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TILLAMOOK DISTRICT

2007 ANNUAL OPERATIONS PLAN

INTRODUCTION

This annual operations plan (AOP) covers the State Forest Land managed by Tillamook District for Fiscal Year 2007 (FY07), which begins July 1, 2006 and ends June 30, 2007. This document describes how the activities and projects undertaken by the district will achieve the goals, strategies, and objectives of the NW Oregon Forest Management Plan (FMP), Tillamook State Forest Recreation Action Plan, Tillamook District Implementation Plan (IP), and portions of the (DRAFT) Western Oregon Habitat Conservation Plan (HCP). Refer to the district IP for more specific information on physical characteristics and other resource information on the district.

The summary document of the AOP is divided into five major categories: Integrated Forest Management, Planning and Information Systems, Public Information and Education, Administration, and Appendices. Appendix A contains summary tables for timber harvest operations-financial, timber harvest operations-forest structure, forest roads, young stand management, recreation management, and salmon anchor habitat (SAH). Appendix B is the bulk of the AOP and contains the Pre-Operations Reports and maps for individual harvest operations. A summary of the results of public involvement will be added to the final plan.

Note that the acres detailed throughout the report express net acres, unless otherwise stated. Net acres are based on orthophotos and GIS and exclude roads, non-required thinning areas, stream buffers (special stewardship in LMCS), other stream buffers and green tree retention areas.

In accordance with the guidance on the 2007 harvest levels¹, the district has included 59.4 MMBF of timber harvest in this Annual Operations Plan (Table A-1). This harvest level is consistent with the district's intensive review² of the outputs from the Department's recently completed Harvest and Habitat Model Project. The district is transitioning to the mix of clearcut and partial cut acres identified in its review of the model outputs. However, the acre mix identified during the model review could not be fully implemented in this plan because of operational considerations, such as the completion of surveys for threatened and endangered species. In order to implement the transition to the acres identified in the model review, a minor modification of the district implementation plan will be completed prior to the approval of this Annual Operations Plan.

¹ *Establishing harvest levels in FY07 on State Forests covered by the NW and SW Oregon State Forest Management Plan*

² *Model Solution Review Report of the 'Forest Management Plan with Habitat Conservation Plan' Alternative*

In order to retain flexibility to respond to policy changes by the Board of Forestry or State Forester that may influence management direction on state forestlands and directly or indirectly influence harvest levels during the FY07 fiscal year, the district has included additional Alternate Operations in this operations plan.

The proposed timber sales will be designed, engineered, and submitted for processing during the FY07 time period. However, the actual on-the-ground operations may not occur during FY07 due to the time lag associated with contract duration, which could be one to three years after auction. In contrast, reforestation, young stand management, recreation management, and planning activities will be carried out during the FY07 time period.

Table 1. Annual Operations Plan objectives compared to annual objectives identified in the 2003 Tillamook District Implementation Plan (Table A-1). All values are acres.

Silvicultural Activity	IP Annual Objective		2007 AOP Objective ³
	Low	High	
Conifer Partial Cut	1,000	2,000 ¹	2836
Conifer Regeneration Harvest	2,000 ²	5,100	572
Hardwood Partial Cut	N/A	N/A	N/A
Hardwood Regeneration Harvest	0	1,100	1670
Rehabilitation	0	0	0
Reforestation (Initial Planting)	1,500	3,500	1800
Precommercial Thinning	0	500	200
Fertilization	0	0	0
Pruning	0	0	0

1. The top end of Conifer Partial Cut acres will be increased by a Minor Modification (Minor Modifications will be approved prior to the approval of the Annual Operations Plan by the District Forester).
2. The low end of the combined Regeneration Harvest acres (both Conifer and Hardwood) will be decreased by a Minor Modification. (Minor Modifications will be approved prior to the approval of the Annual Operations Plan by the District Forester.)
3. Acreages do not include alternate sales.

INTEGRATED FOREST MANAGEMENT OPERATIONS

Timber Harvest Operations

Overview of Timber Harvest Operations

The planned timber harvest operations are within the total acres objective in the Tillamook District IP. The district will complete a Minor Modification to the IP because the partial cut acres are above the IP upper range for partial cut and the regeneration harvest acres are

below the IP lower range. The combination of partial cut acres and regeneration harvest acres are still within the total acres of activity on the district. Activities in the AOP will allow for stands to be moved toward complex structure and contribute to the overall objective of 59.4 mmbf.

The IP harvest levels are based on total acres which range from 4,500 – 7,600 acres. Total planned acres in this AOP are 5,078. Harvest activities in this AOP are partial cutting (56%) and regeneration harvest (44%). Below are definitions of harvest types followed by more specific examples of the planned operations. Please refer to http://www.odf.state.or.us/DIVISIONS/management/state_forests/aop.asp#Definitions for complete description of the ranges of harvest types and terms.

Partial Cut Harvest (PC): The intent of a partial cut harvest is to manage the growth and density of an existing stand. A prescription for a partial cut may be designed to increase the structural complexity of a stand, maximize volume growth, or capture tree mortality. A stand may be partial cut several times throughout its life. Partial cuts leave 80 or more square feet of basal area per acre on Sites Class I, II, or III. The partial cuts in this plan will reduce stand density to a SDI of 15 to 40.

Partial cutting operations are planned to move stands from CSC to UDS or to maintain complex structure components. These operations thin conifer to maintain vigorous tree growth, retain deeper crowns and allow light onto the forest floor to initiate understory vegetation establishment and growth.

Regeneration Harvest: Two types of regeneration harvest will be referred to in this AOP:

Retention Cut (RC): These operations leave 33 to 80 square feet of basal area/acre on Site Class I, II, or III. The residual trees are well distributed across the harvest unit. These operations leave at least 15 trees and snags per acre with preference given to the biggest and best green trees in addition to the trees in riparian areas.

Modified Clearcut (MC): These operations leave less than 33 square feet of basal area on Site Class I, II, or III. Modified clearcut harvest will leave an average of 5 to 7 green trees per acre and an additional 3 to 8 trees or snags per acre to provide a future source for snags and down wood. The leave trees may be scattered across the unit (0-15 on any acre) or clumped (>15 on any acre). Areas of green tree retention are included in most of the modified clearcut harvest areas and are located along the riparian areas and/or on steep slopes above streams on the edge of a harvest unit.

Hardwood regeneration harvests are planned in closed single canopy stands (CSC) or understory stands (UDS) stands dominated by alder. These operations create

predominately regeneration (REG) structure and remove hardwoods. Many hardwood stands were aerially sprayed in the 1970's resulting in short boles with many limbs. Other hardwood stands not sprayed have slowed diameter and height growth due to stand age and will be harvested to allow for regeneration of multiple species conifer stands. A component of hardwoods will be retained in a variety of locations (on high landslide hazard locations, in riparian areas, and/or throughout the unit).

The IP emphasizes harvest operations to address the severe impacts of Swiss needle cast (SNC) on Douglas-fir in the district. Most of the conifer regeneration harvest operations are focused on CSC or UDS impacted by SNC. Many of the stands are located in what is referred to as the SNC zone (approximately the coast to 15 miles inland), and/or have low needle retention with poor live crown ratios, and/or have been mapped in SNC aerial surveys. SNC harvest consists of regeneration harvesting of Douglas-fir stands and creating REG structure or partial cutting stands by removing Douglas-fir and thinning or retaining other conifer to create UDS stands.

In 2004 a report was written titled *Oregon Department of Forestry State Forests Program Swiss Needle Cast and Commercial Thinning, Review of recent research results and potential application to ODF Management, (5/17/05)*. The conclusions of this report are addressed through the AOP in the selection of timber sales included as well as prescription planned at this time. These decisions are being made while addressing the budget note on harvest levels and through Habitat and Harvest Modeling process. The prescriptions planned for SNC stands discussed in this plan are based on most recent information available to the district.

Regeneration harvest operations are also planned in conifer stands with poor height to diameter ratios. Stands dominated by hemlock may be densely stocked and have tall trees with small diameters causing the trees to be unstable and poor candidates for partial cutting. These stands may be harvested using a diameter limit prescription leaving the largest diameter trees scattered across the unit or in clumps. These types of stands are CSC or UDS and will create REG or UDS structure after harvest.

Landscape Design

The landscape design is a long term vision of the desired future condition for the array of stand structures over the district landscape. To achieve the design a variety of silviculture prescriptions will be applied to a diverse area of stands types.

The District's vision for future development of complex and general stands on the landscape is shown on the IP display titled Desired Future Conditions (in the map section). The stands targeted for complex structure were identified as having the potential to move most quickly toward complex structure. Due to SNC, the homogenous nature of the age class structure across the landscape, hardwood stand conditions, and other factors stand designations will

likely be re-assessed and formally modified in the IP at a future date. In the interim the district will implement silvicultural treatments that are consistent with the mapped DFC.

Green Tree, Snag and Down Wood Strategies

Structural habitat components such as snags and down wood will be considered for all harvest prescriptions. These structural components will vary from unit to unit. The intent of this AOP is to achieve the green tree retention targets outlined in the Forest Management Plan strategies and to either meet or provide future opportunity to achieve the snag and down wood landscape targets outlined in the FMP.

