FINAL Meeting Notes
Lewis River License Implementation
Terrestrial Coordination Committee (TCC) Meeting
September 12, 2007
Longview, WA

TCC Participants Present: (9)

Brock Applegate, WDFW
Kendel Emmerson, PacifiCorp Energy
Diana Gritten-MacDonald, Cowlitz PUD
Eric Holman, WDFW
Mike Iyall, Cowlitz Indian Tribe
Curt Leigh, WDFW (via teleconference: 10:00am – 11:30am)
Kimberly McCune, PacifiCorp Energy
Kirk Naylor, PacifiCorp Energy
Bob Nelson, RMEF

Calendar:

October 10,2007	TCC Meeting	Lacey, WA
October 11, 2007	ACC Meeting	Merwin Hydro Facility

Assignments from September 12th Meeting:	
Naylor/Emmerson: Incorporate the following text into the Forest Management chapter of the WHMP, "*Prior to any harvest, the areas will be evaluated (ground truth) to determine whether or not the area qualifies as NSO habitat "*.	**In process**
McCune: Email Attachment C, Management Alternatives relating to HEP assumptions to the TCC for their review.	**Complete – 9/14/07**
Emmerson: Revise the NSO memorandum, distribute to the TCC and request final approval at the October 10, 2007 TCC meeting.	**Complete – 9/20/07**

Assignments from August 8th Meeting:	
McCune: Draft a letter to Mike Hayden of the Cougar Area Trail Seekers informing him of the TCC's decision on his proposal.	**Complete – 8/10/07**
Emmerson: Mink Memorandum, Corrections for Mink Habitat Suitability Index Approval	**Complete – 9/28/07**
McCune: Email link to TCC for the FERC - Guidance for Shoreline Management Planning at Hydro Projects	**Complete – 8/8/07**
Emmerson/Naylor: Propose language within the Wetlands Chapter portion of the WHMP that veers away from the Line Intercept Method as proposed in Objective B of the Standards & Guidelines and present to the TCC for review and approval.	**Complete – 9/12/07**

Parking lot items from February 10th Meeting:	
PacifiCorp Wildlife Habitat Management Plan (WHMP) Budget (annual)	
Conservation Agreement – what is wanted?	**Ongoing – 4/28/06**

Review of Agenda

Kirk Naylor (PacifiCorp Energy) called the meeting to order at 9:05am. Naylor conducted a review of the agenda for the day and requested if the TCC had any additions to the agenda.

Finalize Meeting Notes

Naylor reviewed the TCC Draft 8/08/07 meeting notes with the TCC attendees, updated the assignment portion and asked for any comments and/or additional changes. The following modification was requested relating to the Wetlands Objective Discussion.

Modify text on page 4, fourth paragraph as follows:

Applegate agreed with the ocular estimate for identifying the forested wetlands with less than 20 percent shrub cover, but felt that the HEP should measure the 5% change. PacifiCorp explained that the HEP might not likely measure the 5% change in shrub cover. Applegate reminded PacifiCorp that the Settlement Agreement uses the HEP to measure changes in vegetation cover and management objective targets. However, PacifiCorp's concerns with the HEP not detecting a 5% increase in shrub cover may be a valid one.

The meeting notes were accepted at 9:20am with some changes as submitted via email by WDFW and modified by the TCC.

Lands Update Discussion

Naylor provided an update relating to interests in certain lands, however, this discussion is considered confidential and proprietary and not for public viewing.

Definition of Vegetation Cover types as NSO Suitable Habitat

Kendel Emmerson (PacifiCorp Energy) provided a memorandum dated August 24, 2007 for TCC review and comment titled, "*Classification of Vegetation Cover Types as Suitable Northern Spotted Owl Habitat - Lewis River Wildlife Habitat Management Area*" (Attachment A). The memorandum identifies the vegetation cover types that are suitable NSO habitat and further classifies cover types into nesting, roosting, foraging, and dispersal habitat. Both the Washington Department of Natural Resources (DNR) Forest Practice Act and the U.S.F.S. Gifford Pinchot National Forest suitable NSO habitat definitions have been used in determining which vegetation cover types meet suitable NSO habitat specifications.

Upon review and further discussion, the TCC attendees agreed to modify the last sentence of the first paragraph on page 1 to read as follows:

Because the specific age-class, species of trees, structure, area, and food sources vary throughout the range of the species, suitable habitat specifications are generally developed by the local agencies and landowners as necessary.

In addition, on page 5, modify the NSO Dispersal Habitat to read as follows:

NSO DISPERSAL HABITAT (OLD-GROWTH CONIFER [OG AND OG- T], MATURE CONIFER [M AND M-T], MID-SUCCESSIONAL [MS AND MS- T], UPLAND MIX [UM AND UM- T], RIPARIAN MIXED (RM AND RM-T) AND POLE CONIFER [P AND P- T] STANDS)

NSO Roosting and Foraging Habitat (Old-growth Conifer [OG and OG- t], Mature Conifer [M and M-t], Mid-successional [MS and MS- t], Riparian Mixed (RM, RM-t), and Upland Mix [UM and UM- t] stands)

In addition, Applegate requested that Table 1.2 at the end of the chapter read "Yes" for Riparian Mixed column for suitable habitat and add roosting and foraging to the habitat type.

Applegate (WDFW) requested that Riparian Mixed (and thinned) receive the same treatment as Upland Mixed (and thinned) because the definitions of the two cover types are identical except for one cover type resides in the riparian area and the other resides in the upland. Applegate gave his professional opinion that spotted owls frequent riparian areas more often than uplands, especially when considering foraging habitat.

The TCC agreed that Table 1.2 in PacifiCorp's memorandum should act as a trigger to investigate further, when management actions would occur in vegetation cover types listed in the table. The TCC attendees also agreed that potential NSO habitat will always be a consideration throughout the implementation of the Lewis River Wildlife Management Plan (WHMP).

Eric Holman (WDFW) requested Naylor include a statement in the NSO Suitable Habitat memorandum that references that areas will be evaluated (ground truth) to determine if the area qualifies as NSO habitat prior to proposing to the TCC with plans to harvest.

In addition, Naylor and/or Emmerson will incorporate the following text into the Forest Management chapter of the WHMP, "*Prior to any harvest, the areas will be evaluated (ground truth) to determine whether or not the area qualifies as NSO habitat*".

The TCC attendees further expressed that the intent of the committee is to convey to those implementing the WHMP that triggers are needed for the appropriate WHMP chapters so the TCC goes out and reviews potentially suitable NSO habitat.
Emmerson will revise the memorandum, distribute to the TCC and request final approval at the October 10, 2007 TCC meeting.

<Break 10:20am>
<Reconvene 10:30am>

Wetlands Objective Discussion

Kendel Emmerson (PacifiCorp Energy) provided a memorandum dated August 30, 2007 for TCC review and comment titled, "*Proposed Revisions to the Lewis River Wildlife Habitat Management Plan Standards and Guidelines Wetland Habitat Objective B*" (Attachment B). The purpose of this memorandum is to document the rationale and revisions to the Lewis River Wildlife Habitat Management Plan (WHMP) Standards and Guidelines Wetland Habitat Objective B.

General discussion took place relating to the habitat evaluation procedure (HEP) study baseline data, ocular estimates for identifying the forested wetlands and number of transects required for HEP study plots.

The TCC attendees agreed that the focus for now is to increase shrub coverage in the wetland habitat and at year 17 repeat the HEP with the similar amount of effort with the same methodology in accordance with the Lewis River Settlement Agreement.

Emmerson proposed that we not change the language in the WHMP Standards and Guidelines document but rather state that this is our understanding and intent by way of the August 30, 2007 memorandum and the above paragraph into the Wetland Chapter of the WHMP.

Emmerson also referenced a document titled, "*Management Alternatives*" (Attachment C) relating to the HEP assumptions explaining the rational and thought during the relicensing period. Kimberly McCune (PacifiCorp Energy) will email Attachment C to the TCC for their review and as such this document will be attached to these meeting notes for historical record.

