**Lewis River Hydroelectric Projects**
**Terrestrial Coordination Committee (TCC)**
**Meeting Agenda**

**Date & Time:** **Wednesday, February 13, 2019**
**9:00 a.m. – 12:15 p.m.**

**Place:** **Conference Call Only**

**Contacts:** **Kendel Emmerson (503) 813-6040; cell 503-703-7734**

| Time | Discussion Item |
|---|---|
| 9:00 a.m. | Welcome<br>➢ Review Agenda & 1/9/19 Meeting Notes<br>➢ Review and Accept Agenda & 1/9/19 Meeting Notes |
| 9:15 a.m. | ➢ Land Acquisition Update (Confidential)<br>➢ TNC Update (Confidential) |
| 9:30 a.m. | 2018 Terrestrial Funds Year-end Accounting |
| 9:45 a.m. | Forestry Plan Review Memo; Approval |
| 10:00 a.m. | Saddle Dam Tree Removal |
| 10:15 a.m. | Bruce Barnes and Dr. Margaret Wild Tour Discussion |
| **10:30 a.m.** | **Break** |
| 10:45 a.m. | ➢ Cowlitz PUD WHMP Annual Report and Plan, 30-day review<br>➢ 10.3.3 Funding Match; Cowlitz PUD/RMEF – Approval needed |
| 11:15 a.m. | PacifiCorp WHMP Annual Report and Plan, 30-day review |
| 11:45 a.m. | Study/Work Product Updates |
| 12:00 p.m. | Next Meeting's Agenda<br>Note: all meeting notes and the meeting schedule can be located at:<br>http://www.pacificorp.com/es/hydro.html |
| 12:15 p.m. | **Meeting adjourn** |

Join by Phone
+1 (503) 813-5252 [Portland, Ore.]
+1 (855) 499-5252 [Toll Free]
**Conference ID: 631927**

**FINAL Meeting Notes**
**Lewis River License Implementation**
**Terrestrial Coordination Committee (TCC) Meeting**
**February 13, 2019**
**Conference Call Only**

**TCC Representatives Present: (8)**
Kendel Emmerson, PacifiCorp
Summer Peterman, PacifiCorp
Kim McCune, PacifiCorp
Peggy Miller, WDFW
Eric Holman, WDFW
Bill Richardson, RMEF
Amanda Froberg, Cowlitz PUD
Erik White, Cowlitz Indian Tribe

**Calendar:**

| | | |
|---|---|---|
| March 13, 2019 | TCC Meeting | Merwin HCC |

| **Assignments from February 13, 2019** | **Status** |
|---|---|
| McCune: Email Mgmt Unit 27 maps to Eric Holman. | **Complete – 2/13/19** |

| **Parking Lot Items** | **Status** |
|---|---|
| Emmerson/McCune: Contact PacifiCorp's properties department to discuss further TNC detail and report to the TCC at the next meeting. | **In progress** |

Kendel Emmerson (PacifiCorp) called the meeting to order at 9:04am. Emmerson reviewed the agenda and asked the TCC if there were any changes/additions. No additions were requested.

The TCC reviewed the January 9, 2019 meeting notes and the meeting notes were approved without change at 9:10am.

**Public Comment Opportunity:**
None

**Land Acquisition Update (CONFIDENTIAL)**
Bill Richardson informed the TCC attendees that the appraisal is complete and meets budget. Finalizing the title review will take place in early March 2019. It is likely that the earliest for closing is the last quarter of 2019.

Additional detail around this topic is considered confidential and proprietary and not for public viewing.

**Other (CONFIDENTIAL)**
TNC – Emmerson informed the TCC attendees that the appraisal requested by PacifiCorp's property department is complete and meets budget. PacifiCorp will meet internally today and discuss how best to proceed with a purchase to include a conservation easement.

Additional detail around this topic is considered confidential and proprietary and not for public viewing.

**2018 TCC Funds Year-end Accounting**
Kim McCune (PacifiCorp) provided the following year-end accounting for the TCC accounts:

**Lewis River License Implementation**
**Lewis River WHMP Fund (Conservation Easement Lands)**
**Section 10.8.2**

| Release Date | Funds Received | Funds Expended | Balance | Notes |
|---|---|---|---|---|
| 12/31/2017 | | | $ - | |
| 12/31/2018 | $ 283.00 | $ (283.00) | $ - | Expenditure for 2018 |
| | Total Spent to Date: | | $ (2,409.94) | |
| | Balance Remaining: | | $ 301.26 | |

**Lewis River License Implementation**
**Lewis River WHMP Fund (Fee Simple Lands)**
**Section 10.8.2**

| Release Date | Funds Received | Expense | Interest | Balance | Notes |
|---|---|---|---|---|---|
| 12/31/2017 | | | | 990.91 | |
| 12/31/2018 | 546,203.21 | (648,257.80) | - | (80,046.73) | - |
| | | Total Spent to Date: | | $(4,359,743.35) | |
| | | Balance Remaining: | | $ 490,924.16 | |

*Due to the government shutdown the 10.8.2 funds contributed for 2019 are estimates only and will be updated in the final ACC/TCC Annual Report, Section 7.0

**Lewis River License Implementation**
**Lewis River LWD Fund - Haul**
**Section 7.1.1**

| Release Date | Funds Received | Funds Dispersed | Balance | Notes |
|---|---|---|---|---|
| 9/11/2017 | | | $ 13.42 | |
| 4/30/2018 | $ - | $ (3,000.00) | $ 13.42 | Chilton Logging (Morris Trucking) |
| 4/30/2018 | $ 2,000.00 | $ - | $ 2,013.42 | |
| | Total Spent to Date: | | $ (19,986.58) | |
| | Balance Remaining: | | $ 2,013.42 | |

**Lewis River License Implementation**
**Swift No. 1 & Swift No. 2 Land and Habitat Protection Fund**
**Section 10.2, 10.2.1**

| Release Date | Funds Received | Expense | Interest | Balance | Notes |
|---|---|---|---|---|---|
| 12/31/2018 | $ 655,182.00 | | $ 103,967.90 | $ 1,941,598.36 | |
| | | Total Spent to Date: | | $(7,929,974.69) | |
| | | Balance Remaining: | | $ 1,941,598.36 | |

