitters were affixed to all four birds. The 1997 pair was found at this site in 1998 and 1999; they did not nest.
- In 1998, the pair was found near the 1997 Hopinhome nest area.
- In 1999, the same pair was found near the Hopinhome nest site and near the 1997 nest site at Sweethome Creek.
- In 2000, the historic (1997) male and an unidentified female attempted to nest in the 1997 nest tree. The nest failed, and the owls were not found again that year.
- In 2001, only the historic (1997) female was found at this site; she was not nesting.
- There were no responses in 2002.
- In 2003, the historic female was observed at the A.C. Site status was changed to resident single after three years without a male response.
- The male banded at Sweethome Creek in 1997 was observed at the Bastard Creek site in 2004.
- Barred owls have been detected within a mile of the A.C. in 2002 - 2006.
- In 2006, the Sweethome Creek site status was changed to 'Historic' based upon three years of protocol surveys with no spotted owl detections.

*Bastard Creek.* In this section, I will discuss the information associated with a historic site and a Non-territorial Single site that, in retrospect, may represent historic observations of the Bastard Creek birds. Spotted owl observations attributed to these sites are illustrated in Figure 2.

*North Rector Ridge.*

- In 1992, there were two responses at night and one daytime response from a single male. The site was designated 'Status Unknown.'
- There were no responses in 1993.
- In 1994, three male responses were heard at night, and site status was changed to 'Resident Single.'
- No responses were heard in 1995-1998; site status was changed to 'Historic' in 1997.
- This site was not surveyed in 1999.
- In 2000, this site was surveyed six times, and there were numerous male, female, and pair responses, all at night. The identity of these owls is unknown, but the site status was changed to 'Pair.'
- In 2001, there was a male and a female night response in the Bastard Creek drainage, but on different nights. No birds were found on follow-up visits.

- In 2002, there was one male night response and one female night response, with no birds found on follow-up visits.
- In 2003, there were two nighttime male locations and one daytime female location in the Bastard Creek drainage. In addition, a female associated with the Lost Creek site was located less than a mile to the northeast of the original North Rector Ridge A.C. The decision was made to create a new site of the Bastard Creek responses since 2001, and the North Rector Ridge site was designated 'Historic.' Barred owls were present within a mile of the original site center in 2003. Due to the proximity of these observations to the Bastard Creek site and the failure to locate these birds during the daytime, it is likely that most of the spotted owl observations attributed to the North Rector Ridge site actually were observations of the Bastard Creek spotted owls.

*Bastard Creek.* This site was established in 2003, after several years of responses in the Bastard Creek drainage southeast of the original North Rector Ridge site. Note that the responses listed for 2001-2002 originally were attributed to the North Rector Ridge site, and are also discussed under that site.

- In 2001, there was a male and female night response in the Bastard Creek drainage, but on different nights (originally attributed to the North Rector Ridge site). No birds were found on follow-up visits.
- In 2002, there was one male night response and one female night response (originally attributed to the North Rector Ridge site). No birds were found on follow-up visits.
- In 2003, there were two night male locations and one daytime female location in the Bastard Creek drainage. Although the male and female were not observed together simultaneously, the female was observed during the same protocol visit as one of the male observations. The female was banded and determined to be non-nesting. Bastard Creek was designated a 'Pair' site, and the A.C. was established at the daytime female location.
- In 2004, a pair was found near the activity center. The female was the same bird banded at this site in 2003. The male had been banded at the Sweethome Creek site in 1997 and had been observed in association with the Sweethome Creek site through 2000.
- There were no responses at the Bastard Creek site in 2005.
- In 2006, there was one nighttime female response near the ridge-top road east of the activity center. Site status remains 'Pair.'

*Sibley Road.*

- A female was heard in this area in 1999.
- No surveys were conducted in 2000.
- In 2001-2003, this site was surveyed as part of a timber sale; there were no responses. Barred owls were detected within a mile of this observation in 2002. Current status is 'Non-territorial Single', so there is no resident owl circle associated with this site. This observation is a little over 2 miles from the Bastard Creek site, and possibly represents a foraging location for the Bastard Creek female. It also is possible that this observation represents a non-territorial single female (as it is currently classified), or that the observation is associated with the female at the Hatchery Creek site, located about 2.5 miles to the east.

#### Sale Area Information.

The eastern portion of the sale area (Area 1) is predominately conifer (Douglas-fir and western hemlock) with scattered hardwood (predominately red alder) stringers and patches. This portion of the sale area is similar to the larger DBH stands directly to the north (Figure 1), but the trees are not quite as large and the stands are not as well-developed structurally. The sale area is very patchy, with a high amount of ecotone (soft-contrast edge). Similar to most of the stands on this landscape, spotted owl habitat likely occurs at the micro-site or patch level, rather than at the stand level. Due to the high amount of horizontal diversity, spotted owl habitat quality within the sale area likely is higher than normally would be expected within a stand of this age and average diameter.