Shoreline Management Plan (SMP) – Public Meeting Update

McCune informed the TCC attendees that approximately 80 people attended the public SMP meeting that took place on August 22, 2007 at the Lewis River Golf Course. McCune communicated that the consultants (Kleinschmidt) presented the same PowerPoint presentation to the public as was provided to the TCC in early August. During the Q&A period the public had questions and comments relating to existing docks, building new docks, water levels during recreation season, erosion concerns, deepwater boat ramps, and where is the FERC boundary located to name a few.

As a result of this meeting, Todd Olson (PacifiCorp Energy) has scheduled two additional public meetings to take place in Woodland, WA as follows to address the public concerns outside the scope of the SMP:

September 13, 2007, 7:00pm – 9:00pm: Pubic Invite to Discuss Lewis River Shoreline Erosion Issues

October 17, 2007, 7:00pm – 9:00pm: Public Invite to Learn about the Lewis River Settlement Agreement and new Federal Energy Regulatory Commission licenses for continued operation of the Lewis River hydroelectric projects (Attachment D - Lewis River Public Meeting Invitation – Implementation of Settlement Agreement).

Applegate (WDFW) expressed an interest in TCC approval of the SMP before PacifiCorp sends it to FERC because the Settlement Agreement would define the approximately 10-foot boundary around the reservoirs as wildlife lands, a TCC major concern. Curt Leigh (WDFW) expressed that he wanted to make sure the TCC is part of the review process as the SMP is developed. Naylor assured the TCC attendees that the WHMP goals and objectives will be incorporated in to the SMP and that both the ACC & TCC will have ample time for review and comment to address all aquatic and terrestrial concerns relating to wildlife lands. If any of the approximately 10-foot boundary of PacifiCorp ownership around the reservoir would become unavailable for wildlife habitat, Leigh (WDFW) reminded PacifiCorp that under 10.8.5.5 in the Settlement Agreement that PacifiCorp will consult with the TCC to determine if PacifiCorp will have to mitigate for that loss.

Relicensing Schedule Update

National Marine Fisheries Service (NMFS) submitted their BiOp to the FERC on August 27, 2007. Based on information available at this time PacifiCorp is estimating license issuance on or about January, 2008.

New Topics/Issues

Forestry and Logging Update – Naylor informed the TCC attendees that the log markets crashed last week and the lumber mill will take no more than two loads per day, which is not economical for the loggers. Harvesting the 3 – 10 acre clear-cuts was not started. However, Naylor gave permission to continue construction of the road. PacifiCorp anticipates picking up again next year after August 15, 2008 and resurveying (two broadcast Goshawk surveys) next spring and early summer 2008. While mill restrictions are not uncommon, it is unprecedented to Naylor for this to occur.

Next Meeting's Agenda

- Lands Update Discussion
- Definition of vegetation cover types as NSO suitable habitat
- Mink Memorandum, Corrections for Mink Habitat Suitability Index Approval

Meeting adjourned at 11:30am.

Next Scheduled Meetings

October 10, 2007	**November 14, 2007**
USFWS	Cowlitz PUD
Lacey, WA	Longview, WA
9:00am – 3:00pm	9:00am – 3:00pm

Handouts

1. Agenda
2. Draft meeting notes from 8/08/07
3. Classification of Vegetation Cover Types as Suitable Northern Spotted Owl Habitat - Lewis River Wildlife Habitat Management Area, Attachment A

4. Proposed Revisions to the Lewis River Wildlife Habitat Management Plan Standards and Guidelines Wetland Habitat Objective B, Attachment B
5. Management Alternatives, Attachment C
6. Lewis River Public Meeting Invitation – Implementation of Settlement Agreement, Attachment D

Attachment A

PACIFICORP ENERGY
A MIDAMERICAN ENERGY HOLDINGS COMPANY

MEMORANDUM

DATE: August 24, 2007

TO: Terrestrial Coordination Committee

FROM: Kendel Emmerson

SUBJECT: Classification of Vegetation Cover Types as Suitable Northern Spotted Owl Habitat - Lewis River Wildlife Habitat Management Area

Suitable habitat for northern spotted owls is described as an "area of forest vegetation with the age-class, species of trees, structure, sufficient area, and adequate food source to meet some or all of the life needs [i.e., nesting, roosting, and foraging] of the spotted owl" (U.S. Fish and Wildlife Service 2007). In general, mature forests provide the structure and characteristics required for suitable northern spotted owl (NSO) habitat. Because the specific age-class, species of trees, structure, area, and food sources vary throughout the range of the species, suitable habitat specifications are generally defined by the local agencies and landowners.

Lewis River Wildlife Habitat Management Plan (WHMP) vegetation cover types were not developed in recognition of existing agencies definitions for suitable NSO habitat. Specifically, the cover type definitions did not specify the number of trees per acre, tree height, and understory layers that make definitions directly convertible. This has lead to confusion as to what vegetation cover types meet suitable NSO habitat. The Terrestrial Coordinating Committee (TCC) seeks to clarify and document which of the vegetation cover types meet suitable NSO habitat based on existing agency definitions.

This memo identifies the vegetation cover types that are suitable NSO habitat and further classifies cover types into nesting, roosting, foraging, and dispersal habitat. Both the Washington Department of Natural Resources (DNR) Forest Practice Act and the U.S.F.S. Gifford Pinchot National Forest suitable NSO habitat definitions have been used in determining which vegetation cover types meet suitable NSO habitat specifications.

Vegetation Cover Type

In 2000 and 2001 all WHMP lands and adjacent areas had existing vegetation mapped as cover types using a classification system that was based upon the Integrated Landscape Management plan (WDFW 1998) and National Wetlands Inventory wetland/deepwater classification (Cowardin et al. 1979). The classification system was modified to meet the

vegetation cover type needs for Habitat Evaluation Procedure target species and developed as a decision-making key to classify the vegetation cover types (Table 1.1).

Table 1.1 Cover Type Mapping Decision-making Key for the Lewis River Study Area[1]