**Lewis River License Implementation**
**Additional Matching Funds**
**Section 10.3.3**

Funding Start Date: 00/00/0000

| Release Date | Funds Received | Expense | No Interest | Balance | Notes |
|---|---|---|---|---|---|
| 4/18/18 | $ 40,184.00 | $ - | $ - | $ 40,184.00 | WO# ILR-RMEFUND PacifiCorp matching funds for RMEF project |
| 11/1/18 | $ - | $ (38,078.25) | $ - | $ 2,105.75 | 2017 Marble Mountain Forage Enrichment and Effectiveness Monitoring |
| | $ - | $ - | $ - | | |
| | $ - | $ - | $ - | | |
| | $ - | $ - | $ - | | |
| | | Total Spent to Date: | | $ 38,078.25 | |
| | | Running Total: | | $ 2,105.75 | |

**Lewis River License Implementation**
**Mitigation for Impacts on Wildlife**
**Section 10.8.5.5**

Funding Start Date: 11/1/2016

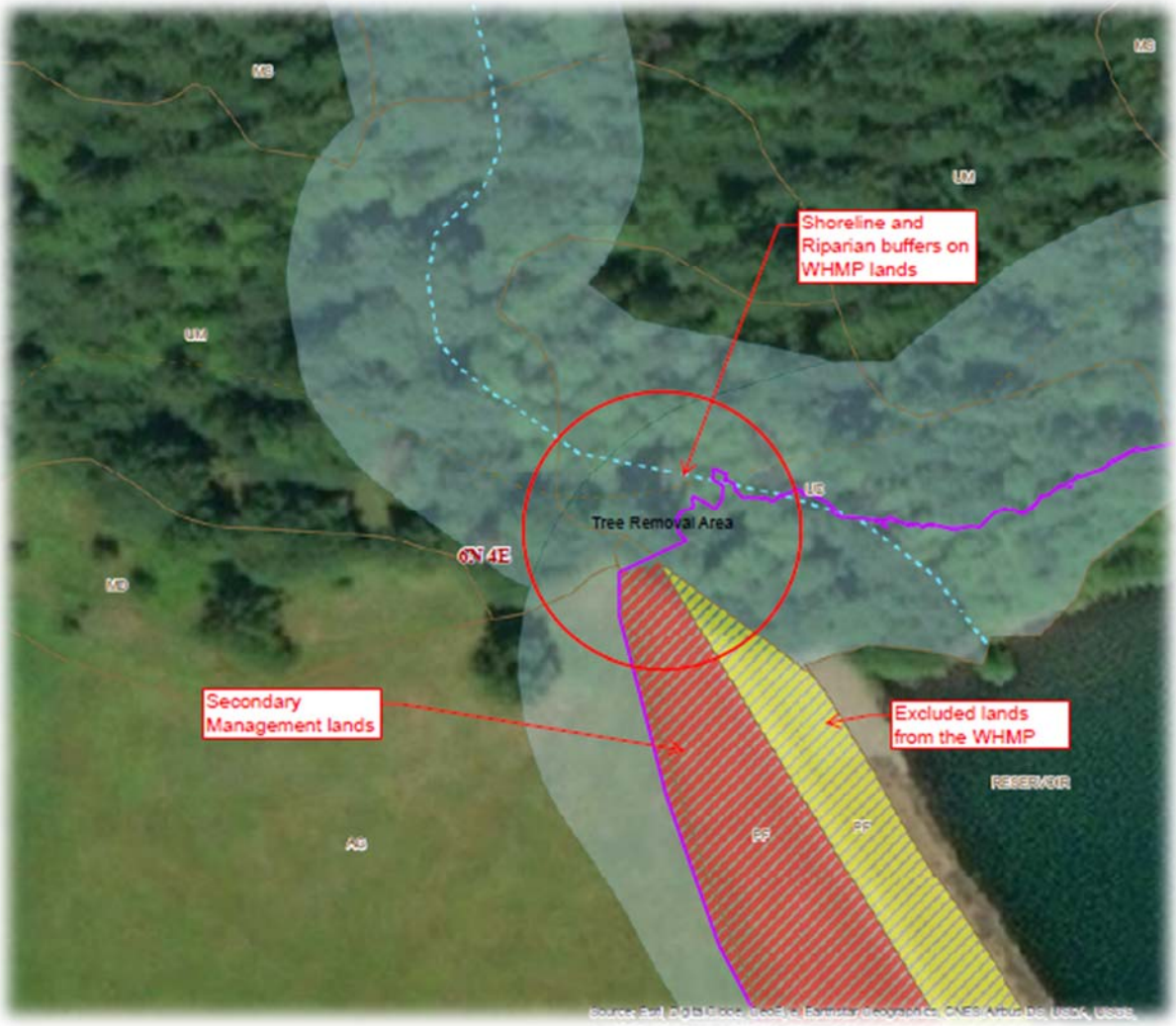
| Release Date | Funds Received | Expense | No Interest | Balance | Notes |
|---|---|---|---|---|---|
| 12/31/17 | | | | $ 10,172.00 | |
| 10/17/18 | $ 8,963.89 | $ - | $ - | $ 8,963.89 | Cowlitz PUD interconnect project |
| | | Total Spent to Date: | | $ - | |
| | | Running Total: | | $19,135.89 | |

**Forestry Plan Review Memo; Approval**
Emmerson asked the TCC attendees if they have any additional comment, concerns or questions about the January 2019 memorandum. No additional edits were requested.

**The TCC approved the memorandum titled, Lewis River Wildlife Habitat Management Plan (WHMP) Lands Timber, January 4, 2019** (**Attachment A**).

**Saddle Dam Tree Removal**
Emmerson reviewed the photos below with the TCC that evidence WHMP lands (primary, secondary, and exempt) in location to the Saddle Dam North abutment. As part of PacifiCorp's Dam Safety Program, they are requesting that trees within 10 feet of the dam's abutment be removed. Emmerson will request funds from the Dam Safety dept. to cut three conifers (approximately $500) to create some snags. The area shown below is the general area and not equal to a 10-foot radius from the abutment.

**The TCC agreed to allow removal of 10 alders, up to 10 in. dbh. If more tree removal is needed then Dam Safety must secure approval from the TCC.**


Shoreline and Riparian buffers on WHMP lands
Tree Removal Area
6N 4E
Secondary Management lands
Excluded lands from the WHMP
RESERVOIR
PF
PF
UM
UM
UC
MB
MB
AB

**Saddle Dam – East side of North Abutment**

**Saddle Dam – North Abutment**

**Bruce Barnes and Dr. Margaret Wild – Tour Discussion**
**The TCC agreed to consider a coordinated tour. WDFW will contact Dr. Wild to confirm her participation and if she wants other coordination effort in the area.**

*<Break 10:06am>*
*<Reconvene 10:15am>*

**Cowlitz PUD WHMP Annual Report and Plan, 30-day review**
Amanda Froberg (Cowlitz PUD) informed the TCC that their WHMP Plan was emailed to the TCC January 31, 2019; comments are due no later than March 15, 2019. Link to PacifiCorp's Lewis River webpage is provided for your convenience:
http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensing/Lewis_River/li/ar/2019_Year_11_Annual_Plan_1.31.19.pdf

The Cowlitz WHMP Report was emailed to the TCC for review and comment February 11, 2019 and comments are due no later than March 15, 2019.