The western portion of the sale area (Area 2) has a higher amount of red alder.

## Methods

Defining the home range. The home ranges and habitat use of the birds using the Bastard Creek owl site are not known. Known owl locations are plotted in Figures 1-2, but this represents incomplete information. The Activity Center is based on daytime survey locations, rather than actual nest locations. If spotted owls are found nesting in this landscape in the future, the activity center location would shift to the nest location, so the habitat analyses presented in this report should be considered tentative based upon existing owl information.

Anthony et al. (1999) found that spotted owls in 2<sup>nd</sup> growth forests in the northern Oregon Coast Range frequently have very large home ranges, extending well beyond 1.5 miles. In the absence of better information on the home ranges of any birds using the site, the following discussion on the habitat situation will describe stand conditions within a 0.7- and 1.5-mile radius around the established Bastard Creek activity center, as required by the “Agreement for the Conservation of Northern Spotted Owls.”

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.

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 using younger stands on ODF ownership 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-Stand96 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 12-13 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.

Other factors in addition to DBH that contribute to spotted owl habitat quality 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 foraging 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 ‘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, providing 2<sup>nd</sup> growth ‘habitat’ at or near the minimum standards could result in negative impacts to individual spotted owl sites.

Assessment of Habitat on ODF Ownership. The stands on ODF ownership within the Bastard Creek owl circle do not contain all the structural components described in the earlier paragraph. 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 18"+ DBH stands provide suitable habitat for spotted owls. From a biological perspective, not all stands averaging 12"+ DBH provide suitable habitat for spotted owls. Indeed, when evaluating the need for spotted owl surveys, 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).

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 assessment of habitat suitability on the 12-17" DBH stands within the Bastard Creek owl circle. I performed the majority of this assessment with Dave Wells using recent stereo aerial photographs and Dave's knowledge of the landscape. I made a preliminary assessment using stereo aerial photographs. Then we visited several 'borderline' stands on the ground to help calibrate the photo determinations. The standard that I used for habitat suitability was a fairly low standard: "If ODF were proposing a timber sale in a comparable stand, would I recommend spotted owl surveys?" Our intent in this exercise was to categorize stands by OSCUR type, not to re-draw types. So, stands where 'suitable habitat' predominated within the OSCUR type were classified as 'suitable', and the stands where unsuitable habitat predominated were classified as 'unsuitable'. The results of this analysis are present in Figure 2 and in Tables 1, 2, 4, & 5.

In general, I would categorize many of the 12-17" DBH stands in this landscape as 'marginally' or 'barely' suitable habitat for spotted owls. These stands are very dense, and habitat structure is not well developed. Most of the forest stands within the Bastard Creek owl circle are located on southerly facing slopes breaking toward the Nehalem River. I have noted in this and other landscapes that owl habitat tends to develop more rapidly on north-facing slopes than on south slopes.

Within the stands classified as 'suitable', there are many patches of small, simple conifer that on their own would be classified as unsuitable. However, within most of the types, there also are scattered hardwood patches and stringers, patches of wider spaced trees, so the types were classified as 'suitable'. The stands classified as 'unsuitable' predominately were on dry, rocky south-facing slopes. Trees in these stands are sparsely stocked, with low canopy closure.

Possibly due to the steep, inaccessible nature of this landscape, OSCUR data in this area seems to be less reliable than in other, more accessible landscapes. During my analysis, I noted two 18"+ DBH stands that appeared to be 'unsuitable' for spotted owls. Because current policy does not contain the flexibility to make site-specific determinations outside of the 18"+ DBH classes, I have not summarized these stands separately in the summary tables. Also, these two stands represent a relatively small percentage of the owl circle, so they likely have little impact on the final results of the analysis.

99ALDER. Interpretation of the OSCUR summaries within this landscape is not totally straightforward. I've already discussed the marginal nature of most of the 'suitable' habitat in this landscape. In addition, certain stands in the area are coded in OSCUR as "99ALDER".