Classification Description	Cover Type or Group	Cover Type Code
1a. Site characterized by upland vegetation types.	Upland	go to 2
[2]a. Greater than 10% forested (20 ft) canopy coverage.	Forested	go to 3
3a. Greater than 70% of canopy coverage is composed of conifer.	Conifer Forest	go to 4
4a. Site composed of Lodgepole Pine.	Lodgepole Pine	LP
4b. Site is not on lava flow; canopy composed of conifer species.	Mixed Species Conifer Forest	go to 5
5a. Avg. stand diameter > 26" dbh. Stands forming a multi-layered canopy with occasional small openings. Greater than 4 snags/acre > 20" dbh. Greater horizontal and vertical canopy structure than is generally found in mature conifer stands.	Old-Growth Conifer Forest	go to 6
6a Stand has not been thinned[2].	Old-Growth Conifer	OG
6b. Stand has been thinned since late 1980s.	Old-Growth Conifer--thinned	OG-T
5b. Avg. stand diameter 21"-26" dbh. Canopy structure has a relatively uniform vertical and horizontal texture.	Mature Conifer Forest	go to 7
7a Stand has not been thinned[2].	Mature Conifer	M
7b Stand has been thinned since late 1980s	Mature Conifer-thinned	M-t
5c. Avg. stand diameter 16"-20" dbh. Even-aged stands with relatively uniform structure.	Mid-Successional Conifer Forest	go to 8
8a. Stand has not been thinned[2].	Mid-Successional Conifer	MS
8b. Stand has been thinned since late 1980s.	Mid-Successional Conifer-thinned	MS-t
5d. Avg. stand diameter 8"-15" dbh. Even-aged stands with relatively uniform structure.	Pole Conifer Forest	go to 9
9a. Stand has not been thinned[2].	Pole Conifer	P
9b. Stand has been thinned since late 1980s.	Pole Conifer--thinned	P-t
5e. Avg. stand diameter < 8" dbh.	Seedling/Sapling Conifer Forest	SS
5f. Very recent clearcut with no more than seedlings.	New Clearcut	SS1
3b. Greater than 30% and less than 70% conifer or deciduous forest.	Mixed Conifer/Deciduous Forest	go to 10
10a. Mixed forest with trees > 10" dbh located outside of riparian zone[3].	Upland Mixed Conifer/Deciduous Forest	go to 11
11a. Stand has not been thinned[2].	Upland Mixed	UM
11b. Stand has been thinned since late 1980s.	Upland Mixed--thinned	UM-t
10b. Mixed forest with trees < 10" dbh located outside of riparian zone[3].	Young Upland Mixed Conifer/Deciduous Forest	YUM
10c. Mixed forest with trees > 10" located within riparian zone[3].	Riparian Mixed Conifer/Deciduous Forest	go to 12
12a. Stand has not been thinned[2].	Riparian Mixed	RM
12b. Stand has been thinned since late 1980s.	Riparian Mixed--thinned	RM-t
10d. Mixed forest with trees < 10" dbh located within riparian zone[3].	Young Riparian Mixed Conifer/Deciduous Forest	YRM
3c. Greater than 70% deciduous canopy coverage.	Deciduous Forest	go to 13
13a. Deciduous forest with trees > 10" dbh located outside of riparian zone[3]. Not oak dominated.	Upland Deciduous Forest	go to 14
14a. Stand has not been thinned[2].	Upland Deciduous	UD
14b. Stand has been thinned since late 1980s.	Upland Deciduous--thinned	UD-T
13b. Deciduous forest with trees < 10" dbh located outside of riparian zone[3]. Not oak dominated.	Young Upland Deciduous Forest	YUD
13c. Deciduous forest located within riparian zone[3].	Riparian Deciduous Forest	go to 15
15a. Stand has not been thinned[2].	Riparian Deciduous	RD
15b. Stand has been thinned since late 1980s.	Riparian Deciduous --thinned	RD-T
13d. Deciduous shrubs located within riparian zone[3].	Riparian Deciduous Shrubland	RS
13e. Upland site dominated by oak.	Oak Woodland	OW
2b. Less than 10% forested canopy coverage.	Non-Forested	go to 16
16a. Comprised of >30% vegetation cover.	Vegetated	go to 17
17a. Ground cover consists of greater than 50% shrub species.	Shrubland	SH
17b. Ground cover consists of greater than 50% grass species.	Dry Meadow/Grassland	MD
17c. Riparian area dominated by forbs and grasses.	Riparian Grassland	RG
16b. Ground area is comprised of >70% exposed rock.	Non-Vegetated	go to 18
18a. Ground area consists of rock rubble.	Rock Talus	RT

Table 1.1 Cover Type Mapping Decision-making Key for the Lewis River Study Area (cont.)[1].		
Classification Description	**Cover Type or Group**	**Cover Type Code**
18b. Ground area consists of solid rock cliffs and slopes.	Rock Outcropping	RO
18c. Area is exposed bare ground due to natural disturbance events.	Unvegetated	UV
1b. Site characterized by open water or wetland vegetation, soils, and hydrology.	Wetland/Deepwater	go to 19
19a. Channel that contains moving water.	Riverine	go to 20
20a. Riverine habitat with unconsolidated substrate and < 30% vegetative cover.	Unconsolidated Bottom (open water)	RUB
20b. Riverine habitat intermittently flooded or exposed with unconsolidated substrate and < 30% vegetative cover, except pioneering plants.	Unconsolidated Shore (gravel bars)	RUS
19b. Topographic depression exceeding 20 acres is size with less than 30% areal cover of trees, shrubs, and emergent vegetation.	Lacustrine	Go to 21
21a. Lacustrine habitat with unconsolidated substrate and < 30% vegetative cover.	Unconsolidated Bottom (lake-limnetic zone)	LUB
21b. Lacustrine habitat intermittently flooded or exposed with unconsolidated substrate and < 30% vegetative cover, except pioneering plants.	Unconsolidated Shore (lake-littoral zone)	LUS
21c. Wetlands dominated by submerged, trees, shrubs, and emergent vegetation or less than 20 acres in size.	Palustrine	go to 22
22a. Palustrine habitat with unconsolidated substrate and < 30% vegetative cover.	Unconsolidated Bottom (pond-open water)	PUB
22b. Palustrine habitat with > 30% submerged or floating-leaf hydrophyte cover.	Aquatic Bed	PAB
22c. Palustrine habitat with emergent herbaceous hydrophytes present throughout most of the growing season.	Emergent Wetland	PEM
22d. Palustrine habitat dominated by woody shrubs and stunted trees, less than 20 ft tall.	Scrub-Shrub Wetland	PSS
22e. Palustrine habitat dominated by woody vegetation greater than 20 ft tall.	Forested Wetland	PFO
1c. Site characterized by human disturbance, development, or modification.	Disturbed/Modified	go to 23
23a. Area is within the cleared transmission line right-of-way corridor. Type code is used as a modifier to other cover type categories.	Transmission Line ROW	ROW
23b. Within the boundary of recreation facility.	Recreational	REC
23c. Area is annually seeded or planted with row crops and harvested for commercial agricultural use.	Agriculture	AG
23d. Area is dominated by grasses and forbs and is managed as a pasture .	Pasture	PA
23e. Agricultural land composed of cultivated fruit trees.	Orchard	OR
23f. Developed with commercial buildings and/or facilities that are not PacifiCorp owned.	Developed	DV
23g. Developed with buildings and/or facilities that are part of project.	Project Facility	PF
23i. Exposed bare ground due to human caused activities or contains non-native invasive shrub species.	Disturbed	DI

1 PacifiCorp and Cowlitz PUD 2004 (Figure 5.1-1)
[2] Thinned stands are those that have undergone a selected harvest of codominant or subdominant trees, resulting in a reduction in total tree canopy coverage.
[3] Riparian zone has variable width and contains elements of aquatic and terrestrial ecosystems which mutually influence each other (Knutson and Naef 1997).

The decision-making key grouped all areas that were greater than 10 percent forested based on canopy coverage and greater than 20 feet in height into forested habitat. The forested habitats were further grouped by the following criteria:

- Conifer Forest = greater than 70 percent of canopy coverage and is composed of conifer
- Mixed Conifer/Deciduous Forest = greater than 30 percent and less than 70 percent conifer or deciduous forest

- Deciduous Forests = greater than 70 percent deciduous canopy

Because northern spotted owls are strongly associated with coniferous forest, only the vegetation cover types that are within the Conifer Forest and Mixed Conifer/Deciduous Forest groups are considered potential suitable NSO habitat. The vegetation cover types and their associated spotted owl habitat are listed in Table 1.2.

Washington Department of Natural Resources Forest Practices Act

The DNR Forest Practices Act (FPA) regulates timber harvest activities on private lands throughout the state of Washington. The Washington Forest Practices Board is responsible for creating rules (Washington Administrative Codes [WAC]) to protect the state's public resources while maintaining a viable timber industry. WAC 222-16-085 Northern Spotted Owl Habitats describes the stand characteristics that provide nesting, roosting, foraging (i.e., suitable NSO habitat), and dispersal habitat for northern spotted owls. This description is in Table 1.2.

Gifford Pinchot National Forest

The Gifford Pinchot National Forest uses a nesting, roosting, and foraging habitat definition from the Judge Dwyer decision of March 29, 1993. This defines suitable NSO habitat as stands with a multi-layered canopy, numerous large snags and down wood, and a canopy closure that is greater than 40 percent (PacifiCorp and Cowlitz PUD 2006). Table 1.2 provides the specifications.