**10.3.3 Funding Match: Cowlitz PUD/RMEF – TCC Approval Needed**
**The TCC approved payment of matching funds for $13,735.00 in accordance with Lewis River SA 10.3.3 - Contribution of Additional Matching Funds.**

Froberg will send PacifiCorp a copy of the RMEF grant approval and an invoice for processing.

**PacifiCorp WHMP Annual Report and Plan, 30-day review**
Emmerson informed the TCC that PacifiCorp's WHMP Plan was emailed to the TCC February 12, 2019; comments are due no later than March 18, 2019.

- http://www.pacificorp.com/es/hydro/hl/lr.html#
- License Implementation
- Reports
- 2018 ACC/TCC Annual Report
- WHMP 2019 Annual Plan (30-day Review Draft)

Emmerson provided a quick summary of 2019 Annual Plan there are several noxious weed control treatments planned for wetlands and to control of reed canary grass along Frasier Creek, several transmission line areas, and some targeted timber harvest areas. The 2017 Middle Earth timber harvest area will be planted with a mix of deciduous planting and additional hardwoods will be included in replanting Higsly II. There will be slight increase in the 2019 budget due to inflation. Timber harvest planning will continue in MU 20 and 27. The Upper Hanley Curry meadow will be turned over and restored. We are investing in more protex tubes for plantings for cedars and other shrub and trees that are highly susceptible to browse or difficult to grow.

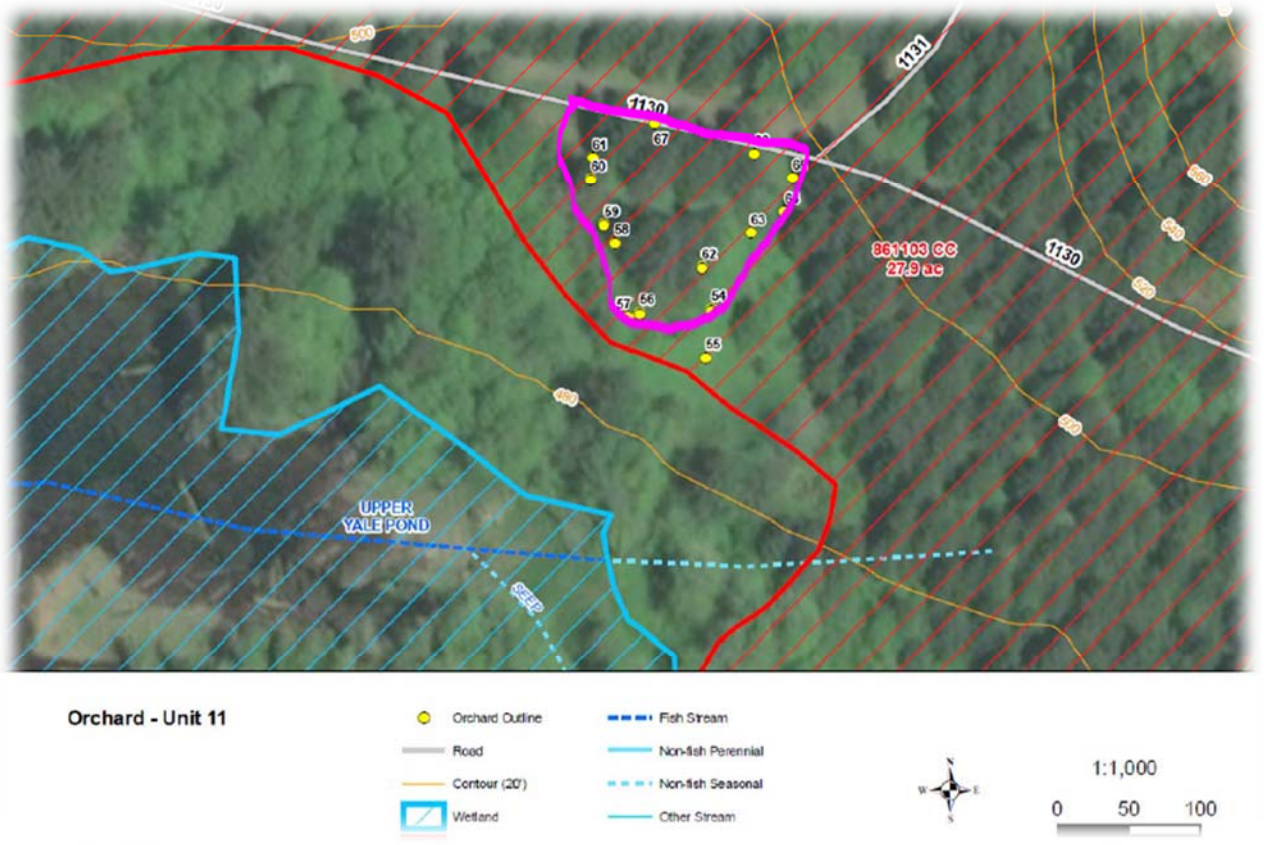
PacifiCorp's WHMP Report was emailed to the TCC for review and comment February 11, 2019 and comments are due no later than March 15, 2019.

- http://www.pacificorp.com/es/hydro/hl/lr.html#
- License Implementation
- Reports
- 2018 ACC/TCC Annual Report
- WHMP 2018 Annual Report (30-day Review Draft)

Emmerson provided a brief summary that PacifiCorp had an overall good year. We were able to complete 93% of the scheduled noxious weed treatments. PacifiCorp completely or made significant progress in controlling many access issues. Three additional meadows, two shrub exclosures, and test plots were completed in the high country.

**Study/Work Product Updates**

Unit 11 Orchard – Summer Peterman (PacifiCorp) provided the following visuals of the trees removed in Unit 11 Orchard (before and after) replacing the old orchard in Unit 11. The orchard was becoming shaded out from tree planted in 991122CC. Pomona Orchard is replacing the orchard with the intention it will require less long term maintenance.



**Unit 11 Orchard - before tree removal**

**Unit 11 Orchard - after tree removal**

Oak Site 5.2 – Peterman provided before and after photos illustrating the crew climbing the tree to allow more light after cutting 50’ buffer. 5.1 and 5.2 snags still need to be created. The second treatment of Plantskyyd will be applied this spring.