Based on aerial photo interpretation and some ground reconnaissance, I have determined that many of the "99ALDER" stands within Tillamook District have a component of larger, wolfy conifer surrounded by alder. Some of these patches represent patches of unburned older trees and trees left behind after logging prior to 1954, whereas other patches represent open-grown conifer that likely regenerated after the 1933 burn. Note that these "99ALDER" stands normally do not have many of the characteristics of mature forests, and realistically should not be considered as 'high' quality spotted owl habitat. Frequently, the scattered wolfy conifer have a very dense salmonberry understory. The conifer component of the "99ALDER" stands is highly variable; so the actual habitat quality for spotted owls also is variable. However, it is not accurate to assume that all "99ALDER" stands do not provide suitable habitat for spotted owls.

The stands coded "99ALDER" do not have detailed plot data. Since they were not inventoried for OSCUR, the DBH of the conifer was estimated, then extrapolated by the growth model. The age and DBH of these stands was over-estimated by OSCUR. In Stand02, this problem was addressed by assuming that all 99Alder stands were 9"

DBH and 42 years old. This, also is not accurate. For this reason, I also made a site-specific assessment of all 99ALDER stands within the Bastard Creek circles. The results of these assessments also are presented in Figure 2 and in Tables 1, 2, 4, & 5.

## Results

Landscape Analysis. Figure 1 shows the Bastard Creek A.C., spotted owl observations, timber sale location, and average stand ages and diameters (based on ODF's OSCUR timber inventory database – Stand02) on ODF ownership within the Bastard Creek owl circle. Figure 2 shows the results of the photo/ground based habitat classification within this owl circle.

Average stand DBH (from Stand02) on ODF ownership within 0.7 miles of the Bastard Creek A.C. is summarized in Table 1. Results of the photo/ground based habitat classification within the 0.7-mile circle are summarized in Tables 1 & 2. Stand age (also from Stand02) is summarized in Table 3. Acreages reported in these tables are approximate.

Average stand DBH (from Stand02) on ODF ownership within 1.5 miles of the Bastard Creek A.C. is summarized in Table 4. Results of the photo/ground based habitat classification within the 1.5-mile circle are summarized in Tables 4 & 5. Stand age (also from Stand02) is summarized in Table 6. Acreages reported in these tables are approximate.

According to OSCUR, the landscape within the Bastard Creek owl circle is dominated by stands aged 50-69 years old and averaging 12-17" DBH (Tables 1-6 and Figure 1). Much of this owl circle is on a south-facing slope, breaking from Rector Ridge to the Nehalem River. My experience is that in general, spotted owl habitat develops more slowly on southerly aspects, likely due to dryer, harsher growing conditions. In general, this rule holds true for this landscape as well: several of these stands are sparsely stocked with poor crown closure; others are very dense with poorly developed structure.

Within the 0.7-mile radius circle, there are only 23 acres of stands averaging 18" and greater DBH, and 904 acres averaging 12-17" DBH (Table 1). Of these, I have classified 663 acres as suitable habitat and 264 acres as non-suitable (plus an additional 53 acres of non-habitat <12" DBH). Within the 0.7-mile radius circle, the completed Snark Ridge sale has modified 55 acres of suitable habitat and <1 acre of non-habitat. The Wakefield sale will modify another 61 acres of suitable habitat within the 0.7-mile circle. So, after harvest of Wakefield, 549 acres of suitable habitat will remain outside of the sale (Tables 1 & 2), which is in excess of the 500 acres of 12"+ stands required by the Agreement.

Within the 1.5-mile radius Bastard Creek owl circle, there are ample stands to meet the 1809 acres of 12"+ DBH stands required by the "Agreement." There are only 375 acres of stands averaging 18" or more DBH, but there are an additional 3531 acres averaging 12-17" DBH (Table 4). My evaluation has classified 3093 acres of the 12-17" DBH stands as suitable and 438 as non-suitable. Adding the 18" DBH and greater stands with the confirmed 12-17" DBH habitat and the suitable 99ALDER and private stands results in 3488 acres of suitable habitat within the owl circle. The completed Snark Ridge sale modified 345 acres of habitat and 155 acres of non-habitat within the Bastard Creek owl circle. The Wakefield sale will modify 343 acres of suitable habitat and 30 acres of non-habitat. After harvest of Wakefield, 2800 acres of suitable habitat will remain outside of the sale (Table 5), which is in excess of the 1809 acres of 12"+ stands required by the Agreement.

Core Area. Figure 3 shows the designated core area for the Bastard Creek pair site. I developed the core area proposal with Barbara Moore with the intent to:

- follow topographic boundaries to the maximum extent possible,
- exclude most of the non-habitat area to the south of the activity center, and
- include the cluster of owl observations to the west of the activity center.

I reviewed the proposed core area with Kevin Maurice with the U.S. Fish & Wildlife Service and Herman Biederbeck with Oregon Department of Fish & Wildlife; both have responded that they concur that this is an appropriate core area designation. The designated core area shown in Figure 3 encompasses 272 acres.