United States Fish and Wildlife Service

As part of relicensing, PacifiCorp consulted with the United States Fish and Wildlife Service (USFWS) under the Section 7 of the Endangered Species Act of 1973 on the actions required for relicensing of the Lewis River Hydroelectric Projects and the actions contained in the Settlement Agreement (PacifiCorp et al. 2004). This included consulting on the WHMP Standards and Guidelines Document (PacifiCorp and Cowlitz PUD 2006). Consultation on the WHMP's Forestlands Chapter required the utilities to identify the Conifer Forests and Mixed Conifer/Deciduous Forest cover types that meet suitable NSO habitat and dispersal habitat. These vegetation cover types are identified in Table 1.2.

Management of Suitable NSO Habitat per the Biological Opinion

As a result of the Section 7 consultation, the USFWS issued a Biological Opinion that determined that the level of incidental take is not likely to jeopardize the continued existence of the spotted owl (USFWS 2006). In implementing WHMP standards and guidelines, the utilities agreed to comply with the Washington's FPA and to protect identified NSO sites and suitable NSO habitat through the following conservation measures (USFWS 2006):

NSO Nesting Habitat (Old-growth Conifer [OG and OG- t] and Mature Conifer [M and M-t] Stands)

- The only forest management activity that would occur in NSO nesting habitat would be snag creation
- Snags would be created outside of the critical nesting period (March 1 to July 15) to prevent disturbance to nesting spotted owls.

NSO Roosting and Foraging Habitat (Old-growth Conifer [OG and OG- t], Mature Conifer [M and M-t], Mid-successional [MS and MS- t], and Upland Mix [UM and UM-t] stands)

- To achieve the goals of promoting late-successional stand structure, snag creation and commercial thinning may occur in NSO roosting and foraging habitat without degrading the habitat.
- To provide a mosaic of big game hiding cover and forage clearcut harvesting (10 to 30 ac in size) may be conducted in NSO roosting and foraging habitat. No more than 65 acres of mid-successional and upland mix vegetation may be harvested per year. This equates to 3,283 acres or 63 percent of the 5,238 acres of the extant of suitable NSO roosting and foraging habitat on PacifiCorp-owned lands being harvest over the next 50 years.
- To prevent disturbance to nesting spotted owl, the noise and smoke Limited Operating Periods (LOPs) would apply to these activities (USFWS 2006 Table 11 and PacifiCorp and Cowlitz PUD 2006 Table 4-4).

NSO Dispersal Habitat (Old-growth Conifer [OG and OG- t], Mature Conifer [M and M-t], Mid-successional [MS and MS- t], Upland Mix [UM and UM- t], and Pole Conifer [P and P- t] Stands)

- Commercial thinning and snag creation may occur in pole conifer cover type without degrading the dispersal habitat. Commercial thinning will improve the habitat's dispersal function by allowing greater flying space between the trees and promoting understory. Snag creation will increase the stand structure and promote habitat for prey.
- To provide a mosaic of big game hiding cover and forage, clearcut harvesting may occur in pole conifer cover type as long as the Utility-owned lands maintain at least 50 percent of dispersal habitat or better at any point of time.
- To prevent disturbance to nesting spotted owl, the noise and smoke Limited Operating Periods (LOPs) would apply to these activities (USFWS 2006 Table 11 and PacifiCorp and Cowlitz PUD 2006 Table 4-4).

Table 1.2: A Comparison Between Washington Department of Natural Resources Forest Practice Act, Gifford Pinchot National Forests, and Lewis River Wildlife Habitat Management Plan Vegetation Cover Types for Northern Spotted Owl Suitable Habitat Definition

Washington Department of Natural Resource Forest Practices Act[1]

HABITAT TYPE	Suitable Habitat[2]	Habitat Type	Forestry Community	Canopy Closure	Tree Size, Density and Height	Snag and Cavity Trees	Down Wood
Old Forest Habitat	Yes	Nesting, Roosting Foraging, Dispersal	A layered, multispecies canopy	≥ 60%	≥ 50% of the canopy closure is provided by large overstory trees (typically, there should be at least 75 trees > 20 in. dbh per acre, or at least 35 trees ≥ 30 in. dbh per acre)	≥ 3 snags or trees ≥ 20 in. dbh and 16 ft. in height with various deformities (e.g. large cavities, broken tops, dwarf mistletoe infections, and other indications of decadence)	≥ 2 fallen trees ≥ 20 in. dbh per acre and other woody debris on the ground.
Sub-mature Habitat	Yes	Roosting, Foraging, Dispersal	Conifer-dominated or conifer-hardwood (≥ 30% conifer)	≥ 70%	115-280 trees/acre (≥ 4 in. dbh) with dominants/codominants ≥ to 85 ft. high or dominants/codominants ≥ 85 ft. high with 2 or more layers and 25-50% intermediate trees	≥ 3 snags or cavity trees/acre (≥ 20 in. dbh and 16 ft. in height)	–––
Young Forest Marginal Habitat	Yes	Roosting, Foraging, Dispersal	Conifer-dominated or conifer-hardwood (≥ 30% conifer)	≥ 70%	115-280 trees/acre (> 4 in. dbh) with dominants/codominants ≥ to 85 ft. high or dominants/codominants ≥ 85 ft. high with 2 or more layers and 25-50% intermediate trees	≥ 2 snags or cavity trees /acre (≥ 20 in. dbh and 16 ft. in height)[3]	≥ 10% of the ground covered with 4 in. diameter or larger wood with 25-60% shrub cover[3]
Dispersal Habitat	No	Dispersal	≥ 70% conifer species and a minimum of 20 ft. between the top of the understory vegetation and bottom of the live canopy, with boles relatively clear of dead limbs	≥ 70%	≤ 300 trees per acre, > 70% of conifer species are ≥ 6 in. dbh, ≥ 130 trees per acre with ≥ 10 in. dbh or a basal area of 100 ft^2 of ≥ 10 in. dbh	–––	–––

USDA-Forest Service Suitable Nesting Habitat Definition[4]

Habitat Type	Suitable Habitat[2]	Habitat Type	Forestry Community	Canopy Closure	Tree Size, Density and Height	Snags and Cavity Trees	Down Wood
Nesting, Roosting, and Foraging Habitat	Yes	Nesting, Roosting, Foraging, Dispersal	Multi-layered canopy	≥ 40%	Stands that are least 16 in. average dbh with at least 4 tree/acre that are ≥ 30 in. dbh or larger	Numerous large snags (typically > 2 per acre)	Numerous down logs (typically > 15 tons/acre
Dispersal	No	Dispersal	–––	≥ 40%	Average minimum stand dbh is 11 in.	–––	–––

Lewis River Wildlife Habitat Management Plan Vegetation Cover Type[5]

Habitat Type / Vegetation Cover Type			Suitable Habitat[2]	Habitat Type	Forestry Community	Canopy Closure	Tree Size, Density and Height	Snags and Cavity Trees	Down Wood
Group	Type	Code[5]							
Conifer Forest	Lodgepole Pine	LP	No	None	> 70% of the canopy is composed of conifer and site is composed of lodgepole pine	> 70%	–––	–––	–––
	Old-growth Conifer Forest	OG OG-t[6]	Yes[7]	Nesting, Roosting, Foraging, Dispersal	> 70% of the canopy is composed of conifer stands forming multi-layered canopy with occasional small openings. Greater horizontal and vertical canopy structure then is generally found in mature conifer stands.	> 70%	Average stand diameter >26 in. dbh.	> 4 snags/acre >20 in. dbh	–––
	Mature Conifer Forest	M M-t[6]	Yes[7]	Nesting, Roosting, Foraging, Dispersal	> 70% of the canopy is comprised of conifer Canopy structure has a relatively uniform vertical and horizontal texture.	> 70%	Average stand diameter 21 in. to 26 in. dbh.	–––	–––
	Mid-Successional Conifer Forest	MS MS-t[6]	Yes[7]	Roosting, Foraging, Dispersal	> 70% of the canopy is composed of conifer Even-aged stands with relative uniform structure.	> 70%	Average stand diameter 16 in. to 20 in. dbh.	–––	–––