**Crew limbing trees on the west side of Oak Site 5.2**

**Final results of limbing trees on the east side of Oak Site 5.2**

**Oak Site 5.2 –View looking east after falling trees. Oak site sun exposure has visually increased due the falling of trees within 50 ft. of the nearest oak**

**Oak Site 5.2 – View looking west before tree falling demonstrating the lack of light reaching the oaks. Crew pulling scotch broom pre tree falling.**

**Agenda items for March 13, 2019**

- Review February 13, 2019 Meeting Notes
- Mitigation Funds - Update
- Land Acquisition Update (Confidential)
- TNC Update (Confidential)
- WHMP Report and Plan; Questions/Comments
- Dr. Wild Tour Discussion
- Study/Work Product Updates
- Field Tour TBD

**Next Scheduled Meeting**

| |
|---|
| March 13, 2019 |
| Location: Merwin HCC |

**Attachments:**

- February 13, 2019 Meeting Agenda
- **Attachment A** – Lewis River Wildlife Habitat Management Plan (WHMP) Lands Timber, January 4, 2019

*Adjourn 10:45am*

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A BERKSHIRE HATHAWAY ENERGY COMPANY

# Memo

**To:** Terrestrial Coordination Committee

**From:** Kendel Emmerson, Principal Environmental Scientist

**Date:** 1/4/2019

**Re:** Lewis River Wildlife Habitat Management Plan (WHMP) Lands Timber Harvest and Silviculture Planning.

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The Terrestrial Coordination Committee (TCC) has successfully pursued land acquisitions to fulfill the Lewis River Settlement Agreement 10.1 Yale Land Acquisition and Habitat Protection Fund, 10.2 Swift No. 1 and Swift No. 2 Land Acquisition and Habitat Protection Fund, and 10.3 Lewis River Land Acquisition and Habitat Enhancement Fund commitments. This has resulted in over a 5,000 acre increase in Lewis River Wildlife Habitat Management Plan (WHMP) lands, which is a 46% increase since receiving the Lewis River licenses in 2008.

Most of the newly acquired lands were recently harvested for timber resulting in thousands of acres of early successional forested habitat that require silviculture management practices to be applied over the next several years. Because these lands were industrial timber lands and harvested according to Washington State Forest Practices rules, these harvest areas do not meet WHMP standards, (e.g. harvesting on steep slopes, clearcutting large areas, and clearcutting within WHMP riparian and wetland buffers). Most of these lands are forested conifer vegetation cover types (e.g. pole, seedling, mid-successional conifer), so most WHMP management actions will be under the WHMP Chapter 12 Forestland Habitat Management goals and objectives which are as follows:

**Goal:** Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.

**Objective a:** At the Management Unit level, provide a range of alternatives for developing and maintaining a mix of forage and hiding cover for elk, considering activities on adjacent lands, over the life of the licenses. Revise Management Unit Plans for Wildlife Habitat Management Plan lands associated with the Merwin Project and create new plans for Wildlife Habitat Management Plan lands at the Yale and Swift No. 1 Projects.

**Objective b**: Over the life of the licenses, maintain or create at least eight snags (>= 20 inches [50 cm] diameter at breast height [dbh]), green retention trees (>=

15 inches [38 cm] dbh), or wildlife reserve trees (>=15 inches [38 cm] dbh) per acre (19.8 per ha) if available within the harvest area. Retain larger trees and snags representative of the harvest area. A different number of snags, retention, or reserve trees would be allowed only to meet specific wildlife objectives. To the extent possible, retain or create 4 logs/acre (9.9/ha) (>= 24 inches [60 cm] diameter and 50 feet [15 m] long).

**Objective c:** At the Management Unit level, promote forest habitat diversity for wildlife by increasing or maintaining minor native tree species (e.g., cottonwood [*Populus* sp.], bigleaf maple [*Acer macrophyllum*], western redcedar [*Thuja plicata*]) composition where appropriate site conditions exist over the life of the licenses.

This memo does not change or modify the existing WHMP, it is intended to only provide guidelines for scheduling actions associated with reforestation inspections, replanting, silviculture, and timber harvest to meet WHMP habitat goals and objectives and to effectively manage future budgets and workloads. This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives. This original memo was provided to the TCC on October 2, 2018 and was discussed at the October 10 and November 14, 2018 TCC meetings. Attachment A provides comment matrix for each of the comments received.

**Timber Harvest Types:**
To manage cost and prioritize timber harvest areas (THAs) to meet WHMP objectives, these harvest areas have been divided into two types:

**THA-Flat (THA-F)** are timber harvest areas capable of having active forest management to improve wildlife habitat. These THAs are less than 40 percent slope and greater than 200 feet from an open road. An open road is defined as any road that public is able to access either seasonally or year-round (e.g. Highway 503, Wapiti Way, or Forest Service 90). The THA-F are considered suitable for future forest management practices to improve wildlife habitat (e.g. commercial thinning and clearcut) and will be managed with WHMP Forestland Best Management Practices.

**THA-Steep (THA-S)** areas that have topography and/or other constraints that limit forest management to meet WHMP goals and objectives. These are timber harvest areas that are greater than 40 percent slope and/or within 200 feet of an open road. These areas are not suitable for future timber harvest under the WHMP and will be managed using standard forestry silviculture

practices. These are the forested areas that will be allowed to mature into late-successional conifer forests.

THA-S timber harvest areas are only located within Management Units 33-39. Attachment B provides map showing these management units with the each THA by type, harvest identification number, and acreages. Harvest identification are unique number assigned to each THA and include 6 numbers, the first two numbers are the year of harvest, followed by 2 digits for management unit, and the last two digits are unique number followed by CC for clearcut or CT for commercial thin. For example 043632 CC is a 2004 clearcut harvest in management unit 36.

**Reforestation Inspections:**

WHMP Chapter 12 Section 12.4.1 Reforestation Inspections requires that THAs be inspected in the spring and fall each year for the first 15 years following timber harvests. The overall goal of the inspections is to evaluate the growth of each THA and identify necessary management such as interplanting, invasive plant control, tree spacing, forage condition, browse damage to seedlings, trespass issues, and overall seedling development. The spring inspection evaluates winter damage as well as the effect of the previous year's invasive plant species, pre-commercial thinning (PCT), or pruning treatments. The fall inspection identifies THA issues and treatment to implement during the following growing season.