### Sale Prescription.

The following discussion is from Tillamook District's Preliminary Annual Operations Plan Report for the Wakefield sale.

"In Area 1 (the eastern portions of the sale area), a partial cut will thin the alder, Douglas-fir and hemlock to a basal area range of 140 to 160 average basal area leaving the biggest and best of all species. All other hardwood and conifer species will be reserved."

"In Area 2 (the farthest western portion of the sale area), a retention cut will remove the alder, all Douglas-fir less than 25 inches DBH, and all hemlock and spruce less than 16 inches DBH. All other hardwood and conifer are reserved."

### **Discussion**

#### Anticipated Impacts of the Harvest Prescription.

*Short Term.* The thinning prescription in Area 1 likely will have some short-term detrimental habitat impact, due to opening of the forest canopy and disturbance of the understory layer.

The regeneration harvest prescription in Area 2 likely will have a more dramatic and longer-lasting on spotted owl habitat quality; converting suitable spotted habitat into non-habitat.

*Long Term.* Over the long term, the thinning prescription in Area 1 may decrease the time it takes for development of high-quality spotted owl habitat, by reducing stocking, increasing growth, and promoting long-term development of understory layering.

The regeneration harvest prescription in Area 2 likely will not re-develop suitable habitat characteristics for many years post-harvest. I anticipate that this area would develop high-quality spotted owl habitat more rapidly without management than with the proposed prescription.

Cumulative Impacts. The recently harvested Snark Ridge sale covers a relatively large area encompassing much of the southeastern portion of the Bastard Creek owl circle (Figures 1 & 2).

### **Conclusions**

#### Biological Risk Assessment.

I anticipate that proceeding with the Wakefield timber sale as proposed will pose a 'Moderate' risk to continued persistence and productivity of the Bastard Creek Northern spotted owl site for the following reasons:

- The sale is located directly adjacent to the designated core use area.
- The sale borders or encompasses several historic spotted owl observations.
- The sale is contiguous with the largest patch of 'medium' quality spotted owl habitat within the owl circle. The eastern portion of the sale is similar in stand structure to this mapped 'medium' quality owl habitat but the trees are not quite as large and the stands are less well developed structurally.
- The sale encompasses (and will impact) a large area in the southwestern portion of the owl circle.
- A recently-completed sale (Snark Ridge) has impacted a large area in the southeastern portion of the owl circle. The cumulative impacts of both these sales is likely to reduce the utility of other suitable spotted owl habitat in the southern portion of the owl circle.
- Habitat quality within the Wakefield sale is qualitatively higher than within the Snark Ridge sale, resulting in greater short-term impacts.

One method to reduce the risk of this proposed activity would be to move the eastern sale boundary to the west. I have had conversations with Herman Biederbeck and with Barbara Moore on sale configurations that likely would pose a 'Low' risk to the spotted owl site.

Compliance with the “Agreement for the Conservation of Northern Spotted Owls.”

Harvest of this sale would be consistent with the “Agreement.”

**Consultation with ODFW**

Herman Biederbeck, ODFW District Wildlife Biologist has reviewed the final draft of this BA. His comments are included as Attachment 1.

**Literature Cited**

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cc: Barbara Moore, Tillamook  
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Ross Holloway, Tillamook  
Marcia Humes, Salem  
Mike Bordelon, Forest Grove  
Lisa DeBruyckere, Salem  
Andrew White, Forest Grove  
Todd Reinwald, Forest Grove  
Rob Nall, Salem  
Roger Welty, Salem  
Herman Biederbeck, ODFW, Tillamook



**Table 1.** Average Stand DBH (according to ODF's OSCUR timber inventory database -- 'Stand02' and photo/ground review) within a 0.7-mile radius of the Bastard Creek 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.

DBH	-----ODF Ownership-----								Private Ownership		Total Habitat Outside ODF Sales
	Total ODF Acres		Recent Harvests		Wakefield		Acres Outside Sales		Suitable	Non-Suitable	
	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable			
0-11	0	53	0	<1	0	0	0	53	--	0	--
12-17	640	264	53	0	61	0	526	264	0	--	526
18-25	23	0	0	0	0	0	23		--	--	23
26"+	0	0	0	0	0	0	0		--	--	0
99Alder	0	0	0	0	0	0	0		--	--	0
<b>Total</b>	<b>663</b>	<b>317</b>	<b>53</b>	<b>0</b>	<b>61</b>	<b>0</b>	<b>549</b>	<b>317</b>	<b>0</b>	<b>0</b>	<b>549</b>