Green trees are retained in or adjacent to regeneration harvest units in a variety of ways. These trees (hardwood and conifer) may be clumped or scattered across the unit depending on species and/or size distribution (reserve trees specified in contract) or through residual basal area targets. Some green tree retention (GTR) areas are designated outside of harvest unit boundaries. These GTR areas may be located on high landslide hazard locations or other inoperable terrain. Mortality of some of these green trees is expected due to disease, wind, or snow damage. Overall, the goal of green tree retention is to have multiple species, in multiple arrangements to act as a source of future snags, down wood and large diameter trees in future stands.

The stands targeted for regeneration harvest in this AOP are generally 30 to 50 year old hardwood and/or SNC Douglas-fir that average approximately 13.0 inches. Due to the size of the trees in these stands it is unrealistic to expect that snag and down wood goals in the FMP will be met during this entry. Additional green trees will be left in order to grow and to provide opportunities to manage for large snags and down wood over time. The long-term goals may be obtained with natural mortality of green trees while other areas may be entered during pre-commercial or commercial operations to create snags and down wood. The Tillamook District will be working on developing a policy in FY07 that provides direction and guidance for decadence management on the district. The document will include current strategies being used to meet the FMP requirements, rationale for these strategies, and ties to implementation monitoring that ensure that the FMP requirements are being met.

Snags will be retained on all sales (Regeneration Harvests and Partial Cuts) where they are not determined to be a safety hazard during the operations. If existing snags are cut, they are required to be left in the unit for down wood. There is an expectation that green tree retention will add to snag levels due to natural mortality. Snags will also be created in some harvest units by a variety of methods (topping lift trees, topping support trees, girdling guyline trees or by contract requirements). Additional snags are planned to be created in several sales in this sale plan. These sales include Moot Again, Area 1, Sibley Arch, Area 5, and Coast Bill (Alternative). SLI has not been completed for many stands in this AOP. During sale layout and cruising a snag assessment will be completed in several sales to determine if additional snags need to be created during harvest. As a rule of thumb, stands with an average residual DBH greater than 15" may have snags created depending on cruise data. These sales include:

Clatsop Thin
Brix Incline
Moot Again, Area 2 and 4
Sibley Arch, Area 4
Minich Ridge, Area 2
Electric Point
Juno Bay, Area 2, 3, 5, and 6

North Cruz
Berry Cobbler, Area 1
Fire Mole
Roger Thin
Steam Donkey (Alternative)
Sim Power
Thin Fawcett

Existing down wood on all sales will be retained and added to during harvest. On ground yarding areas trees are required to be topped, and tops left in the unit during yarding. Felled snags will be left as down wood and other trees determined during sale layout will be left in the unit. Similar to the strategy to create snags over time, green tree retention is expected to add down wood due to natural mortality. Additional down wood is planned to be created in several sales in this sale plan. These sales include Moot Again, Area 1, Sibley Arch, Area 5, Juno Bay, Area 5, and Coast Bill (alternative). SLI has not been completed for many stands in this AOP. During sale layout a down wood assessment will be completed in several sales to determine if additional down wood need to be created during harvest. These sales include:

Clatsop Thin
Brix Incline
Moot Again, Area 2 and 4

Sibley Arch, Area 4
Minich Ridge, Area 2
Electric Point, Area 2

The stand conditions, including snag and down wood information, will be collected through the Stand Level Inventory (SLI) over time (see the Planning and Information Systems section for more information on SLI measurement cycle). If goals for snags and down wood are not being met, the stand will be reviewed and appropriate actions taken to create these stand components.

Stand Structure Development

The process of producing an array of forest stand structures across the landscape is a gradual one. A variety of silvicultural practices will be used to actively move the forest towards the desired range of stand structures outlined in the IP (see Table 2 below). The Tillamook district will be operating on approximately 2.0% (acres) of the district with these planned harvest operations. The rate (acres/year) of partial cut harvest in this AOP is 1.1% and the rate of regeneration harvest is 0.9%.

All regeneration harvest operations will be reforested with mixed conifer species. A component of hardwoods will be reserved and will provide a seed source for the future stands. Reforestation decisions are based on the health of past stands, elevation, and aspect to create an appropriate species mix for the site.

Table 2. Stand Structure Development – This table summarizes how the Timber Harvest Operations in this AOP will contribute to achieving the district’s desired future condition. All values are in acres.

Stand Structure	REG	CSC	UDS	LYR	OFS	GEN ¹
Current	-	2588	2477	13	-	
Post Harvest ²	2042	-	2871	165	-	
Desired Future				1928	818	2332

1. General (GEN) is not a stand structure, but identifies those stands that are not targeted for Layered or Older Forest Structure in the district landscape design. These stands may develop into any of the five stand structures.

2. The Post Harvest stand structure (except for REG structure) is an estimate of how the stands will develop in five to ten years after the operations are completed.

Acreages do not include alternative sales.

The FY07 sale plan is estimated to generate gross revenues of approximately \$10,476,213 and net revenues of \$7,327,721. It is estimated that active management will result in producing approximately 45.2 million board feet of conifer volume, 14.2 million board feet of hardwood volume, for a total of 59.4 million board feet. Refer to the attached Financial Summary table and/or pre-operation reports for more detail.

Summary of Operations by Basin

In the following section, the commercial forest management operations planned for FY07 will be summarized in the context of the 11 management basins on the Tillamook District. ODF and ODFW resource specialists reviewed the FY07 operations plan and provided input. This section is a summary of the operations by basin and is not meant to completely describe the planned operation. Refer to Appendix B for more detail of each operation.

Table 3. Summary of Timber Harvest Operations in each basin. All values are in acres.

Basin	2007 AOP ²		Cumulative Operations ^{1,2} (FY 02-07)	
	Partial Cut	Regeneration Harvest	Partial Cut	Regeneration Harvest
N. Fork Nehalem	298	0	911	260
Lower Nehalem	1167	1040	4637	4620
Short Sands	0	0	0	0
Miami	89	16	820	901
Kilchis	162	44	393	612
Tillamook Bay	273	159	322	176
Wilson	285	968	1496	8548
Tillamook River	271	0	503	67
Trask	285	15	1493	7842
Nestucca	6	0	98	287
Little Nestucca	0	0	0	0

1. The Cumulative Operations include all Timber Harvest Operations under the current implementation plan period (July1, 2001 through June 30, 2011). The acres refer to planned acres and not harvested or accomplishment acres.

2. These totals do not include alternative sales.

North Fork Nehalem Basin

Clatsop Thin - This sale is 65 acres and is approximately 65 years old. This stand is comprised of mixed conifer species with scattered cedar and alder. The conifer is overstocked resulting in poor live crown ratios and slowed diameter growth.

This area is planned for partial cutting Douglas-fir, hemlock and spruce to a residual basal area of 160-180 square feet. All other species will be reserved.

Special Concerns: The sale is adjacent to a Marbled Murrelet Management Area. Some operations will have seasonal restrictions. See the individual Pre-operation Report for more information (Appendix "B").

Common Meadows – The sale consists of two areas totaling 233 acres. Both areas are mixed species stands of hemlock, Douglas-fir, and scattered alder and spruce that are approximately 50 years old. Area 1 is overstocked and the small hemlock and Douglas-fir have height to diameter ratio issues. The Douglas-fir and hemlock in Area 2 is overstocked resulting in slowed diameter. The Douglas-fir shows symptoms of SNC but have good crown ratios.

Area 1 is a planned partial cut. A diameter limit (approx. 14" DBH) will be used to harvest the hemlock and Douglas-fir that have poor height to diameter ratios. The remaining

hemlock, Douglas-fir (and possible alder) will be thinned to a residual basal area of 140 to 160 square feet.

Area 2 is also planned for partial cutting the Douglas-fir and hemlock to a residual basal area of 100 to 120 square feet.

Special Concerns: The sale is adjacent to a Marbled Murrelet Management Area. Some operations will have seasonal restrictions. See the individual Pre-operation Report for more information (Appendix "B").

Lower Nehalem Basin

Brix Incline - This sale is 190 acres and is approximately 60 years old. The area is a mixed alder stand that has large and small pockets of natural open grown Douglas-fir. Due to stand age, the alder has poor height and diameter growth. The pockets of Douglas-fir are becoming overstocked.

The sale is planned for retention cut by harvesting merchantable alder and thinning the Douglas-fir to a residual basal area of 140 to 160 square feet. Small clumps of alder will be reserved in the unit. All other species will be reserved.

Special Concerns: None

Moot Again – This sale consists of 5 areas totaling 486 acres. Area 1 is approximately 65 years old and is a mix of species including hemlock, spruce, alder, and Douglas-fir. This stand has reached stem exclusion, resulting in poor height to diameter ratios, poor live crown ratios, and slowed diameter growth. There are patches of alder that create a more complex structure within this stand. Area 2 is also 65 years old and is predominately alder with a mix of species including hemlock, spruce, and Douglas-fir in the understory and emerging in the overstory. Due to stand age, the alder in this stand has poor height and diameter growth. Area 3 is approximately 57 years old and is predominately an alder stand with planted Douglas-fir pockets throughout the area. The Douglas-fir is slow growing and has poor live crown ratios. Due to stand age and site quality, the alder in this stand has poor height and diameter growth. Area 4 is approximately 54 years old and is a mix of species including hemlock, spruce, alder, and Douglas-fir. This stand has reached stem exclusion, resulting in poor height to diameter ratios, poor live crown ratios, and slowed diameter growth. Area 5 is approximately 33 years old and is predominately a hemlock stand with pockets of Douglas-fir and spruce. The conifer is very dense with 100% crown closure and is in the stem exclusion stage.