Currently the THAs that are less than 15 years old total 2,476 acres or 58% of the total harvest areas. Approximately 73 percent (1811 acres) of the THAs under 15 years old are on newly acquired lands. Due to this significant increase it is no longer feasible to complete the biannual inspections on THAs for the first 15 years post-harvest. Therefore to meet WHMP inspection objectives and manage inspection costs, THAs will be evaluated on the following schedule:

- Year 1-3 spring and fall inspections to determine seedling survival and invasive plant species needs. For example, a 2010 timber harvest will be inspected in spring and fall of 2011, 2012, and 2013.
- Year 6 fall inspection to insure that WHMP replanting standards have been achieved and to determine when the stand should be scheduled for first PCT. For example, a 2010 timber harvest would be inspected in fall 2016.
- Year 10 fall inspection to evaluate pruning and 2$^{nd}$ PCT needs. For example, a 2010 harvest would be inspected in fall 2020.
- An addition spring inspection following interplanting, invasive plant species control, PCT, or pruning to evaluate the effectiveness of the previous year's activities.

**Replanting**:

The Washington Forest Practices Board rules for reforestation are as follows:

> WAC 222-34-010 Required reforestation--West of Cascades Summit. [Effective 7/1/05]
>
> (2) Reforestation standards. A harvested area is reforested when that area contains an average of 190 or more vigorous, undamaged commercial species seedlings per acre that have survived on the site for at least 1 growing season. Up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no portion of the harvested area with timber growing capacity may contain less than 150 seedlings per acre. The department may determine that less than an average of 190 seedlings per acre is acceptable if fewer seedlings will reasonably utilize the timber growing capacity of the site.

The WHMP Chapter 12 Forestland Section 12.5.9 Regeneration Practices Planting and Maintenance states timber harvest areas will be replanted with conifer species (e.g., Douglas-fir [*Pseudotsuga menziesii*], ponderosa pine [*Pinus ponderosa*], western redcedar, noble fir [*Abies procera*] and western hemlock [*Tsuga heterophylla*]) and with hardwoods (e.g. alder and cottonwood) in more mesic sites. The exact percentage of each species will be determined on a case-by-case basis depending on site conditions and overall management intent, but the following is to be used as guideline. The WHMP standard for replanting a THA is to have a minimum stocking of approximately 302 well-spaced seedlings per acre in 5 years after planting. The following is a WHMP guideline for determining replanting stocking levels:

| Site Conditions | Trees per Acre | Spacing |
|---|---|---|
| Good - little to no mortality expected | 302 | 12 x 12 |
| Moderate - some mortality expected | 360 | 11 x11 |
| Low –significant mortality expected | 435 | 10 x 10 |

However, in more recent years the TCC has supported replanting a THA at 222 trees per acre (TPA) or 14 x 14 foot spacing. This TPA is more in line with meeting WHMP objectives for maintaining forage. As a result the WHMP standard of 302 well-spaced seedling per acre 5 years after planting is not achievable. Therefore the reforestation inspection scheduled for year 6 post-harvest (5 years after planting) will evaluate

percent mortality to be no more than 15 percent with the percentage based on replanting stocking levels.

**Pre-Commercial thinning and Pruning:**

Pre-Commercial thinning (PCT) is an important procedure where natural reproduction or overplanting initially has produced too high of a tree density (TPA). Therefore trees need to be removed to improve growing conditions. Every timber harvest area is PCT at least once before the stand is 10 years old and depending on the stand vigor and remaining forage may be PCT a second time between years 10 and 15.

The WHMP Chapter 12 Forestland Section 12.5.9 Regeneration Practices Pre-commercial Thinning has the PCT objectives as follows:

- Maintain a forage component (shrubs, grasses, forbs) in the understory on approximately 50 percent of the area for the first 15 years.
- Maintain proper spacing, growth form, and vigor of the saplings.
- Maintain and increase stand diversity, where feasible.

<u>First PCT Criteria and Methods</u>

First PCT should typically occur prior to stand year 10. Due to variations in stand production, some THAs may need to be PCT prior to stand year 10. Therefore, all THAs should be evaluated 6 years following harvest, when the trees would in their 5th growing season (e.g., THA harvested in year 2005 would be evaluated year 2011). When a THA meets some or all of the following criteria the first PCT may be implemented:

- Tree height is 5 to 7 feet tall
- Spacing is less than 14 x 14 feet and/or TPA is greater than 222
- Overlapping branches with adjacent trees
- If a stand is identified as THA-F and has $\geq$ 50 percent of forage (grasses, shrubs, and forbs) then PCT to WHMP standards and if forage < 50 percent then PCT to forest industry standards as described below.
- Stands identified as THA-S will be PCT to forest industry standards as described below.

*First PCT Methods*:

All stands will be PCT using the same methods spacing, selection, and removal methods. The only difference will be how the slash (i.e., debris from tree removal ) will be managed:

- THA-F stands that have ≥ 50 percent remaining forage (grasses, shrubs, and forbs) will have the slash managed to WHMP standards, which is to cut sapling 4 inches from the ground and the limbs are lopped off and scattered to accelerate decomposition.
- THA-S and THA-F stands with < 50 percent remaining forage will have slash managed more in line with industrial forest methods, which includes cutting trees below the living limbs and minimally handle the slash to ensure that it does not impede the growth of the remaining trees.

These PCT methods will apply to every stand regardless of timber harvest type or percent forage.

- PCT in THAs with trees > 3 inches diameter may be conducted using a hack-n-squirt method (herbicides applied to a cut [hack] through the tree bark into the cambium layer). This method of thinning trees, while they are still standing, reduces slash accumulation.
- Hardwood tree species that are to remain in the plantation include cottonwood, bitter cherry (*Prunus emarginata*), cascara (*Frangula purshiana*), and Pacific dogwood (*Cornus nuttallii*). Red alder (*Alnus rubra*) and bigleaf maple may be retained to maintain or increase diversity.
- Trees and shrubs that provide forage but are competing for sunlight with desired conifer seedlings can be cut back to promote resprouting and reduce competition. This is only considered where these trees and shrubs are within 5 feet of the lateral branches of the seedlings.
- Select trees to maximize diversity of species. Do not remove western redcedars.
- The spacing objective is approximately 14 x 14 feet, but may be adjusted as needed to meet individual THA needs.

Pruning and Second PCT Criteria and Methods

Pruning and, if needed, a second PCT will occur when the stands are between 10 and 15 years. THA-F may be PCT and pruned whereas THA-S will only be PCT. This is a critical age for determining dominant trees, growth characteristics, and promoting understory forage and diversity. The objective of pruning is to promote understory diversity and prolong forage. Therefore, pruning will only occur in THA-F that have > 30 percent of forage (grasses, shrubs, and forbs) remaining in the understory.