Table 1.2: A Comparison Between Washington Department of Natural Resources Forest Practice Act, Gifford Pinchot National Forests, and Lewis River Wildlife Habitat Management Plan Vegetation Cover Types for Northern Spotted Owl Suitable Habitat Definition

Lewis River Wildlife Habitat Management Plan Vegetation Cover Type[4]									
Habitat Type			**Suitable Habitat[2]**	**Habitat Type**	**Forestry Community**	**Canopy Closure**	**Tree Size, Density and Height**	**Snags and Cavity Trees**	**Down Wood**
Vegetation Cover Type									
Group	Type	Code[5]							
Conifer Forest	Pole Conifer Forest	P P-t[6]	No	Dispersal	>70% of the canopy is composed of even-aged conifer stands with relative uniform structure.	> 70%	Average stand diameter 8 in. to 15 in. dbh.	–––	–––
	Seedling/Sapling Conifer Forest	SS	No	None	>70% of the canopy is composed of conifer	> 70%	Average stand diameter < 8 in. dbh	–––	–––
	New Clearcut	SS1	No	None	>70% of the canopy is composed of conifer. very recent clearcut with no more than seedlings	> 70%	–––	–––	–––
Mixed Conifer/Deciduous Forest	Upland Mixed	UM UM-t[6]	Yes[7]	Roosting, Foraging, Dispersal	>30% and <70% mixed conifer and deciduous forest and located outside of riparian zone	> 30% and < 70%	Trees > 10 in. dbh	–––	–––
	Riparian Mixed	RM RM-t[6]	No	Dispersal	>30% and <70% mixed conifer and deciduous forest and located within riparian zone	> 30% and < 70%	Trees > 10 in. dbh	–––	–––
	Young Upland Mixed	YUM	No	None	>30% and <70% mixed conifer and deciduous forest and located outside of riparian zone	> 30% and < 70%	Trees < 10 in. dbh	–––	–––
	Young Riparian Mixed	YRM	No	None	>30% and <70% mixed conifer and deciduous forest and located within riparian zone	> 30% and < 70%	Trees < 10 in. dbh	–––	–––

[1] Source: Washington Administration Code WAC 222-16-085 Northern Spotted Owl Habitats
[2] Suitable habitat here is meant to be an area of forest vegetation with the age-class, species of trees, structure, sufficient area and adequate food source to meet some or all of the life needs of the spotted owl (U.S Fish and Wildlife Service 2007).
[3] Young Forest Marginal Habitat must meet either snag and cavity trees or down wood definitions, but not both.
[4] Source: PacifiCorp and Cowlitz PUD 2006
[5] Source: PacifiCorp and Cowlitz PUD 2004
[6] Code with a –t are areas that have been commercially thinned since the late 1980s.
[7] Source: U.S Fish and Wildlife Service 2006

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Attachment B

MEMORANDUM

DATE: August 30, 2007

TO: Terrestrial Coordination Committee

FROM: Kendel Emmerson

SUBJECT: Proposed Revisions to the Lewis River Wildlife Habitat Management Plan Standards and Guidelines Wetland Habitat Objective B

The purpose of this memo is to document the rationale and revisions to the Lewis River Wildlife Habitat Management Plan (WHMP) Standards and Guidelines Wetland Habitat Objective B. Objective B is stated as follows (PacifiCorp and Cowlitz PUD 2006):

> *Identify forested wetlands with < 20 percent shrub cover and manage to increase overall shrub cover by at least an additional 5 percent (as determined by the line intercept method) without tree harvest by Target Year (TY) 17 to benefit the yellow warbler and mink.*

PacifiCorp's August 1, 2007 memo identified the intensive labor and costs associated with implementing the line intercept sampling method for wetlands that is statistically accurate enough to detect a 5 percent change in shrub cover means over time. This information was provided to the Terrestrial Coordination Committee (TCC) and discussed at the August 8, 2007 TCC meeting. Washington Department of Fish and Wildlife (WDFW) submitted further comment in an August 24, 2007 email from Brock Applegate addressed to the TCC. This email requested that the TCC not revise the objective and follow the original intent of the Habitat Evaluation Procedure (HEP) Team. PacifiCorp reviewed relicensing documents to determine the background and original intention of Objective B and this is discussed in the following sections.

Habitat Evaluation Procedure Study Baseline Data

It was suggested at the August 8, 2007 TCC meeting that the Habitat Evaluation Procedure (HEP) study provided the baseline data for shrub cover in palustrine forested wetlands. The HEP study area included all lands owned by PacifiCorp, Eagle Island, U.S. Forest Service lands in Drift Creek and Pine Creek, and private lands that have the potential to be used for wildlife mitigation or enhancement. The HEP study area was further divided into approximately 3500 HEP plots, 49 of which were palustrine forested wetlands (PFOs).

Fourteen of the 49 PFO HEP plots or 29 percent were field sampled (PacifiCorp and Cowlitz PUD 2004). Only 6 of the 14 plots that were field sampled were on WHMP lands.

The number of transects (n_1) per HEP plot were too few to detect a 5 percent change in shrub cover mean over time. Each of the 14 PFO HEP plots sampled had between 1 and 5 transects for a total of 23 transects. The number of transects (n_2) required to be statistically accurate is dependent on the PFO's natural variability, which is estimated as the coefficient of variation (CV = Standard Deviation/Mean). Because the required number of transects (n_2) must be capable of detecting a 5 percent change between the shrub cover means over time, the allowable error (AE) cannot be greater than 5 percent. Table 1 shows the total number of transects (n_2) that would be required to provide a shrub cover baseline for the field sampled PFO HEP plots at different confidence levels.

Table 1: Number of Transects Required for HEP Study Plots

PFO HEP Plots (plot number)	Total Number of HEP Plot Transects (n_1)	Percent Shrub Cover	Standard Deviation	Mean	CV	Allowable Error	Total Number of Transects (n_2) per Confidence Level (t)		
							80%	90%	95%
							t value 1.3	t value 1.7	t value 2.0
Swift – (320)	1*	11.6	--	--	--	5%	--	--	--
Yale N – (573)	1*	24.2	--	--	--	5%	--	--	--
Swift – (651)	1*	30.7	--	--	--	5%	--	--	--
Swift Bypass – (684)	1*	5.1	--	--	--	5%	--	--	--
Swift Bypass – (707)	1*	22.5	--	--	--	5%	--	--	--
Yale N – (1858)	1*	22.6	--	--	--	5%	--	--	--
Merwin N – (1974)	1*	11.1	--	--	--	5%	--	--	--
Merwin N – (2792)	5	30.3	2.80	6.10	0.46	5%	142	244	337
Yale S – (3130)	1*	3.7	--	--	--	5%	--	--	--
Yale S – (3142)	2	20.6	2.5	10.3	1.22	5%	40	68	94
Merwin S – (3166)	5	29.8	9.0	7.4	1.22	5%	1000	1710	2367
Eagle Island – (3549)	1*	10.9	--	--	--	5%	--	--	--
Yale S – (3130b)	1*	17.7	--	--	--	5%	--	--	--
Yale S - UNK	1*	20.1	--	--	--	5%	--	--	--

* A standard deviation, mean, CV or n_2 cannot be determine when the total number of n_1 =1

The HEP data does not provide baseline data that is statistically accurate enough to detect a 5 percent change in shrub cover mean over time and to collect this data would require extensive cost and effort (PacifiCorp 2007).