Area 1 is a planned partial cut. A diameter limit (less than approximately 16" DBH) will be used to harvest hemlock, Douglas-fir, and spruce. The remaining hemlock, Douglas-fir, and alder will be thinned to an average basal area range of 140 to 160 square feet. (Approximately 20 ft² of alder will be targeted for retention). All other conifer and hardwood species will be reserved.

Area 2 is a planned retention cut that will remove merchantable alder and the merchantable hemlock will be thinned to a basal area range of 140ft² to 160 ft². All other species will be reserved. A component (3 to 5 trees per acre) of merchantable alder will be left in small clumps and a component of non-merchantable alder will be left adjacent to residual conifer within the sale area. A height limit may also be used to reserve intermediate trees that are providing vertical diversity.

Area 3 is a retention cut that will remove merchantable alder and the merchantable Douglas-fir less than 24" DBH. All other species will be reserved. A component of non-merchantable alder will be left adjacent to residual conifer within the sale area.

Area 4 is a planned partial cut. A diameter limit (less than approximately 16" DBH) will be used to harvest hemlock and Douglas-fir. The remaining hemlock and Douglas-fir will be thinned to a residual basal area of 120 to 140 square feet. Merchantable alder will be removed. All other species will be reserved. A component (7 to 9 trees per acre) of merchantable alder will be left in small clumps and a component of non-merchantable alder will be left adjacent to residual conifer.

Area 5 is a planned partial cut. A diameter limit (less than approximately 14" DBH) will be used to harvest hemlock, Douglas-fir, and spruce. The remaining hemlock and Douglas-fir will be thinned to a residual basal area of 120 to 140 square feet. All other species are reserved.

Special Concerns: There were several marbled murrelet detections adjacent to Areas 4 and 5 during the 2005 survey season. A Marbled Murrelet Management Area (MMMA) will be designated after the 2006 survey season and the sale boundary will be modified to exclude any area that falls within the MMMA. Some operations in this sale will have seasonal restrictions. See the individual Pre-operation Report for more information (Appendix "B").

Ripple Shack – This sale is 936 acres of planted Douglas-fir and naturally regenerated hemlock, noble fir, and alder. The conifer in this stand is very dense and showing signs of stem exclusion resulting in poor height to diameter ratios.

In this sale area a partial cut will remove the hemlock, alder, and Douglas-fir less than 16" DBH. The remaining hemlock, Douglas-fir, and alder will be thinned to an average basal area range of 220 to 240 square feet. All other species will be reserved.

Special Concerns: Approximately 474 acres of the sale are in the Cook Creek SAH Basin and were identified in the Salmon Anchor Habitat Basin Plans approved in June 2005. The remaining acres of the sale are located in the South Fork Salmonberry SAH Basin which did not require a SAH Basin Plan.

Sibley Arch - This sale consists of 5 areas totaling 560 acres. Areas 1, 2, and 3 are approximately 40 years old. These areas are predominately alder stands that have large and small pockets of planted Douglas-fir. Due to site quality and stand age (alder only), the alder and Douglas-fir have poor height and diameter growth. Area 4 is approximately 45 years old and is also an alder stand with large pockets of Douglas-fir but is located on more moderate slopes with a higher site quality. Due to stand age, the alder has poor height and diameter growth. Area 5 is approximately 65 years old and is a naturally regenerated mixed conifer stand. This stand is dense showing signs of stem exclusion.

Areas 1 is a planned modified clearcut and Area 2 is a planned retention cut that will harvest all merchantable alder. A diameter limit (less than approximately 19" DBH) will be used to harvest Douglas-fir. All other species will be reserved.

Areas 3 and 4 are planned retention cuts that harvest all merchantable alder. A diameter limit (less than approximately 16" DBH) will be used to harvest Douglas-fir. The remaining Douglas-fir will be thinned to a residual basal area of 120 to 140 square feet. All other species will be reserved.

Area 5 is planned for partial cutting Douglas-fir, hemlock, spruce, and alder to a residual basal area of 160-180 square feet. All other species will be reserved.

Special Concerns: None

Short Sands Basin

There are no harvest operations planned in this basin for FY07.

Miami Basin

Minich Ridge - The sale consists of two areas totaling 89 acres. Area 1 is a mixed species stand of natural hemlock, planted Douglas-fir, spruce and scattered alder that are approximately 40 years old. This stand is very dense resulting in poor crown ratios and height to diameter ratios. The Douglas-fir shows symptoms of SNC. Area 2 is approximately 30 years old and is mainly planted Douglas-fir with small patches of hemlock and alder. The Douglas-fir has severe symptoms of SNC and poor live crown ratios.

Area 1 is a planned partial cut. A diameter limit (less than approximately 20" DBH) will be used to harvest hemlock, Douglas-fir, and spruce. The remaining hemlock, Douglas-fir, and spruce will be thinned to a residual basal area of 100 to 120 square feet. All other species will be reserved.

Area 2 is a planned retention cut that harvests all merchantable Douglas-fir. A diameter limit (less than approximately 15" DBH) will be used to harvest the smaller hemlock. The remaining hemlock will be thinned to a residual basal area of 100 to 120 square feet. All other species will be reserved.

Special Concerns: Both sale areas are in the Miami SAH Basin and were identified in the Salmon Anchor Habitat Basin Plans approved in June 2005.

Kilchis Basin

Juno Bay (42 acres in the Wilson Basin and 43 acres in the Tillamook Bay Basin) - This sale consists of 6 areas totaling 290 acres. Areas 1, 2, 3, and 6 range between 45 and 60 years old and are predominantly alder stands with scattered hemlock, spruce, and Douglas-fir. Areas 2 and 3 have some pockets of dense conifer. Area 4 is approximately 37 years old and is predominately Douglas-fir that has symptoms of severe SNC and poor live crown ratios resulting in slowed height and diameter growth. Area 5 is approximately 50 years old and is a mix of hemlock, spruce, and Douglas-fir. These stands are overstocked and have slowed diameter growth.

Areas 1 and 2 are planned modified clearcuts. Merchantable alder will be removed and a diameter limit will be used to retain the larger Douglas-fir. All other species will be reserved.

Area 3 is a planned retention cut. Merchantable alder will be removed and all other species will be reserved with the exception of a conifer sub-area on the top of the ridge. In that area, a diameter limit will be used to retain the larger conifer and all hardwood will be reserved.

Area 4 is a planned modified clearcut that will remove all merchantable Douglas-fir. All other species will be reserved.¹

Area 5 is a planned partial cut. Merchantable hemlock and spruce will be thinned to a basal area range of 160-180 square feet. Hardwood and all other conifer will be reserved.¹

Area 6 is a planned modified clearcut that will remove all merchantable hardwood. A diameter limit will reserve a component of the hardwood. All other species will be reserved.¹

Special Concerns: Area 2 is adjacent to a Marbled Murrelet Management Area. A biological assessment has been prepared to address road improvement projects. Some operations will have seasonal restrictions. Areas, 4, 5, and 6 are located within a northern spotted owl cluster designated in the draft Western Oregon Habitat Conservation Plan (HCP).¹ Portions of all of the sale areas have a visual classification of Level 1, high sensitivity. See the individual Pre-operation Report for more information (Appendix "B").

¹Are as 4, 5, and 6 are located within a northern spotted owl cluster designated in the draft Western Oregon Habitat Conservation Plan (HCP). The draft HCP defers management on the most suitable habitat within the cluster and allows for up to eight percent per decade of the remaining acres to have management activity. These acres are currently low to non-suitable habitat. 63 acres within the cluster were managed in the 2001 AOP and 47 acres in the 2003 AOP. The additional 97 acres in this sale will bring the total acres managed in the current implementation plan period to 207 acres; 2.5% of the non-deferred acres. Sales within the cluster in these three AOP periods are geographically apart which will avoid concentration of silvicultural activities in any one area. Areas 5 and 6 will be further assessed by the Area Wildlife Biologist prior to sale

The intent of management within the cluster is to convert non-suitable habitat to suitable habitat and to maintain or enhance the characteristics of existing suitable habitat. These sale areas fit the priorities identified for management within the cluster. Area 4 is a regeneration harvest in a stand severely infected with Swiss Needle Cast. Area 5 is a thinning in a CSC/UDS stand where structural development could be enhanced and accelerated through stand density management. Area 6 is a regeneration stand that is predominantly red alder with minimal potential for developing into suitable habitat. . Seasonal operating restrictions will be required for some operations on the sale areas.

Triangulation (8 acres in Lower Nehalem Basin) – This sale consists of 6 areas totaling 236 acres that are approximately 40 years old. All of the areas are predominately Douglas-fir. Areas 1 and 2 have some hemlock scattered in the units. These stands are dense and have poor crown ratios.