Reforestation Inspection in year 10 will evaluate all THAs to determine if the pruning needs are needed for THA-F and if a 2nd PCT is required. If 2nd PCT is required, to reduce costs, it may occur at the same time as pruning. All THAs that meet the following criteria will have a 2nd PCT:

- Tree height is 20-24 feet tall.
- Spacing is less than 15 x 15 feet and/or 194 tree per acre.

*Pruning Methods:*

- Prune the lower branches of the trees to a height of 5 to 6 feet.
- Dominant trees should not be pruned. Dominant trees break the line-of-sight and provide hiding cover, dominant trees create long open visual corridors that should be avoided.

*Second PCT Methods:*

- To reduce slash accumulation, this PCT will preferably be completed by using a hack-n-squirt method (herbicides applied to a cut [hack] through the tree bark into the cambium layer where one hatchet mark is made every 3 inches in circumference at waist height). Enough herbicide should be applied to saturate the hatchet mark without the herbicide running out onto the bole of the tree.
- If PCT is occurring in THA-F and concurrently with pruning, then trees may be felled and branches lopped and scattered to reduce slash competition for grasses and shrubs.
- Hardwood tree species should remain in the plantation. Cottonwood, bitter cherry, cascara, dogwood, red alder and bigleaf maple may be retained to maintain or increase diversity.
- PCT to approximately 15 by 15 feet or 194 trees per acre.
- Select trees to maximize diversity of species. Do not remove western redcedars.

**Commercial Thinning**:

Commercial thinning is a type of selective harvest that is an intermediate harvest prior to clearcutting. Commercial thinning improves tree spacing and reduces canopy cover, which should result in increased growth in leave trees and improved forage in the understory. Commercial thinning objectives are as follows:

• Remove overstory or understory tree to promote tree growth and understory vegetation to greatest extent possible.

In general, THA-F may be commercially thinned once as pole and potentially, a second time, as mid-successional conifer; upland mixed stands usually are only commercially thinned once. THA-F areas should be evaluated for commercial thinning at 25 years post-harvest. Stands that meet some or all of the following criteria may be a candidate for commercial thinning:

- The canopy closure is >70 percent.
- The TPA is greater than 100.
- Average diameter at breast height is > 8 inches.
- Trees should have an average live crown ratio of greater than or equal to 35 percent. Live crown ratio is the ratio of crown length to total tree height, or percentage of the tree's total height that has foliage.
- Height to diameter (H/D) ratios should be $\leq$ 70. H/D ratios are determined by dividing the height by dbh of the residual trees that would remain after thinning. For an example a 100-foot tree that is 20 inches in dbh has a H/D of 60.0. The dbh is converted to feet by dividing by 12, so 20 inch dbh / 12 inches= 1.67, then divide 100/1.67 to get an H/D = 60.0. A stand with H/D ratio $\geq$ 80 would be prone to snow damage, breakage, and windthrow.

The desired stand condition after a commercial thinning should be an open, diverse stand structure where trees can maximize growth potential while still providing wildlife habitat. This is best achieved by evaluating the tree spacing and the percentage of crown ratio. Ultimately the commercial thin when completed should have canopy cover < 70 percent, no less than 100 undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof remaining, and an average dbh > 8 inches. As with all timber harvest, commercial thins will be provided in the Annual Plan and approved by the TCC prior to conducting.

THA-S areas will not be commercially thinned but will thin through natural succession and environmental processes.

**Clearcut Timber Harvest**

At approximately 60 years stands will be evaluated for clearcut harvest. THA-F areas selected for harvest will be dependent on cover:forage model priorities. If cover forage ratios are not being met in the Management Unit, a clearcut harvest will be considered as soon as stands are commercially feasible to meet WHMP cover forage ratio standards.

THA-S areas will not be harvested and will continue to grow to provide mature stand habitat. This schedule is not to be considered a timber harvest rotation age because THAs are selected for harvest dependent on cover:forage model priorities.

Some of the THAs that PacifiCorp acquired are beyond silviculture management due to stocking, lack of management by prior owner, and age. The TCC has determined that these THAs do not currently meet WHMP objectives and would be too costly or unable to manage them to meet WHMP objectives. Therefore these stands will be allowed to grow until they provide merchantable timber, at which time they will be evaluated for clearcutting and to begin WHMP practices.

**Attachment A**

# Responses to Comments Received on the October 2, 2018
# Draft Lewis River Wildlife Habitat Management Plan (WHMP) Lands Timber Harvest and Silviculture Planning.