Habitat Evaluation Procedure Study Assumptions

The HEP team developed a model to estimate wildlife habitat quantity and quality over time and under different management scenarios. The HEP team identified management actions or assumptions for the model to address HEP evaluation species limiting factors and ultimately increase that specie's Habitat Suitability Index (HSI). Although the following assumption became the basis for a Wetland Habitat Management Objective B, the assumptions were not intended to represent Lewis River Wildlife Habitat Management Plan elements (PacifiCorp and Cowlitz PUD 2004):

> "*Shrubs would be planted in all forested and scrub-shrub wetlands that currently have < 20 percent shrub cover. Planting would increase overall shrub cover by 5 percent by TY15 and another 5 percent by TY45. All shrubs planted would be hydrophytic species. Field data indicate that 50 percent of the palustrine forest wetland polygons and none of the palustrine scrub-shrub polygons have shrub cover less than the 20 percent threshold. This management action results in a 0.02 increase in the average forested wetland HSI at Merwin and Yale and 0.04 increases at Swift"*

In addition, a handout titled "Management Alternatives" was provided to the HEP team at the May 28 and June 28, 2002 HEP team meetings to assist in the development of the model assumptions and provide further detail into the HEP team's intentions for the assumptions (HEP Team 2002):

Management Action: Increase shrub cover in all Palustrine Forested (PFO) and Palustrine Scrub-Shrub (PSS) wetlands that currently have <20% shrub cover.

Assumptions:

1. Planting would increase overall shrub cover by 5% by TY 15 and another 5% by TY 45.
2. All shrubs planted would by hydrophytic species.

Effects on Evaluation Species: Yellow warbler, mink, and elk. Effect on elk is likely to be too small to make any difference.

Acreage Calculations:

1. Identify the % of PFO and PSS wetlands sampled in each study area segment with shrub cover <20%.
2. Apply these %s to total PFO and PSS acreages for the segment to estimate the areas of each type that would be managed. For example, if 2 of 4 PFO wetlands sampled at Merwin had shrub cover <20% and the total utility owned acreage of PFO at Merwin is 30 acres, then it would be assumed that 15 acres have a shrub cover <20%. A similar calculation for PSS wetlands might result in 20 acres.

SI/HSI Calculations – Yellow Warbler & Mink:

1. A 5% increase in shrub cover translates to an increase in SI of 0.08 for both species. Increase the mean SI for shrub cover in each segment by 0.08 in TY 15 and again in TY45.

2. Assume that % shrub cover that is hydrophytic and shrub height remains constant for the yellow warbler because this is already high in all segments for PFO and PSS (mostly 0.9-1; the lowest value is 0.55 for PSS at Yale).
3. Recalculate the HSI for both the mink and yellow warbler for these TYs.

HU Calculations:

1. Apply to acreage of PFO and PSS wetlands with <20% shrub cover only.
2. HSIs for the remainder of the PFO and PSS wetland acreages will stay constant for all TYs.

Objective B Revisions

The primary goal of the Wetland Habitat Chapter Objective B is to increase shrub cover in forested wetlands. To achieve this goal and reduce the overall cost and effort of implementation, Objective B is proposed to be revised to remove references to specific methods and measurements as follows:

Increase shrub cover by 5 percent over all the forested wetlands with < 20 percent shrub cover without tree harvest by Target Year (TY) 17 to benefit the yellow warbler and mink.

Table 2 shows the HEP team's acreage calculations determining the amount of PFO acres that are less than 20 percent shrub cover and the amount of area that will be planted with shrubs for the Merwin, Yale, and Swift WHMP areas.

Table 2: HEP Team Acreage Calculations for Each HEP Segment

HEP Plot Data	HEP Segment			
	Merwin	Yale	Swift & Swift Bypass[1]	Total
Number of PFO HEP Plots Sampled	3	6	4	13
Number of PFO HEP Plots Sampled with < 20 Percent Shrub Cover	1	2	2	5
Percent of PFO HEP Plots Sampled with < 20 Percent Shrub Cover	33%	33%	50%	38%
Total Number of PFO Acres on WHMP Lands	6.3	19.9	8.6	34.7
Estimated PFO Acres on WHMP lands that are < 20 Percent Shrub Cover	2.1	6.6	4.3	13.0
5 Percent of PFO Acres on WHMP Lands that will be Planted with Shrubs	0.1	0.3	0.2	0.6
Total Number of Shrubs to be Planted [2]	175 to 484	525 to 1452	349 to 968	1049 to 2904

[1] Swift and Swift Bypass were evaluated as separate HEP segments, but are managed as the Swift area in the WHMP

[2] Number of shrubs is based on shrubs being planted on a 3- to 5-foot spacing. Planting space is dependent on species and site conditions.

Within 5 years of receiving the license, all WHMP wetlands will be field verified and evaluated for habitat condition, hydrology, to confirm (or determine) the hydrological source(s), vegetation cover type(s), and size. In addition, shrub cover for each PFO will be

determined with ocular estimates during the evaluation. Shrublands that are estimated to be less than 20 percent shrub cover will be identified and the feasibility of successfully planting shrubs will be assessed. Shrub planting success may be dependent on several factors, such as canopy cover, dominant overstory, hydrology, and herbivory. A final report describing the wetland's vegetation cover type, dominant vegetation, habitat potential for associated species, as well as proposed management actions to meet the goal and objectives will be submitted to the TCC for review 1 year following the completion of the initial wetland evaluations.

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MANAGEMENT ALTERNATIVES

General Assumptions

1. Lands not in utility ownership follows the same successional and development patterns as for the base case.
2. The same successional changes occur on utility-owned lands with management as with the base case.
3. Sub-categories will be set up within each cover type to track acreages that convert to other types or have an HSI change.
4. The harvest and thin rates used to calculate HUs for the "management with-harvest" alternative are averages over 5-15 year periods between target years. Actual rates used in a management plan are likely to be more variable in any given year, generally in the range of 1-4%.
5. In general, only about 50% of utility-owned lands are available for management using timber harvest; riparian and buffers and roads preclude harvest on about half the lands.

COVER TYPES THAT WILL BE MANAGED IN THE SAME WAY WITH OR WITHOUT TIMBER HARVEST

Palustrine Forested (PFO) and Palustrine Scrub Shrub (PSS) Wetlands

Management Action: Increase shrub cover in all PFO and PSS wetlands that currently have <20% shrub cover.

Assumptions:

1. Planting would increase overall shrub cover by 5% by TY 15 and another 5% by TY 45.
2. All shrubs planted would by hydrophytic species.

Effects on Evaluation Species: Yellow warbler, mink, and elk. Effect on elk is likely to be too small to make any difference.

Acreage Calculations:

1. Identify the % of PFO and PSS wetlands sampled in each study area segment with shrub cover <20%.
2. Apply these %s to total PFO and PSS acreages for the segment to estimate the areas of each type that would be managed. For example, if 2 of 4 PFO wetlands sampled at Merwin had shrub cover <20% and the total utility-owned acreage of PFO at Merwin is 30 acres, then it would be assumed that 15 acres have a shrub cover <20%. A similar calculation for PSS wetlands might result in 20 acres.

SI/HSI Calculations – Yellow Warbler & Mink:

1. A 5% increase in shrub cover translates to an increase in SI of 0.08 for both species. Increase the mean SI for shrub cover in each segment by 0.08 in TY 15 and again in TY45.

2. Assume that % shrub cover that is hydrophytic and shrub height remains constant for the yellow warbler because this is already high in all segments for PFO and PSS (mostly 0.9-1; the lowest value is 0.55 for PSS at Yale).
3. Recalculate the HSI for both the mink and yellow warbler for these TYs.

HU Calculations:
1. Apply to acreage of PFO and PSS wetlands with <20% shrub cover only.
2. HSIs for the remainder of the PFO and PSS wetland acreages will stay constant for all TYs.

Management Action: Manipulate water levels to reduce water permanence, that is to reduce the % of the area that has permanent water to 10-20% of the total area.

Assumptions:
Can probably be implemented at Banker's and Road ponds, if consistent with new Forest Practices Rules. May be applicable to other wetlands with stand pipes.

Effects on Evaluation Species: Amphibians

Acreage Calculations:
Apply to areas of Bankers and Road ponds only. These areas include several wetland types.

SI/HSI Calculations:
1. Increase SI for area that has permanent water from 0.2 to 1.0.
2. Recalculate HSI and apply to TYs 10, 15, and 45.