All of the areas are planned for partial cutting by thinning the Douglas-fir to a residual basal area range of 80 to 100 square feet. All other species will be reserved.

Special Concerns: Approximately 8 acres are in the Cook Creek SAH Basin but were not identified in the Salmon Anchor Habitat Basin Plans approved in June 2005. These additional acres have been included for logistical reasons and are within the SAH strategies outlined in the SAH guidance. See the individual Pre-operation Report for more information (Appendix “B”).

Tillamook Bay Basin

Electric Point (16 acres in the Miami Basin) -This sale consists of 2 areas totaling 178 acres and is approximately 70 to 75 years old. These areas are comprised of hemlock and spruce with scattered cedar and alder. The conifer is very dense resulting in poor live crown ratios and slowed diameter growth resulting in poor height to diameter ratios.

Area 1 is planned for partial cutting by thinning the hemlock to a residual basal area range of 100 to 120 square feet and using a diameter limit (approximately 26” DBH) to harvest the spruce. All other species will be reserved.

Area 2 is planned for partial cutting by thinning the hemlock and spruce to a residual basal area range of 200 to 220 square feet.

Special Concerns: Approximately 16 acres are in the Miami SAH Basin and were identified in the Salmon Anchor Habitat Basin Plans approved in June 2005. There is a transmission line in Area 1. There were several marbled murrelet detections adjacent to Areas 1 during the 2005 survey season. A Marbled Murrelet Management Area (MMMA) will be designated after the 2006 survey season and the sale boundary will be modified to exclude any area that falls within the MMMA. Some operations in this sale will have seasonal restrictions. See the individual Pre-operation Report for more information (Appendix “B”).

Wilson Basin

Berry Cobbler – This sale consists of 6 areas totaling 343 acres which are approximately 45 years old. Area 1 is predominately Douglas-fir with scattered hemlock and alder. The Douglas-fir is impacted by SNC but has maintained better crown ratios than the surrounding area due to a commercial thinning in 1991. Areas 2, 3, 4, 5, and 6 are predominately Douglas-fir with scattered alder. The Douglas fir is impacted by severe SNC and has poor crown ratios resulting in slowed diameter growth and/or height growth.

Area 1 is planned for partial cutting by thinning the merchantable Douglas-fir to a residual basal area range of 100 to 120 square feet. All other species will be reserved.

Area 2, 4, 5, and 6 are planned for modified clearcut and Area 3 is planned for a retention cut. Merchantable Douglas-fir and alder will be removed. A diameter limit will be used to select conifer leave trees in the unit. All other species are reserved.

Special Concerns: There are designated OHV trails within and/or adjacent to Area 2 and Area 3. The sale areas are in the Little North Fork SAH Basin and were identified in the Salmon Anchor Habitat Basin Plans approved in June 2005. See the individual Pre-operation Report for more information (Appendix “B”).

Blue Potato - This sale consists of 7 areas totaling 500 acres. Area 1 is approximately 60 years old and is a mixed conifer stand that has reached stem exclusion which has resulted in poor crown ratios and/or height to diameter ratios. Areas 2 and 3 are approximately 60 years old and are predominately alder stands that have pockets of Douglas-fir, Sitka spruce, and hemlock. The Douglas-fir shows symptoms of SNC resulting in slowed diameter and/or height growth. Area 4 and 7 are mixed alder and Douglas-fir stands that have scattered hemlock, spruce, and red cedar. Area 4 is approximately 35 years old and Area 7 is approximately 46 years old. The Douglas-fir shows severe symptoms of SNC resulting in slowed diameter and/or height growth. Areas 5 and 6 are 45 to 50 year old stands of mixed alder and Douglas-fir. The alder in Area 6 were aerially sprayed to release planted conifer in the 1970's resulting in short boles and many limbs.

Area 1 is planned for partial cutting by thinning the merchantable Douglas-fir, spruce, hemlock to a residual basal area range of 160 to 180 square feet. All other species will be reserved.

Area 2, 3, 4, 5, and 6 are planned for modified clearcut. Merchantable Douglas-fir and alder will be removed. In Areas 2, 3, and 7 a portion of the hemlock and spruce will be removed. In Areas 4, 5, and 6 all other species will be reserved. A diameter limit will be used to select conifer leave trees in the unit.

Area 7 is a planned retention cut that harvests all merchantable Douglas-fir, alder, and a portion of the merchantable western hemlock and spruce. The average residual basal area for this area will be at least 33 square feet. All other species will be reserved.

Merchantable Douglas-fir and alder will be removed. In Areas 2, 3, and 7 a portion of the hemlock and spruce will be removed. In Areas 4, 5, and 6 all other species will be reserved. A diameter limit will be used to select conifer leave trees in the unit. All other species will be reserved.

Special Concerns: Portions of the sale areas have a visual classification of Level 1, high sensitivity. See the individual Pre-operation Report for more information (Appendix "B").

Fire Mole - This sale is 320 acres and is approximately 44 years old. This area is a mixed Douglas-fir and alder stand with scattered hemlock, spruce, and cedar. The Douglas-fir is overstocked, has slowed diameter growth, and is showing some symptoms of SNC. The alder components of this stand were aerially sprayed to release planted conifer in the 1970's resulting in short boles and many limbs.

This area is a planned retention cut. Merchantable alder and Douglas-fir will be harvested. A diameter limit will be utilized to harvest the smaller diameter Douglas-fir. The remaining Douglas-fir will be thinned to a residual basal area of 80 to 100 square feet. All other species will be reserved.

Special Concerns: There are designated OHV trails within and/or adjacent to Area 2 and Area 3. See the individual Pre-operation Report for more information (Appendix "B").

Roger Thin - This sale is 107 acres and is approximately 44 years old. This area is a single story Douglas-fir and hemlock stand. The stand is overstocked and has slowed diameter growth.

This area is planned for partial cutting Douglas-fir and hemlock to a residual basal area of 100-120 square feet. All other species will be reserved.

Special Concerns: None

Steam Donkey (Alternate) - The sale consists of 2 areas totaling 210 acres. Both areas are mixed species stands of hemlock, Douglas-fir, and scattered alder that are approximately 53 years old. The conifer has poor live crown ratios and slowed diameter growth. The alder components of adjacent stands were aerially sprayed to release planted conifer in the 1970's resulting in alder trees with short boles and many limbs. Some of the alder in this stand appears to have been sprayed but the majority was not.

Area 1 is a planned partial cut. The merchantable Douglas-fir and hemlock will be thinned to a residual basal area of 100 to 120 square feet. All other species will be reserved.

Area 2 is a planned retention cut that harvests all merchantable Douglas-fir and alder. A diameter limit will be used to reserve the larger diameter Douglas-fir. The average residual basal area for Area 2 will be at least 33 square feet. All other species will be reserved.

Special Concerns: There are designated OHV trails within and/or adjacent to Area 2 and Area 3. See the individual Pre-operation Report for more information (Appendix "B").

Tillamook River Basin

Sim Power (6 acres in the Nestucca Basin and 50 Acres in the Trask Basin) - The sale consists of 4 areas totaling 153 acres. All of these areas are mixed species stands of natural hemlock, planted Douglas-fir, and scattered noble fir, cedar, and alder that are 40 to 50 years old. This hemlock is overstocked resulting in poor height to diameter ratios. The Douglas-fir shows symptoms of SNC resulting in slowed diameter and/or height growth. The alder was aerially sprayed in the 1970's resulting in short boles and many limbs.

All of these areas are planned partial cuts. All Douglas-fir and/or merchantable alder will be harvested. Hemlock and noble fir will be thinned to a basal area range to be determined after more comprehensive cruise has been completed. All other species will be reserved.

The Northwest Oregon Area Biologist will be consulted during sale layout to determine where to create openings to enhance marbled murrelet habitat.

Special Concerns: There will be hauling seasonal restrictions due to marbled murrelet habitat adjacent to haul route. There is a transmission line within the sale. See the individual Pre-operation Report for more information (Appendix "B").

Thin Fawcett - The sale consists of 2 areas totaling 153 acres. Both areas are mixed species stands of hemlock, Sitka spruce, and scattered Douglas-fir, noble fir, cedar and alder that are approximately 59 years old. Area 2 is overstocked and has height to diameter ratio issues.

Area 1 is a planned partial cut. A diameter limit (approx. 24" DBH) will be used to harvest the Douglas-fir. The hemlock and spruce will be thinned to a residual basal area of 110 to 130 square feet. Incidental alder may be harvested if in yarding corridors or near landings. Noble fir and cedar are reserved.

Area 2 is also planned for partial cutting the merchantable hemlock, spruce, and Douglas-fir to a residual basal area of 150 to 170 square feet. Incidental alder may be harvested if in yarding corridors or near landings. Noble fir and cedar are reserved.

Special Concerns: The sale and the haul route are adjacent to Marbled Murrelet Management Areas. Some operations will have seasonal restrictions. See the individual Pre-operation Report for more information (Appendix "B").

Trask Basin

North Cruz - This sale is 191 acres and is approximately 42 years old. The stand is comprised of Douglas-fir with scattered hemlock, noble fir, and alder. The Douglas fir is impacted by SNC but has maintained good crown ratios due to precommercial thinning in 1989.