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

	Suitable	Non-Suitable
ODF	663	317
Private	0	0
<b>Total</b>	<b>663</b>	<b>317</b>
<b>Recent Harvests</b>	<b>53</b>	<b>0</b>
<b>Total</b>	<b>610</b>	<b>370</b>
<b>Wakefield Sale</b>	<b>61</b>	<b>0</b>
<b>Total Suitable after Sale</b>	<b>549</b>	<b>431</b>

**Table 3.** Stand age (according to ODF's OSCUR timber inventory database -- 'Stand02') on ODF ownership within a 0.7-mile radius of the Bastard Creek Northern Spotted Owl activity center

Age	ODF Acres	Recent Harvests	Wakefield Acres	ODF Acres Outside Sales
0-39	53	<1	0	53
40-49	0	0	0	0
50-59	134	0	0	134
60-69	793	53	61	679
70-99	0	0	0	0
100+	0	0	0	0
<b>Totals</b>	<b>980</b>	<b>53</b>	<b>61</b>	<b>866</b>

**Table 4.** Average Stand DBH (according to ODF's OSCUR timber inventory database -- 'Stand02' and photo/ground review) within a 1.5-mile

**Note:** On non-ODF ownerships, this table assumes that all 'non-suitable' is <12" DBH and 'suitable habitat is 12-17" DBH.

DBH	-----ODF Ownership-----								Private Ownership		Total Habitat Outside ODF Sales
	Total ODF Acres		Recent Harvests		Wakefield		Acres Outside Sales		Suitable	Non-Suitable	
	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable	Suitable	Non-suitable			
0-11	0	574	0	2	0	30	0	542	--	1	--
12-17	3093	438	340	153	343	0	2410	285	12	--	
18-25	351	0	0	0	0	0	351	0	--	--	
26"+	24	0	0	0	0	0	24	0	--	--	
99Alder	8	0	5	0	0	0	3	0	--	--	
<b>Total</b>	<b>3476</b>	<b>1012</b>	<b>345</b>	<b>155</b>	<b>343</b>	<b>30</b>	<b>2788</b>	<b>827</b>	<b>12</b>	<b>1</b>	<b>0</b>

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

	Suitable	Non-Suitable
ODF	3476	1012
Private	12	1
<b>Total</b>	<b>3488</b>	<b>1013</b>
<b>Recent Harvests</b>	<b>345</b>	<b>155</b>
<b>Total</b>	<b>3143</b>	<b>858</b>
<b>Wakefield Sale</b>	<b>343</b>	<b>30</b>
<b>Total Suitable after Sale</b>	<b>2800</b>	<b>828</b>

**Table 6.** Stand age (according to ODF's OSCUR timber inventory database -- 'Stand02') on ODF ownership within a 1.5-mile

Age	ODF Acres	Recent Harvests	Wakefield Acres	ODF Acres Outside Sales
0-39	529	<1	1	528
40-49	230	5	32	193
50-59	827	20	7	800
60-69	2737	472	333	1932
70-99	115	0	0	115
100+	49	0	0	49
<b>Totals</b>	<b>4487</b>	<b>497</b>	<b>373</b>	<b>3617</b>

## Attachment 1

**SMITH Clint J**

---

**From:** BIEDERBECK Herman H  
**Sent:** Thursday, December 28, 2006 4:56 PM  
**To:** SMITH Clint J  
**Subject:** RE: Review Draft -- Wakefield Preliminary BA

Clint,

I reviewed the final draft of the Wakefield Preliminary BA, and agree with your analysis of the risk (moderate) of the sale, as proposed. Considering the level of harvest activity already in the Bastard Creek NSO circle and the fact that the proposed sale entails suitable habitat with documented NSO locations, I would recommend modifying the eastern boundary of the sale by moving it westward, out of the 0.7 mile radius and documented locations.

Given the long-term population trend of NSOs in this greater area, I believe the adjustment is prudent and needed. I concur that such an adjustment would also reduce the biological risk to the owls using the Bastard Creek NSO circle to 'low'.

Thanks, as always, for the opportunity to review and comment on these proposed actions.

Herman

---

**From:** SMITH Clint J [mailto:Clint.J.Smith@state.or.us]  
**Sent:** Wednesday, December 27, 2006 3:47 PM  
**To:** Biederbeck, Herman  
**Cc:** MOORE Barbara E  
**Subject:** Review Draft -- Wakefield Preliminary BA

Herman, please review & comment/edit. I'll put a hard copy in your box.

Thanks for your thoughtful comments on Lost Buck. I hope to finalize both of these on or before Jan 22-23.

Thanks

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01/10/2007