HU Calculations:
1. Apply to acreage of Bankers and Road ponds only.
2. HSIs for the remainder of the wetland acreages will stay constant for all TYs.

Palustrine Emergent Wetland and Unconsolidated Bottom (PEM and PUB)

Management Action: Manipulate water levels to reduce water permanence, that is to reduce the % of the area that has permanent water to 10-20% of the total area.

Assumptions:
Can probably be implemented only at Banker's and Road ponds

Effects on Evaluation Species: Amphibians

Acreage Calculations:
Apply to a few areas.

SI/HSI Calculations:
1. Increase SI for area that has permanent water from 0.2 to 1.0.
2. Recalculate HSI and apply to TYs 10, 15, and 45.

HU Calculations:
1. Apply to appropriate areas.
2. HSIs for the remainder of the wetland acreages will stay constant for all TYs

Riparian Deciduous Forest

Management Action: Increase hydrophytic shrub cover in RD stands at Merwin and Swift No. 2 (hydrophytic shrub mean SIs=0.29 and 0.16, respectively; already fairly high at Swift No. 1 and Yale).

Assumptions:
1. Planting would increase hydrophytic shrub cover by 5% by TY 15 (there is no RD remaining by TY45).
2. All shrubs planted would by hydrophytic species.
3. Planting would not increase total shrub cover because tree canopy closure limits this parameter.

Effects on Evaluation Species: Yellow warbler

Acreage Calculations:
Assume that hydrophytic shrub cover could be increased in approximately 50% of the RD acreage at Merwin (70 ac total) and Swift No. 2 (27 ac total).

SI/HSI Calculations – Yellow Warbler
1. A 5% increase in hydrophytic shrub cover, with no change in total shrub cover, translates to an increase in SI of 0.05 to 0.15. Recalculate the mean % of shrubs that are hydrophytic at Merwin and Swift No. 2.
2. Use the SI equation to increase the mean SI for hydrophytic shrub cover by the appropriate amount in TY 15, holding the other variables constant.
3. Recalculate the HSI for this TY.

HU Calculations:
1. Apply to 50% of RD acreage at Merwin and Swift No. 2.
2. HSIs for the remainder of the RD acreage will stay constant for all TYs.

Riparian Mixed Forest

Management Action: None identified that do not involve some kind of harvest.

Riparian Scrub-Shrub

Management Action: None identified.

Shrubland

Management Action: None identified.

Agriculture and Meadow

Management Action – Protect and maintain existing areas, with an emphasis on forage for big game.

Assumptions:
1. Management will include mowing agricultural fields after the savannah sparrow breeding season (end of June).
2. No change in management for meadows.

Effects on Evaluation Species: Elk, savannah sparrow, mink

Acreage Calculations:
No change from existing conditions.

SI/HSI Calculations
1. No change for mink or savannah sparrow.
2. Convert agricultural and meadow areas at Yale and Swift to enhanced forage for elk.

Orchard

Management Action – None identified.

Oak Woodland

Management Action – None identified.

Transmission Line Right-of-Way (ROW)

Management Action – Maintain and improve existing areas, with an emphasis on forage for big game.

Assumptions:
1. Management will include mowing and selective fertilizing in the fall in suitable areas along ROWs through the Yale and Swift Nos. 1 and 2 projects.
2. Exotic species control
3. Taller vegetation, such as shrubs, or other methods, will be used to break up the line-of-sight along the ROW

Effects on Evaluation Species: Elk, savannah sparrow, mink

Acreage Calculations:
No change from existing conditions.

SI/HSI Calculations
1. No change for the mink.

2. Apply visual buffers for elk from Merwin to ROWs through the Yale and Swift Nos. 1 and 2 project areas.
3. Convert ROW areas at Yale and Swift Nos. 1 and 2 to enhanced forage for elk.

Mature Conifer and Old Growth

Management Action – Protect and maintain mature and old-growth conifer stands.

Assumptions:
1. No harvest in mature or old-growth conifer stands.
2. Some mature stands will covert to old growth by TY45.

Effects on Evaluation Species: Pileated woodpecker, black-capped chickadee, elk, mink

Acreage Calculations – W/ and W/O Harvest
TY10
100% remains M or OG

TY15
100% remains M or OG

TY30
100% remains M or OG

TY45
95% M remains M
5% M? OG
100% remains OG

SI/HSI Calculations
Apply mean HSIs from corresponding Mature or OG for pileated woodpecker, black-capped chickadee, mink, and elk for each TY. Use HSI for Mature at Merwin for stands that convert to OG.

HU Calculations:
Apply new acreages and HSIs for each target year.

COVER TYPES THAT WILL BE MANAGED DIFFERENTLY WITH OR WITHOUT TIMBER HARVEST

Riparian Mixed Forest (RM)

Management Action: Protect and/or use selective harvest RM forest to increase the number of large trees and create snags if necessary to meet optimal numbers

Assumptions:

With Harvest

1. Protection combined with selective harvest would increase the mean number of large trees by at least 4 per acre from current conditions by TY 45 for all RM acreage in all study area segments.
2. Protection and/or snag creation would result in the optimal number of snags per acre would for all study area segments by TY 45 (RM at Yale already has a snag SI of 1.0).

Without Harvest

1. Protection alone would increase the mean number of large trees by at least 4 per acre from current conditions for half the RM acreage in the study area.
2. Protection and/or snag creation would result in the optimal number of snags per acre would for all study area segments by TY 45 (RM at Yale already has a snag SI of 1.0).

Effects on Evaluation Species: Pileated woodpecker

Acreage Calculations:

With Harvest

1. Assume that the number of large trees could be increased by 4/ac in all RM stands by TY45.
2. Assume that optimal snags will be achieved in all RM stands by TY45.

Without Harvest

1. Assume that the number of large trees could be increased by 4/ac on half of the RM acreage by TY45.
2. Assume that optimal snags will be achieved in all RM stands by TY45.

SI/HSI Calculations

1. An increase in the number of large trees by 4/ac, would change the mean SI for this variable from 0 to 0.19 at Merwin, from 0.19 to 0.3 at Yale, from .0.34 to 0.5 at Swift No. 2; and from 0.49 to 0.74 at Swift No. 1.
2. Optimal snags would result in SIs =1 for all RM stands (with harvest) or half the RM acreage (without harvest).
3. Recalculate pileated woodpecker HSI for all RM acreage using new mean SIs for large trees and SI=1 for snags in TY 45 (for with and without harvest).

HU Calculations:

Apply new pileated woodpecker HSIs to all RM acreage in TY45.

Upland Deciduous Forest

Management Action – Convert UD stands on utility owned lands to conifer stands or upland mixed stands.

Assumptions:

With Harvest - UD stands are harvested and converted to conifer in all study area segments at the same rate of 2% annually. Once these stands have been cut, they are planted with conifer seedlings, enter the conifer succession model, and can be

thinned once they reach the pole or mid-successional stages at a rate of 0.5% annually.
Without harvest - UD stands are converted to UM over time, at a rate of 0.5% annually (5% every 10 years)

Effects on Evaluation Species: Pileated woodpecker, black-capped chickadee, mink, elk

Acreage Calculations
See Table 1.

SI/HSI Calculations
Apply mean HSIs from corresponding cover type for pileated woodpecker, black-capped chickadee, mink, and elk for each TY.

HU Calculations:
Apply new acreages and HSIs for each target year.

Mid-Succession Conifer, Pole, Upland Mixed, Seedling/Sapling

Management Action – Enhance for elk forage, while preserving snags.

Assumptions:
With Harvest – MS, P, UM, SS, and SS1 stands managed for elk forage and timber production. Thinning and clear cutting occur in all study areas segments at the same rate. Stands can be thinned once as P and once as MS; UM stands can be thinned once as well. Thinning rate =0.5% annually; clear cut rate = 0.5% annually. *(Note: According to KN, PacifiCorp currently thins or cuts on Merwin lands at an average rate of about 1.5% annually, with a range of 2-3%. A total of 1% was selected for MS, P, UM stands, with UD stands harvested at 2%).*

Without harvest – No thinning, no specific actions to manage for elk or timber production. Thinned stands on utility –owned lands eventually disappear. Natural succession move stands into other types over time.