This area is planned for partial cutting Douglas-fir (greater than 11" DBH) to a residual basal area of 110 to 130 square feet. Merchantable hardwood greater than 11" DBH will be harvested. All other species will be reserved.

Special Concerns: The sale is located in the Elk Horn SAH Basin. A culvert, which currently is not fish passable, will be removed on Murphy Camp Road. The culvert removal will close the road for up to three years to determine appropriate fish passage needs. A culvert replacement is also planned on Meagan Creek to benefit fish habitat. Grant monies are being pursued for the Meagan Creek culvert project.

See the individual Pre-operation Report for more information (Appendix "B").

Coast Bill (Alternate) - This sale consists of 2 areas totaling 134 acres. The stands are 37 year old Douglas-fir with scattered alder. The Douglas-fir is impacted by SNC and has poor live crown ratios resulting in slowed diameter growth and/or height growth. The alder was aerially sprayed in the 1970's resulting in short boles and many limbs.

These areas are planned for modified clearcut. A diameter limit will be used to select Douglas-fir leave trees in the unit. Merchantable alder will also be harvested. All other species will be reserved.

Special Concerns: None

Joyce Creek (Alternate) - This sale consists of 7 areas totaling 1093 acres. The stands are 39 year old Douglas-fir with scattered alder. The Douglas-fir is impacted by SNC resulting in slowed diameter growth and/or height growth. The alder was aerially sprayed in the 1970's resulting in short boles and many limbs.

Area 1 is a planned retention cut, leaving a Douglas-fir residual basal area range of 33 to 50 square feet. All other merchantable Douglas-fir and alder will be harvested. All other species and non-merchantable alder will be reserved.

Areas 2, 4, 5, 6, 7, and 8 are planned for modified clearcut. Douglas-fir will be removed. A diameter limit will be used to select conifer leave trees in the unit. Merchantable alder will be harvested. All other species and non-merchantable alder will be reserved.

Special Concerns: None

Toll Pigeon (Alternate) - This sale consists of 9 areas totaling 899 acres. The stands are 45 year old Douglas-fir with scattered alder. The Douglas-fir is impacted by SNC resulting in slowed diameter growth and/or height growth. The alder was aerially sprayed in the 1970's resulting in short boles and many limbs.

Areas 1, 3, and 9 are planned for retention cuts by leaving a Douglas-fir residual basal area range of 33 to 50 square feet. All other merchantable Douglas-fir and alder will be harvested. All other species will be reserved.

Areas 2, 4, 5, 6, 7, and 8 are planned for modified clearcut. Douglas-fir will be removed. A diameter limit will be used to select conifer leave trees in the unit. Merchantable alder will be harvested in cable corridors or on ground yarding slopes. All other species will be reserved.

Special Concerns: There are designated OHV trails within the sale. The sale areas are in the East Fork Trask SAH Basin and were identified in the Salmon Anchor Habitat Basin Plans approved in June 2005. See the individual Pre-operation Report for more information (Appendix "B").

Holly Gold (Alternate) - This sale consists of 3 areas totaling 280 acres. The stands are 37 year old Douglas-fir with scattered noble fir and alder. The Douglas-fir is impacted by SNC and has poor live crown ratios resulting in slowed diameter growth and/or height growth. The alder was aerially sprayed in the 1970's resulting in short boles and many limbs.

Areas 1 and 3 are planned for modified clearcut. A diameter limit will be used to select Douglas-fir leave trees in the unit. Merchantable alder will be harvested. All other species will be reserved.

Area 2 is a planned retention cut leaving Douglas-fir, greater than 11" DBH, at a residual basal area range of 33 to 40 square feet. All other merchantable Douglas-fir and alder will be harvested. All other species will be reserved.

Special Concerns: There are designated OHV trails within the sale. A stream enhancement project identified in the Trask Watershed Assessment is planned. See the individual Pre-operation Report for more information (Appendix "B").

Nestucca Basin

There are no harvest operations planned in this basin for FY07.

Little Nestucca Basin

There are no harvest operations planned in this basin for FY07.

Forest Roads Management

Overview

The FY07 AOP includes approximately 16.60 miles of new road construction (all low use spurs) and 69.52 miles of road improvement. In addition, 3.9 miles of road will be vacated or closed in the Tillamook District. Refer to summary tables in Appendix A for more information.

The constructed and improved roads will provide improved access for recreational opportunities, fire protection, and hauling forest products from the sale areas. Since the mainline roads are already in place on the district, these new roads will be mostly short, spur roads. The amount of surfacing and road width will depend on the amount of volume that will be hauled on each road segment and the potential long-term use of the road after timber sale completion. These projects may include culvert replacement, side-cast pullback and vacating roads. Guidance for transportation management activities will come from the ODF *Forest Roads Manual*. Specifics within this AOP represent Level III Transportation Planning.

In-stream activity will be restricted to the ODFW guidelines to limit impacts to aquatic habitat and any exceptions will be reviewed with ODFW for site specific approval. End-hauling is required when constructing roads on side slopes greater than 55% and location of waste areas will be reviewed with ODF geotechnical specialist as needed.

District activities to control noxious weeds consist primarily of controlling Scotch broom in and around plantations and along roads. Other species such as knotweed and Himalayan blackberry are targeted for control as well. Noxious weed control will be performed on about 20 acres during the fiscal year. Since many infestations start along roads where soil disturbance occurs during road improvement or construction, the district specifies 100% weed-free grass seed and the use of straw for mulch instead of hay.

Table 4. Summary of Road Management Activities. All values are in miles.

	Mainline (High Use)		Collector (Medium Use)		Spur (Low Use)	
	AOP	IP¹	AOP	IP¹	AOP	IP¹
Road Construction	0	0.5-1	0	2-3	16.60	2-3
Road Improvement	0	10-20	25.4	15-25	44.52	20-30
Road Closure/Vacation	0	0	0	2.5-5	3.9	2.5-5
Road Maintenance –	5	-	90	-	75	-

District²						
Road Maintenance – Active Operations³	20	-	77.2	-	3.5	-

1. These are annual estimates from Table 3-6, pg 27) Potential Road Activities FY 2001-2011 of the 2001 District Implementation Plan. **The values here were derived by dividing the values in the Potential Road Activities table by 10.**

2. The road maintenance estimates include only the work to be completed during Fiscal Year 2007 by the district road crew or service contract. Estimates of road maintenance were not made in the Implementation Plan.

3. This is a broad estimate of the road maintenance that may be accomplished during the fiscal year, through active commercial operations. However, the exact amount can not be predicted at this time.

Acreages do not include alternative sales.

Road Construction

Most of the new construction roads are classified as spur roads. These roads are often short dead-end spurs to access ridge tops and facilitate harvesting operations. Roads will not be located on steep slopes or high landslide hazard locations where risk analysis by the geotechnical specialists determines the probability of failure is high and the risk of resource damage is high. Roads will be designed to the minimum width necessary to accommodate the planned management activity. See Road Access Management section below for discussion on road closure and vacation.

Road Improvement

The majority of roadwork in this AOP is road improvement. Road improvement may consist of surfacing, widening, side cast pullback, and improving drainage structures. Road improvement on the Tillamook District is discussed in two ways: 1) Improvement of existing roads and 2) Improvement of legacy roads. Existing roads have been improved and maintained over the years through timber sales or the district road crew. Legacy roads are roads built during the Tillamook Burn salvage operations and then abandoned. These legacy roads have a defined roadbed but are often overgrown with trees and shrubs. Legacy roads often require sidecast pullback, culvert installation, and resurfacing but the roadbed is defined and minimal equipment work is needed.

Road Access Management

All surfaced roads are categorized as active use roads. Unsurfaced roads will be water barred during wet season and will be reviewed for partial or full vacation at the end of the sale. In this AOP, approximately 3.9 miles of road is planned for full vacation. The *Forest Roads Manual* guidance for road vacation will be followed for this work.

At the end of timber sales, all roads are evaluated for access to future sales, resource considerations, and other use such as fire fighting needs. Roads may be retained, partially vacated, or fully vacated based on this evaluation. At the completion of regeneration harvests, access is needed for tree planting operations and a road may be left open for a

longer period of time. After a plantation is free to grow, roads will be closed by the district road crew or added to future timber sales as project work.

In FY05 a pilot project was completed in the Trask and Wilson Basins for temporary closure of roads. This project was completed in partnership with ODFW and Oregon Hunter's Association (Tillamook Chapter) to install gates that were closed during the October and November hunting seasons. This project was continued and expanded in FY06 in the Trask and Wilson Basins. This project will be reviewed each year in consultation with ODFW and Oregon Hunter's Association (Tillamook Chapter) to determine any changes, expansion or reduction in the gate installations.

Road Maintenance

Timber sale purchasers will maintain timber sale access roads. ODF will maintain other roads. Road maintenance activities are divided into five basic categories; drainage, surface maintenance, cut and fill slopes, erosion control and vegetation control. Culverts, catch basins and ditches will be cleaned as necessary to ensure proper drainage. Road surfaces will be graded only when needed to maintain a smooth, stable running surface and surface drainage. Cut slope ravel will be removed from ditches and unstable fill slope material will be removed to prevent failure. Erosion and sediment control structures, such as culvert downspouts, sediment fencing, straw bales, bio-bags, sediment ponds and bio-filtration swales will be maintained or repaired as necessary to ensure their proper function. Vegetation will be controlled manually, mechanically or chemically where necessary. The method used will depend on the characteristics of the vegetation and its location. Precautions will be used to avoid harm to non-target plants and to prevent any of the herbicide from contaminating water.