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| October 10, 2018 TCC meeting | 1 | Introduction | **Revision:** To avoid confusion the THA-Habitat (THA-H) and THA-Forestry (THA-F) should be changed to THA-Flat (THA-F) for habitat (THA-H) and THA-Steep (THA-S) for forestry (THA-F) | Change was accepted and THA-H and THA-F were changed to THA-F and THA-S. A Timber Harvest Type section was added following the introduction that described the difference and maps showing the areas where THA-S are located are provided. |
| November 14, 2018 TCC meeting | 2 | Pre-Commercial thinning and Pruning second paragraph 1st bullet | **Comment:** The TCC requested that HEP and other models be reviewed to provide preferred percent cover per THA for the PCT Criteria and methods. | The HEP and other models were reviewed. These models are based on landscape level analysis not individual timber harvest stands. The 50 percent is directly from the WHMP Section 12.5.9 Regeneration Practices pre-commercial thinning second paragraph first sentence. |
| November 14, 2018 TCC meeting | 3 | First PCT Criteria and Methods 3rd bullet | **Revision:** Need to add language that this is adaptive management and criteria in the memo can be revised as needed to meet management objectives. The <50 percent forage is subjective and be revised in the future if need be | The Introduction Section seemed like a more appropriate place for this addition. The following paragraph was added to introductions: "This memo does not change or modify the existing WHMP, it is intended to only provide guidelines for scheduling reforestation, inspections, silviculture, and harvest to meet WHMP habitat goals and objectives and to effectively manage future budgets and workloads. This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives. This original memo was provided to the TCC on October 2, 2018 for review Attachment A provides comment matrix for each of the comments received. " |
| November 14, 2018 TCC meeting | 4 | Commercial Thinning | **Revision:** Evaluate percentage of commercial thinning with percentage of crown ratio to best accomplish WHMP goals | The 4th paragraph second sentence revised to: "This is best achieved by evaluating the tree spacing and the percentage of crown ratio." |
| November 14, 2018 TCC meeting | 5 | Commercial Thinning 4th bullet | **Revision:** • Trees should have an average live crown ratio of > 35 percent. Provide examples and explanatory context | The 4th bullet was revised to the following: "• Trees should have an average live crown ratio of greater than or equal to 35 percent. Live crown ratio is the ratio of crown length to total tree height, or percentage of the tree's total height that has foliage. " |
| November 14, 2018 TCC meeting | 6 | Commercial Thinning 5th bullet | **Revision:** • Height to diameter ratios should be < 70. Provide summary that TCC approval on TPA and harvest | The 5th bullet was revised to the following: " • Height to diameter (H/D) ratios should be < 70. H/D ratios are determined by dividing the height by dbh of the residual trees that would remain after thinning. For an example a 100-foot tree that is 20 inches in dbh has a H/D of 60.0. The dbh is converted to feet by dividing by 12, so 20 inch dbh / 12 inches= 1.67, then divide 100/1.67 to get an H/D = 60.0. A stand with H/D ratio > 80 would be prone to snow damage, breakage, and windthrow." The 4th paragraph last sentence was revised to the following: "As with all timber harvest, commercial thins will be provided in the Annual Plan and approved by the TCC prior to conducting. " |
| November 14, 2018 TCC meeting | 7 | First PCT Methods | **Revision:** The spacing objective is approximately 14 by 14 feet, but may be adjusted as needed to meet individual THA needs. | The second paragraph fifth bullet was revised to the following: " • The spacing objective is approximately 14 by 14 feet, but may be adjusted as needed to meet individual THA needs." |
| Gifford Pinchot NF, Mt Adams Ranger District | 8 | Replanting last paragraph and last sentence | **Comment:** "with standard no more than 15% mortality"…what is "standard"? | Although this is an industry standard it is not a documented standard. The word standard has been removed. |
| Washington Department of Fish and Wildlife | 9 | Introduction 3rd paragraph | **Revision:** Moved Paragraph 3 to 2nd positions "In addition, most of the lands acquired were industrial timber lands and were harvested according to Washington State Forest Practices rules. As a result, some of these THAs do not meet WHMP standards, such as; harvesting on steep slopes, clearcutting large areas, and clearcutting within WHMP riparian and wetland buffers" | Moved the paragraph up and added the last sentence from the 1st paragraph to make complete second paragraph. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 10 | Introduction 3rd paragraph | **Comment:**<br>Suggest including reference to the section of the WHMP that allows for adaptive management in situations where deviation from the WHMP is appropriate or needed. | The last paragraph was revised to the following:<br>"This memo does not change or modify the existing WHMP, it is intended to only provide guidelines for scheduling reforestation, inspections, silviculture, and harvest to meet WHMP habitat goals and objectives and to effectively manage future budgets and workloads. This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives. This original memo was provided to the TCC on October 2, 2018 for review Attachment A provides comment matrix for each of the comments received. " |
| Washington Department of Fish and Wildlife | 11 | Introduction 3rd paragraph | **Comment:**<br>Someplace in here I would like to see a specific reference to the fact that we want these activities conducted in their entirety within what would be the larger WHMP style buffers. I.E. thin the buffers too. | Last paragraph and second to last sentence was revised to the following:<br>"This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives." |
| Washington Department of Fish and Wildlife | 12 | Introduction 3rd paragraph | **Revision**:<br>To meet WHMP habitat goals and objectives and to effectively manage future WHMP budgets and work load this memo was developed to update the WHMP criteria under which forestry practices should be conducted. It provides ~~a schedule~~ management practices and procedures for reforestation, silviculture, and harvest. These updated criteria and practices ~~This schedule~~ allow for budget planning, scheduling reforestation inspections and management actions, and tracking stands over time. ~~This~~ The ~~schedule~~ criteria and practices ~~is to be used~~ guidelines for planning ~~and guidelines only~~. Adaptive management and case-by-case decisions based on stand conditions will be used to determine the actual year of the management action and the forest prescription that will ~~vary to~~ meet WHMP goals and objectives and specific timber harvest area (THA) needs. | Other than the last sentence, these edits were not included. This is because "update the WHMP criteria under which forestry practices should be conducted." and "These updated criteria and practices" imply that WHMP is being revised. Revision to the WHMP will require Federal Energy Regulatory Commission approval. Please see WHMP Volume 1 Section 16.5.2 Revise the Wildlife Habitat Management Plan. Last paragraph and second to last sentence was revised to the following: "This is intended to be adaptive management, therefore the actual year a management action is scheduled and the method of implementation are ultimately dependent on timber harvest area conditions and best method to meet WHMP goals and objectives." |
| Washington Department of Fish and Wildlife | 13 | Introduction 4th paragraph | **Revision:**<br>To manage cost and prioritize THAs to meet WHMP objectives, these harvest areas have been divided into THA ~~habitat~~ flat (THA-~~H~~F), ideal for active forest management to improve wildlife habitat and THA ~~forestry~~ steep (THA-~~F~~S), areas better suited for natural succession and environmental processes with limited early forest management actions. | A Timber Harvest Type section was added following the introduction that described the difference and maps showing the areas where THA-S are located are provided. The following are the THA-F and THA-S definitions: "THA-Flat (THA-F) are timber harvest areas capable of having active forest management to improve wildlife habitat. These THAs are less than 40 percent slope and greater than 200 feet from an open road. An open road is defined as any road that public is able to access either seasonally or year-round (e.g. Highway 503, Wapiti Way, or Forest Service 90). The THA-F are considered suitable for future forest management practices to improve wildlife habitat (e.g. commercial thinning and clearcut) and will be managed with WHMP Forestland Best Management Practices.<br><br>THA-Steep (THA-S) areas that have topography and/or other constraints that limit forest management to meet WHMP goals and objectives. These are timber harvest areas that are greater than 40 percent slope and/or within 200 feet of an open road. These areas are not suitable for future timber harvest under the WHMP and will best be managed using standard forestry silviculture practices. These are the forested areas that will be allowed to mature into late-successional conifer forests." |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