Effects on Evaluation Species: Pileated woodpecker, black-capped chickadee, mink, elk.

Acreage Calculations
See Table 1.

SI/HSI Calculations
1. Use existing P-t and MS-t values at Merwin for tree canopy closure to calculate SIs and HSIs for pileated woodpecker and black-capped chickadee for each TY.
2. Apply % of thinned stands at Merwin to determine target acreages and values for enhanced forage for elk.

3. Apply snag SIs from existing MS-t and P-t stands at Merwin, assuming that snags will be created to meet these goals.
4. For all other cover types, apply mean HSIs from corresponding cover type for pileated woodpecker, black-capped chickadee, and mink for each TY.

HU Calculations:
Apply new acreages and HSIs for each target year.

Table 1. Acreage changes in cover types on utility-owned lands with and without harvest as a management tool[1,2].

TY1	Y10		TY15		TY30		TY45	
	With Harvest	**W/Out Harvest**	**With Harvest**	**W/Out Harvest**	**With Harvest**	**W/Out Harvest**	**With Harvest**	**Without Harvest**
MS	5%? MS-t 2.5%? SS1 2.5%? SS 90% remains MS	100% remains MS	2.5%? SS1 2.5% (SS1)? SS 2.5%? MS-t 5% remains MS-t 87.5% remains MS	100% remains MS	3.75%? SS1 3.75%? SS 7.5%? MS-t 5% (SS1/SS)? P 7.5% remains MS-t 72.5% remains MS	100%? MS	3.75%? SS1 3.75%? SS 7.5%? MS-t 10%? M 7.5% (SS1/SS)? P 7.5% remains P 15% remains MS-t 45% remains MS	10%? M 90% remains MS
MS-t	2.5%? SS1 2.5%? SS 95% remains MS-t	100% remains MS-t (Merwin only)	1.25%? SS1 1.25%? SS 2.5% remains SS 95% remains MS-t	100% remains MS-t (Merwin only)	3.75%? SS1 3.75%? SS 5% (SS1/SS)? P 87.5%? MS-t	100%? MS (Merwin only)	3.75%? SS1 3.75%? SS 7.5% (SS1/SS)? P 5% (P)? P-t 10%? M 70% remains MS-t	10%? M 90% remains MS (Merwin only)
P	5%**?** P-t 95% remains P	100% remains P	2.5%? P-t 25%? MS 5% remains P-t 67.5%? remains P	25%? MS 75% remains P	7.5% (P-t)? MS 3.75% (MS)? SS1 3.75% (MS)? SS 7.5% (MS)? MS-t 67.5%? MS 10% remains MS	75%? MS 25% remains MS	3.75% (MS)? SS 3.75% (MS)? SS1 7.5% (MS)? MS-t 3.75% (SS1)? P 3.75% (SS)? P 7.5% remains MS-t 70% remains MS	100% remains MS
SS	50%? P 50% remains SS	50%? P 50% remains SS	50%? P 2.5%? P-t 47.5% remains P	50%? P 50% remains P	25%? MS 7.5%? P-t 67.5% remains P	25%? MS 75% remains P	3.75% (MS)? SS1 3.75% (MS)? SS 7.5% (MS)? MS-t 7.5% (P-t)? MS 47.5%? MS 30% remains MS	75%? MS 25% remains MS
SS1	100%? SS	100%? SS	50%? P 50% remains SS	50%? P 50% remains SS	7.5%? P-t 50%? P 42.5% remains P	50%? P 50% remains P	7.5%? MS-t 92.5%? MS	100%? MS

TY1	Y10		TY15		TY30		TY45	
	With Harvest	**W/Out Harvest**	**With Harvest**	**W/Out Harvest**	**With Harvest**	**W/Out Harvest**	**With Harvest**	**Without Harvest**
UM	2.5%? SS 2.5%? SS1 10%? MS 5%? UM-t 80% remains UM	10%? MS 90% remains UM	1.25%? SS1 1.25%? SS 2.5% (SS1)? SS 2.5% (SS)? P 10%? MS 2.5%? UM-t 10% remains MS 5% remains UM-t 65% remains UM	10%? MS 10% remains MS 80% remains UM	3.75%? SS1 3.75%? SS 5% (SS1/SS)? P 2.5% remains P 7.5% (MS)? MS-t 40%? MS 7.5%? UM-t 12.5% remains MS 7.5 % remains UM-t 10% remains UM	40%? MS 20% remains MS 40% remains UM	3.75%? SS1 3.75%? SS 2.5%? MS 15% (UM-t)? MS 3.75% (MS)? SS1 3.75% (MS)? SS 7.5% (MS)? MS-t 37.5% remains MS 7.5% remains MS-t 7.5% (SS/SS1)? P 7.5% remains P	40%? MS 60% remains MS
UD	10%? SS1 10%? SS 5%? UM 75% remains UD	5%? UM 95% remains UD	10%? SS1 10% (SS1)? SS 10%? P 2.5%? UM 2.5% (UM)? UM-t 2.5% remains UM 62.5% remains UD	2.5%? UM 5% remains UM 92.5% remains UD	15%? SS1 15%? SS 7.5%? UM 20% (SS1/SS)? P 7.5% (P)? P-t 2.5% remains P 2.5% remains UM-t 2.5% (UM)? UM-t 2.5% remains UM 25% remains UD	7.5%? UM 7.5 % remains UM 85% remains UD	10%? SS1 15%? SS 5% (UM-t)? SS 10% (UM)? MS 30% (SS/SS1)? P 7.5% (P)? P-t 7.5% remains P-t 15% remains P	7.5%? UM 15% remains UM 77.5% remains UD
RD	100% remains RD	100% remains RD	100% remains RD	100% remains RD	50% remains RD 50%? RM	50% remains RD 50%? RM	50% remains RM 50%? RM	50% remains RM 50%? RM
RM	100% remains RM	100% remains RM	100% remains RM	100% remains RM	100% remains RM	100% remains RM	100% remains RM change tree/snag SIs	100% remains RM

[1] Cover types in parentheses are shown for tracking purposes only. For example, for Upland Mixed Forest (UD), 10%? MS means that 20% of the UM converts to MS. 7.5% (MS)? SS1 means that 7.5% of the UM that had been converted to MS in a previous target year, is now being clearcut and moved to SS1.

[2] Assumes the same successional changes as the base case.

PACIFICORP ENERGY
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 1500
Portland, Oregon 97232

September 6, 2007

Subject: Lewis River Public Meeting – Implementation of Settlement Agreement

PacifiCorp invites you to a public meeting to learn about the Lewis River Settlement Agreement and new Federal Energy Regulatory Commission licenses for continued operation of the Lewis River hydroelectric projects. This meeting will allow PacifiCorp and the Public Utility District No. 1 of Cowlitz County, Washington (Cowlitz PUD) to explain social, cultural, and environmental measures the Utilities are required to implement under the November 30, 2004 Settlement Agreement and pending federal licenses for Merwin, Yale, Swift No. 1 and Swift No. 2. The agenda for the meeting includes a presentation describing the history and status of project licensing, a presentation of new measures by resource area, and the opportunity for public questions on activities. The Utilities will have subject matter experts available for individual discussions at the conclusion of the meeting.

For those who wish to review the Settlement Agreement in advance of the public meeting please use the following link: http://www.pacificorp.com/Article/Article76278.html

Everyone is welcome.

Place: **Lewis River Golf Course**
3209 Lewis River Road
Woodland, WA

Date: **Wednesday, October 17, 2007**

Time: **7:00pm – 9:00pm**

Contact: **Kim McCune, PacifiCorp (503) 813-6078**

Thank you for your interest in the above matter.

Sincerely,

Todd Olson
Implementation Program Manager
PacifiCorp Energy