Some Level III planning projects (*refer to the Forest Roads Manual*) include removing fish passage barriers, vacating/closing lower elevation roads near streams, constructing roads on higher elevation ridges and the redevelopment of large capacity rock pits suitable for crushing to reduce turbid runoff from the road system.

Land Surveying

Property surveys are required to establish property corners and mark the lines defining State ownership. Two and a half miles of property line will be surveyed and marked for six sales planned for FY07. Approximately 5.5 miles of property line marked in prior surveys will be retraced and refreshed, if required, for two sales planned for FY07. This work will be accomplished by both State personnel and cost share survey agreements with adjacent landowners.

Thirty-nine existing corners will be maintained in order to preserve their position. This activity requires checking the condition of the monument and its accessories, and establishing new ones if necessary. This work will be accomplished by both State personnel and cost share survey agreements with adjacent landowners.

Young Stand Management

This section describes the types and anticipated amounts of reforestation and stand management activities that will occur in FY 07. The location and amount (acres) of these activities are estimates based on plans, information and conditions as known at this point in time. The type, amount and specific stand management prescriptions will be further adjusted based on when existing sold harvest units are completed and on updated assessments and surveys.

Reforestation and young stand management requires various combinations of site preparation, planting, animal damage control, vegetation management, and interplanting or replanting. These practices must be considered and prescribed for individual stands on a site-specific basis.

Rehabilitation

None Planned

Site Preparation

Prescribed Fire (Slash Burning): None Planned

Mechanical (Slash Piling): None Planned

Chemical Site Preparation: The site preparation objective is to control brush species to allow stand establishment and maintain 2-3 years of free to grow status. The current estimate is 1200 acres. The actual site preparation plan will be prepared in late spring or early summer when harvest units and brush development is better known. Most chemical site preparation is completed by helicopter spraying.

Planting

Initial Planting: The planting objective is to establish mixed conifer stands at 500 trees per acre. Initial plant species will consist of western hemlock, western red cedar, noble fir, and Douglas-fir. Douglas-fir will be included in planting units outside of the areas of severe Swiss needle cast. The target at age 10 is a mixed conifer stand with a minor hardwood component. These stands generally have the most potential to develop into complex stands, are the most resistant to pest and environmental impacts and retain the most future options. The current estimate is 1800 acres of initial planting. Actual plans will be made in the fall prior to planting season when available harvest units are known.

Interplanting: The interplanting objective is to raise conifer stocking in young plantations that are below acceptable levels or below Forest Practices Requirements to a minimum of 250

trees per acre. The current estimate is 400 acres. Actual plans will be made after stocking surveys in the spring.

Underplanting: Candidate stands will be underplanted if surplus trees are available. Candidate stands are generally those stands where natural seed-in of tolerant species is not anticipated and the residual stand density is relatively low. Underplanting is planned for stands to introduce species diversity and to accelerate the establishment of a second cohort.

Natural Regeneration: None planned at this time. Units or portions of units will be assessed prior to planting. Natural regeneration will be considered primarily where small gaps and holes have been created in partial cut units.

Vegetation Management

The release objective is to attain or maintain free to grow status for current hemlock or mixed conifer plantations by controlling brush species, primarily salmonberry. Release assists with accelerating stand establishment and tree growth for development of complex structures.

Manual: None planned at this time.

Chemical: The current estimate is 1,000 acres. The actual plan will be developed in late spring or early summer when brush is more developed and actual needs can be assessed.

Tree Protection

The objective is to reduce browse by elk, deer, and rodents allowing trees to attain full height growth potential. Tree protection also reduces cost of long-term vegetation management once plantations reach a free to grow stage.

Tube & Pin: The current estimate is 250 acres. This will be in block planted cedar and areas of known heavy browse pressure.

Trapping: The current estimate is 4,000 acres.

Precommercial Thinning (density management)

The PCT objective is to reduce the density in overstocked conifer stands to maintain good individual tree growth rates with good live crown ratios. In mixed species stands with Douglas-fir heavily impacted by Swiss needle cast, species other than Douglas-fir will be favored. The current estimate is 400 acres.

Fertilization

None planned due to the impacts of Swiss needle cast. Past research has found that fertilizing accelerates the impact of Swiss needle cast. Future mixed species plantations may be considered for fertilization.

Pruning

None planned due to impacts of Swiss needle cast. The loss of needle retention in many Douglas-fir plantations does not make pruning a viable tool. By pruning the trees, the crown length is further reduced which in-turn reduces overall tree growth.

Recreation Management

Overview of Recreation Management

For Fiscal Year 2007 the Tillamook District Recreation Program will operate and maintain existing facilities at the current high standards. The priority will be to maintain the facilities and infrastructure currently in place. Construction projects for FY 2007 include the construction of a trailhead at the Footbridge (mp 19.9, Hwy. 6) with restrooms and day use parking, and a day-use Off Highway Vehicle (OHV) staging with information board and restrooms at Hollywood OHV Staging Area.

New Facilities Construction

Footbridge Trailhead

- Construction contract put out to bid June 06
- Award contract July 06
- Construction complete December 06

Facilities Improvement

Construct day use parking area with restrooms at Hollywood OHV Staging Area

- Tentative construction contract put out to bid June 06
- Award contract July 06
- Construction complete October 06

Planning and Design

Diamond Mill OHV Staging Area

- Develop Request For Proposal (RFP) for landscape design services and construction ready drawings – October 06
- Award Contract December 06

- Design Contract complete December 07
- Construction contract out for bid June and July 08.

Designated Campsites

GPS inventory all non-designated dispersed sites in the district and evaluate resource impacts, current use, and feasibility for improvement.

Facilities Maintenance

The following is a list of the facilities to be maintained during the FY 2007 operation period.

- Diamond Mill OHV Campground - Open year round.
- Jones Creek Campground - Open Memorial Day Weekend through September.
- Footbridge Trailhead – Day Use Area – Open year round
- Cedar Butte Trailhead - Open year round
- Keenig Creek Campground – Open year round.
- Sprague Wayside – Open year round
- Nehalem Falls Campground – Open Memorial Day Weekend through September.
- Jordan Creek Off Highway Vehicle Staging Area - Open April through October.
- Hollywood OHV Staging Area - Open year round.
- Peninsula Day Use Area & Boat Launch – Open year round.
- Stones Road Boat Ramp – Open year round.
- 50 designated dispersed campsites though-out forest

South Fork Inmate Camp Crews perform maintenance on most sites. Tillamook Forest Center will be assuming general maintenance of Smith Homestead with monitoring and support from district staff and South Fork Inmate Crews.

Non-Motorized Trail Construction

- Wilson River Hiking Trail – construct approximately ½ mile of new trail from Keenig Creek Trailhead to Muesial Creek.
- Coal Creek Trails – tie trail from ridge down to Coal Creek Trailhead (approximately ½ mile new trail construction).

Non-Motorized Trail Maintenance

A total of 14.3 miles of trail maintenance is planned. Maintenance includes bridge maintenance, brushing, slough removal, grade repair, and removal of wind throw.

- Wilson River Trail–Diamond Mill to Keenig Creek Trailhead section – 10.38 miles
- Cedar Butte Trail – 0.75 mile
- Peninsula Trail – 0.8 mile
- Nehalem Falls Trail – 0.5 mile
- Outback Trail 0.3 mile
- Coal Creek Trail 1.4 miles

Total trail mileage to be maintained = 14.3 miles

Motorized Trail Construction

Link Pothole Cr. Trail to Murphy Camp - project will facilitate access to stream monitoring site for Watershed Analysis Project on East Fork Trask River.

Motorized Trail Bridges

- Arch Cape Creek (Mongos Canyon Trail) bridges – 18’ and 24’
- Mikes Trails - Jones Creek Bridge – 32’

Motorized Trails Maintenance

One or possibly two OHV equipment operators will maintain or upgrade approximately 13.1 miles of OHV trail in the district. Maintenance and upgrades include rocking, rolling grade dips, assisting with bridge construction, installation of lower gradient re-routes, and seasonal closure of trails to protect the trail and reduce impacts.

Tillamook District OHV project work for FY 2007.

Equipment Operator Project Work – Prioritized

1. Mikes Trail – re-routes and upgrades	2.1 mi.
2. Mongos Trail – grading, rocking, widening	2.3 mi.
3. Stick In The Nose – trail maintenance	2.2 mi.
4. Old Cedar Creek water control, culvert maintenance.	2.7 mi.
5. Rogers Road, grading, spot rocking, filters	<u>2.0 mi.</u>
Total planned equipment maintenance mileage	11.3 mi.

South Fork Inmate Crew OHV Project Work

- Powerline Trail water control, block installation 1.1 mi.
- Hembre L.O. Trail, re-route around rock pit 0.3 mi.

- Poe Wade, OHV dips, rock, grading 0.6 mi.
- Mikes Trail 32' trail bridge.
- Mongos Trail 2 - trail bridges 32' and 24'
- Cedar Fence Trail – OHV bridge

Road Crew Support Work

- Jeep Trail additional 50 yards of rock at junction w/ Hembre Ridge. Rd.
- East end of re-route on Pothole Road 60 yards rocked staged.

Other Management Activities

Tillamook District Volunteer Activities

Activity	# of Volunteers	Estimate Hours
Camp Host	Up to 12 volunteers for 4 month camping season	Hosts volunteer for one to two month stays and are on duty 5 days/week for approximately 12 hours/day for 4 months Estimate 1920 volunteer hours
Non-motorized trails	Estimate 10 – 15 people per work day	Non motorized trail workdays occur 3 rd Saturday of March, May, July, September and last 6 hours. Estimate 480 hours
Motorized trails	Estimate 10 people per day	Motorized Trail Work Days – 3 rd Saturday of month, January – October. Estimate 800 hours per year
North Coast Travel Management Area	1 volunteer	Est. 500 hours per year

Organized Event Administration

For FY 2007 Tillamook District will assist the OHV Coordinator administer motorized event permits. Events include poker runs, races, 4WD runs, dual sport runs, a possible car rally, and observed motorcycle trials. The number of organized events to be permitted for the 2006 season has not been determined at this time.

Law Enforcement

ODF will contract with Tillamook County Sheriffs Office for 3 full-time deputies at an approximate cost of \$288,000. Tillamook County Sheriff's Office funds 60% of the program cost with grant funds from the Oregon ATV Fund. The remaining 40% is provided by Oregon Dept. of Forestry.

North Coast Travel Management Area

For the last seven years the district has participated in the Oregon Department of Fish and Wildlife (ODFW), North Coast Travel Management Area (TMA). The TMA regulates vehicle travel during the general deer and elk seasons to reduce road damage, increase bull/buck escapement and provide non-motorized hunting opportunities. Tillamook District will continue this partnership with ODFW. Sign maintenance and public contact in the TMA is performed by a volunteer and recreation staff. Enforcement of the TMA is provided by Oregon State Police on a limited basis.

Forest Land Management Classification System

As required under OAR 629-035-0050, Forest Land Management Classifications (FLMCS), and for the purposes of implementing the FMP's forest resource management strategies, all forest lands have been classified within the planning area to describe the types of management that a District will apply to particular areas of the land base, the appropriate range of management activities for these areas and the forest resource or resources the classifications are intended to address. The system identifies when a particular forest resource may need a more focused approach, or possibly an exclusive priority, in management. State Forest Lands are classified into one of three classifications: General Stewardship, Focused Stewardship, or Special Stewardship. Descriptions and methods of the classifications are found in the Forest Management Plan beginning on page 2-56.

Focused and Special Stewardship classifications are further classified into subclasses based upon the existence of forest resources that require some level of supplemental planning and/or modified management practices to help achieve identified goals. Several subclasses may be assigned to a parcel of land. Where this occurs, the resource requiring the highest level of protection will determine the management approach. A complete list and specific definitions of the subclasses can be found in OAR 629-035-0055. Total acreage for each classification and subclass can be found in the Tillamook District IP on page 5.

The acreage and boundary lines shown on maps for forest land management classifications are approximate. The information will be updated through watershed assessments, planning for site-specific management activities or site-specific field visits conducted over time. Management activities will be conducted based upon exact areas and locations as determined on the site and will depend upon the conditions that exist on the site.

Land Exchange

No land exchanges are planned during the FY07.

Other Integrated Forest Management Operations

The Tillamook District is working with ODFW to identify areas for stream enhancement projects. Potential sites have been identified in some individual Pre-operations Reports and other projects are still being reviewed and discussed at this time.

The District will set up and administer commercial and individual wood cutting areas. These areas are used to daylight roads, clean up landings, and salvage windthrow adjacent to roads. Commercial permits will also be issued for moss, beargrass, salal, ferns, vine maple, and alder saplings.

Planning (and Information Systems)

The Tillamook District will use a variety of tools, data sources, and other information for the continuing planning and implementation of the AOP. These consist of computer programs (ArcView, SuperAce, GPS programs, etc), inventories (OSCUR, Road Inventories and Stand Inventories), surveys (T&E, fish presence), and field reconnaissance. These will also be used to assist in setting resource goals for the district, and to monitor progress in achieving those goals. During the FY07, the district will be undertaking the following projects in order to update existing data and acquire new information.

Stand Level Inventory and Other Vegetation Inventories

The completion of the Tillamook District Stand Delineation contract is expected by July 1, 2006. Upon completion of the stand delineation contract, a service contract administered by Salem staff, will inventory approximately 450 stands. The stand level inventory will be used for prescription development, AOP implementation, monitoring, and other planning purposes.

Stand Level Inventory measurements are planned to occur several times during the life of the stand. The current emphasis is completing inventory in 50% of the district. The district has inventoried approximately 30% of stands and acres at this time. In the future, inventories are tentatively planned at 5-10 years of age, 25-30 years of age, and three years

after commercial thinning. These intervals are guidance at this time and will be more defined in the future.

The district will also be conducting stocking and survival surveys in young stands and plantations. The surveys are used to determine stocking levels, needs for tree planting, release or pre-commercial thinning.

Fish and Wildlife Surveys

Fish Surveys

Requests will be submitted to ODFW for stream surveys to determine fish presence. If the surveys are not completed, by the time of sale preparation, streams will be treated as fish bearing. All attempts will be made to verify fish use by time of auction or when sale activities begin.

Marbled Murrelet Surveys

The Tillamook District will continue its marbled murrelet survey program, in order to comply with federal and state Endangered Species Acts. To date, the USFWS has not issued formal guidelines regarding what constitutes a “take” for murrelets. In the absence of such guidance, ODF will follow *the State Forest Operational Policy, Marbled Murrelet Operational Policies* (January 1, 2005). This plan was developed through consultation with USFWS and will be utilized by ODF as the compliance mechanism for the federal and state Endangered Species Acts. All marbled murrelet surveys will be conducted in accordance with the Pacific Seabird Group (PSG) most current survey protocol.

ODF completes surveys of potential habitat within or adjacent to planned timber sales. Additional monitoring surveys are planned in Marbled Murrelet Management Areas (MMMA).

Northern Spotted Owl Surveys

In FY07 the district will continue its northern spotted owl survey program, in order to effectively comply with the *Agreement for the Conservation of Northern Spotted Owls* (September 2001) and to comply with ODF's responsibilities under the state Endangered Species Act. The survey method utilized by ODF is the *Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls*. This protocol was originally dated March 1991 was revised March 1992 and is endorsed by the USFWS. The district determines survey requirements for planned timber sales with potential habitat according to the November, 2002 ODF Policy Guidance: *Northern Spotted Owl Surveying on State Forest Lands*.

Contractors complete all surveys and develop final reports for ODF. For both marbled murrelets and northern spotted owls, end of year (survey season) reviews will be done to discuss survey results. This end of season meeting is an opportunity to meet with surveyors to discuss findings and determine future survey needs and/or needed modifications to proposed operations.

See the table below for a summary of on-going timber sale surveys for marbled murrelet and northern spotted owls.

Table 7. Summary of status of T&E surveys

Operation	Species (NSO/MM)*	Status
Berry Cobbler	None	
Blue Potato	NSO/MM	2005/2006
Brix Incline	NSO	2005/2006
Clatsop	NSO/MM	2005/2006
Common Meadows	NSO/MM	2005/2006
Electric Point	NSO/MM	2005/2006
Fire Mole	None	
Juno Bay	NSO/MM	2004/2005/2006
Minich Ridge	NSO/MM	2005/2006
Moot Point	NSO/MM	2005/2006
North Cruz Thin	None	
Ripple Shack	NSO/MM	2006/2007
Roger Thin	None	
Sibley Arch	NSO/MM	2005/2006
Simpower	NSO/MM	2003/2004/2005, 2005/2006
Thin Fawcett	NSO/MM	2005/2006, 2005/2006
Triangulation	MM	2005/2006
Coast Bill (Alt)	None	
Joyce Creek (Alt)	None	
Toll Pigeon (Alt)	None	
Holly Gold (Alt)	MM	2005/2006
Steam Donkey (Alt)	None	

*NSO is Northern Spotted Owls

*MM is Marbled Murrelet

*TBA indicates sale requiring more fieldwork to determine surveys needs. These sales will be reviewed before final AOP approval.

Plants

The proposed harvest operations were screened against the Oregon Natural Heritage Database and known locations on the district to identify potential conflicts with listed plant species. See the specific pre-op report for Triangulation for more information. The district will work with Department of Agriculture to determine distribution and appropriate protection.

Watershed Analysis

The watershed analysis began for the Wilson Basin during FY06 and will continue into FY08. Final assessment and analysis will be completed during summer of FY06. The watershed analysis for the Lower Nehalem Basin is planned to begin during FY06 or early FY07.

Research and Monitoring

The Tillamook District will be involved in a variety of research and monitoring projects in FY07. Study sites and plots will be established and/or maintained on the district. District employees may participate in these projects. The following sections provide brief summaries of current research as well as planned research.

Cooperative Forest Ecosystem Research (CFER):

Cooperative research program supported by OSU, USGS, and ODF. Projects are focused on

- Ecology and management of biodiversity in young stands
- Ecology and management of riparian zones
- Ecology and management of special interest species

This program contributes information on how to tailor forest management to achieve the objectives of long-term Forest Management Plans. CFER is also continuing work initiated by COPE program.

Integrative Young Stand Management Strategies for Productivity and Structural Diversity: (OSU, ODF Districts)

These projects investigate assumptions critical to the successful implementation of the FMP. Two sets of studies are investigating the development of young Douglas-fir monocultures and mixed species stands managed for revenue production with the goal of determining at what specific stage various structural components are lost in the stand. Secondly, the studies are determining under which conditions, if any, management activities can ensure persistence of certain structural components and evaluate the associated tradeoffs in stand growth and economic returns.

Swiss Needle Cast Cooperative Studies: (ODF Districts and SNCC)

- Pre-commercial thinning plot measurements and disease assessments
- Permanent plot measurements and disease assessment
- Sulfur plot measurements, nutrient sampling, disease assessments
- Bravo plot disease assessments

Swiss Needle Cast and Commercial Thinning: (OSU, ODF Districts)

Proposed research will address 1) growth trends following thinning of older stands with varying levels of Swiss needle cast damage, 2) interactive effects of Swiss needle cast with intensity of thinning, and 3) possible interactions between thinning, disease severity, and seed source (where data is available). The approach includes a combination of a retrospective study of stand growth since thinning with permanent monitoring plots to track future growth. The study will require a minimum of 10-year duration to establish trends in stand development after thinning.

Evaluation of Crown Length: Sapwood Area: (ODF)

Studies thus far have focused on correlating recent tree volume growth with relatively easy-to-obtain field measurements such as foliage retention, discoloration and crown length to sapwood area ratios (CL:SA). Recent work on commercial thinning plots shows CL:SA is a reasonable predictor of volume growth, and the combination of CL:SA and foliage retention is even better (Mainwaring and Maguire). The objective of this evaluation is to estimate recent periodic volume increment, which when adjusted for site index and correlated with SNC damage indices, should provide a reasonable indicator of how well the stand is growing compared to a stand without SNC damage.

Stream Temperature and Riparian Function: (ODF Forest Practices Monitoring Program (FPMP), ODF State Forests Monitoring Program (SFMP), ODF Districts, Forest Industry)

ODF SFMP and FPMP are coordinating a study to evaluate stream temperature and riparian condition before and after harvesting. Sites are located on both privately-owned and state-owned forestland. The objective of the study is to provide a coordinated monitoring effort with which to evaluate effectiveness of forest practices rules, and standards on private lands as well as the effectiveness of the aquatic and riparian strategies described in the FMP on state-owned forestland.

Animal Damage in Plantations: (ODF)

The formal study compares various stock type and seedling nutrient level combinations as they relate to controlling/preventing animal damage. The study will look at various economic investments (stock type, repellents, physical barriers) and returns (tree survival and growth) in plantations.

East Fork Trask Fish Traps: (ODF and ODFW)

A Salmonid Life Cycle Monitoring site was established in cooperation with ODFW during fall 2004 at East Fork Trask hatchery facility (no longer in use). Life Cycle Monitoring collects information on returning adults and out-migrating smolts to provide information on basin productivity and population dynamics. This site augments ODFW's larger Life Cycle Monitoring project covering the Oregon coast. ODF refurbished the facilities and conducts all trapping and stream survey activities. ODFW provides technical oversight and processes, analyzes and interprets data. This project will continue in FY07 and future years.

Intensive Watershed Monitoring: (ODF)

ODF State Forests Monitoring Program is working on a project to evaluate if upland, riparian, and aquatic management strategies are effectively achieving goals for riparian and aquatic resources. The study goals and objectives are currently being specified and experimental design being finalized. A portion of the study began in FY05 collecting data on stream flows in the East Fork Trask sub-basin.

T&E Surveys: (ODF, Contractors)

See the above section on fish and wildlife for more detail of surveys for spotted owls and marbled murrelets.

Northern Spotted Owls and Marbled Murrelet On-going Monitoring: (ODF, Contractors)

On-going monitoring is occurring of known sites of Northern spotted owls and marbled murrelets. The objective of these surveys is to determine continued occupancy of the site and movement within designated owl circles or marbled murrelet management areas (MMMA) over time. In addition to these surveys, monitoring surveys are also being conducted within portions of the Tillamook Burn thought to have the greatest potential for supporting resident spotted owls. These surveys are completed on a two year cycle. (November, 2002 ODF Policy Guidance: *Northern Spotted Owl Surveying on State Forest Lands, Attachment "B": Monitoring Surveys for Northern Spotted Owls in the Tillamook Burn*)

Other Planning Operations:

Tillamook District is also implementing Salmon Anchor Habitat (SAH) Strategies as described in the Implementation Plan. In FY05, the district completed Basin Plans for six basins as listed in the strategy. All operations located in these basins will be tracked in the AOP Summary Table (Salmon Anchor Habitat Table) and any Basin Plan modifications will be addressed in the Operation by Basin section in the Summary Document and in the individual Pre-operations Report.

Public Information and Education

The district will maintain supporting information for the Implementation Plan, Land Management Classification System, and Annual Operations Plans for public review. Public involvement will include public review and input on the FY06 Annual Operations Plan. District personnel will participate in public education opportunities such as assisting the Tillamook Forest Education and Interpretation program, watershed council meetings, recreation planning meetings, school field trips and other public events as the opportunity arises. The district will continue to meet with concerned citizens or groups when they have specific questions.

The Tillamook Forest Center will operate at its location on Cedar Creek Flat. Typical activities on-site during this time will include: routine maintenance of the building and grounds; guided and self-guided public use of the trails; access to the river by interpretive trails; continued but minor management activities in the demonstration forest. The Center is expected to host more than 100,000 people per year, generating a fair amount of automobile traffic at the site.

Administration

There are currently 41 permanent positions and 6 limited duration positions on the Tillamook District responsible for implementing the 2007 Annual Operations Plan. These positions are divided into five functional groups: Forest Management, Engineering, Reforestation, Recreation, and Administration. See the attached organizational chart.

There are three forest management units (North, Central, South) responsible for all aspects of timber marketing. These activities include planning, unit layout, assisting with road layout and design, timber cruising, timber sale appraisal, contract writing, and contract administration. These units prepare the Pre-Operations Reports for the AOP. The units also manage firewood sales, and special forest products such as moss, ferns and salal.

The engineering unit is responsible for all aspects of road engineering and land surveying. These activities include road design and layout, rock pit development, road maintenance, property line location, road construction and improvement appraisals, contract preparation, and road contract administration.

The reforestation unit is responsible for all activities in forest plantations from the time the harvesting is complete through pre-commercial thinning. The activities of this unit include site preparation, trapping, tree planting, vegetation management, tree improvement, and pre-commercial thinning. The reforestation unit also coordinates South Fork crews and administers contracts to complete these tasks.

The recreation unit is responsible for implementation of the *Tillamook State Forest Recreation Action Plan 2000* and operation of the overall recreation program including facility maintenance. Program elements include the operation and maintenance of campgrounds, day use areas, trailheads, staging areas, motorized and non-motorized trails, boat ramps, event management, South Fork crew coordination, law enforcement coordination, volunteer recruitment and management, and contract administration. The recreation unit also reviews AOP documents and works closely with the forest management units for trail protection during operations or trail rehabilitation after operations.

Administration consists of the District Forester, Assistant District Forester, Office Manager, Purchasing Specialist, and two Office Specialists. The District Forester and Assistant District Forester provide policy direction, budget development, and oversight to the field units.

The Office Manager, Purchasing Specialist, and Office Specialists provide clerical support to State Forest Management. These positions are responsible for initial public contact, distribution and filing of documents, and providing assistance at timber sale auctions. The Office Specialist is also responsible for issuing permits for firewood cutting, and special forest products.

The GIS Specialist and Operations Coordinator act as coordinators between all of the above units. The GIS Specialist assists the units with creating GIS displays for timber sale layout, contracts, and planning documents. The GIS manager also completes maintenance and timely updates to the GIS database and provides overall IT support. The Operations Coordinator works between units for consistency as well as completing other planning documents. The Coordinator also acts as the contract administrator for T&E surveys.

Each of these units is responsible for ensuring the management approaches, activities, and projects are designed to meet the goals, strategies, and objectives of the FMP, Implementation Plan, AOP, and Recreation Plan. The sales and projects are coordinated across the district from the development of the AOP to the final sale administration for consistency within and between units to meet common goals.

APPENDIXES

A. Summary Tables (use AOP_Summary.xls)

- A-1 Timber Harvest Operations – Fiscal Summary
- A-2 Timber Harvest Operations – Integrated Strategies Summary
- A-3 Forest Roads Management Fiscal Summary
- A-4 Young Stand Management Fiscal Summary
- A-5 Recreation Management Fiscal Summary
- A-6 SAH

B. Pre-Operations Reports

- Vicinity Map (1; showing all Commercial Operations) relative to the district ownership.
- Pre-Operations Reports (including maps and Biologic Assessments [for those operations requiring them]).