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| Washington Department of Fish and Wildlife | 14 | Comment to Introduction 4th paragraph | **Comment:**<br>Peggy, I think we have a fundamentally different interpretation of what Kendel is trying to get at here. You've read this section to mean that they more or less wouldn't be doing thinning, etc. in the steep areas. My read is that they will still do most of the activities including the thinning, inspections, etc. but that the pre-commercial thinning just doesn't have the intensity of the activities on the flat areas. For example, on the flat areas they chop up the cut down trees, pile the debris, try to clear paths for walking and patches where sun can hit the ground for forage, etc. In the steep stuff I think they intend to still do the thinning but more or less just leave the trees where they fall. Note that if your interpretation is correct that I don't really think that they should go that way. This would leave large areas (the steep stuff) too thick and slow to recover under natural tree growth.<br>Eric, we may be saying the same thing. THA-S will likely follow the first 6 years of THA-F but after the 1st PCT left to natural succession. We need additional clarification from Kendel about weed inspections etc. It also might help to know the age and stand condition of the new land acquire that falls into the THA-S category. How many acres are beyond the 1st PCT so early actions no longer apply? Once all THA-S is beyond the 1st PCT then first 6 year activities will no longer apply to THA-S. | Many of these comments are addressed in other sections of the memo.<br>**First PCT Methods section first paragraph and first and second bullet:**<br>"All stands will be PCT using the same methods spacing, selection, and removal methods. The only difference will be how the slash (i.e., debris from tree removal ) will managed:<br>• THA-F stands that have > 50 percent remaining forage (grasses, shrubs, and forbs) will have the slash managed to WHMP standards, which is to cut sapling 4 inches from the ground and the limbs are lopped off and scattered to accelerate decomposition.<br>• THA-S and THA-F stands with < 50 percent remaining forage will have slash managed more in line with industrial forest methods, which includes cutting trees below the living limbs and minimally handle the slash to ensure that it does not impede the growth of the remaining trees. "<br>**The Pruning and Second PCT Criteria and Methods first paragraph has been revised as follows:**<br>"Pruning and, if needed, a second PCT will occur when the stands are between 10 and 15 years. THA-F may be PCT and pruned whereas THA-S will only be PCT. This is a critical age for determining dominant trees, growth characteristics, and promoting understory forage and diversity. The objective of pruning is to promote understory diversity and prolong forage. Therefore, pruning will only occur in THA-F that have > 30 percent of forage (grasses, shrubs, and forbs) remaining in the understory."<br>Inspection will be applied to both THA-F and THA-S that includes invasive plant species needs.<br>**Reforestation Inspections:** This applies to timber harvest areas (THAs)<br>**Timber Harvest Type Section:**<br>The last paragraph was added and maps of Management Unit 33-39 are attached showing the THA-F vs THA-S. "THA-S timber harvest areas are only located within Management Units 33-39. Attachment B provides map showing these management units with the each THA by type, harvest identification number, and acreages. Harvest identification are unique number assigned to each THA and include 6 numbers, the first two numbers are the year of harvest, followed by 2 digits for management unit, and the last two digits are unique number followed by CC for clearcut or CT for commercial thin. For example 043632 CC is a 2004 clearcut harvest in management unit 36. " |
| Washington Department of Fish and Wildlife | 15 | THA-H definition edits and comment | **Revision:**<br>THA-~~H~~F are~~ timber harvest~~ areas that are less than 40% slope and greater than 200 feet from an open road. An open road is define as an ungated public road (such as HWY 503 or FS 90). The THA-~~H~~F are considered suitable for future ~~timber harvests~~ forest management practices to improve wildlife habitat (such as commercial thinning and clearcut) and will be managed with to WHMP ~~standards~~ objectives and practices.<br>Objectives:<br>Developing and maintaining a mix of forage and hiding cover for elk;<br>Maintain or create snags, wildlife reserve, and/or trees green retention trees; and<br>Promote forest habitat diversity for wildlife by increasing or maintaining minor native tree species.<br><br>Management criteria for practices and processes:<br>Cover:forage ratios<br>Vegetation cover types<br>Stand structure<br>**Comment:**<br>Nice to include the bulleted items here so that we're more clearly telling the story of what we're trying to achieve here. | The THA-F definition has been modified to the following:<br>"THA-Flat (THA-F) are timber harvest areas capable of having active forest management to improve wildlife habitat. These THAs are less than 40 percent slope and greater than 200 feet from an open road. An open road is defined as any road that public is able to access either seasonally or year-round (e.g. Highway 503, Wapiti Way, or Forest Service 90). The THA-F are considered suitable for future forest management practices to improve wildlife habitat (e.g. commercial thinning and clearcut) and will be managed with WHMP Forestland Best Management Practices. "<br>The Forestland management goals and objectives have added verbatim to the introduction. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
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| Washington Department of Fish and Wildlife | 16 | THA-F (THA-S) definition edits and comments | **Revision**:<br>THA-~~F~~S are timber harvest areas that are greater than 40% slope or within 200 feet of an open road (any not categorized as THA-F). These ~~areas~~ are unmanaged areas not suitable for ~~future timber~~ harvest under the WHMP. They will be thinned at an early age but are ~~and will~~ best left to natural succession and environmental processes ~~be managed using standard forestry silviculture practices which~~ that will promote mature timber over time.<br>**Comment**:<br>Again I'm a bit unclear here. . . … I think that these areas are still managed (and so it really is still under the WHMP) but I recognize that these areas are the where we're not going to pour a bunch of money to do the really pretty fancy thinning. Maybe a sentence saying something more like, "These areas are not suitable for the full breadth of thinning strategies typically incorporated in the WHMP. Instead thinning will be conducted to achieve spacing goals described in more detail below but more intensive activities such as piling of thinning debris, bucking of thinned trees, pruning, etc. | **The THA-S definition has been modified to the following:**<br>THA-Steep (THA-S) areas that have topography and/or other constraints that limit forest management to meet WHMP goals and objectives. These are timber harvest areas that are greater than 40 percent slope and/or within 200 feet of an open road. These areas are not suitable for future timber harvest under the WHMP and will best be managed using standard forestry silviculture practices. These are the forested areas that will be allowed to mature into late-successional conifer forests.<br>This section defines how the timber harvest type is determined. The following sections following describe how the THA-F and THA-S will be managed. |
| Washington Department of Fish and Wildlife | 17 | Reforestation Inspections paragraph 1 | **Revision**:<br>~~Two survey inspections are conducted each year, one in the spring and then "again in the fall~~. | Accepted |
| Washington Department of Fish and Wildlife | 18 | Reforestation Inspections paragraph 1 | **Revision:**<br>The fall inspection identifies THA issues and treatments to ~~managed~~ implemented during the following growing season. | Accepted |
| Washington Department of Fish and Wildlife | 19 | Reforestation Inspections paragraph 2 | **Revision:**<br>Currently, ~~the~~ THA-F~~s~~ that are less than 15 years old total 2,476 acres or 58% of the total ~~harvest~~ THA-F areas. Approximately 73% (1811 acres) of ~~the~~ THA-F~~s~~ under 15 years old are on newly acquired lands. Due to this significant increase it is no longer feasible to complete the biannual inspections on THA-F areas for the first 15 years post-harvest.<br>**Comment**: I think that this still applies to all of the THA, i.e. timber harvest areas . .. .not just the type F areas. In any case it should apply to all areas, we still want them to do this even on the steep stuff.<br><br>You're right the acreage may apply to both. It is my understanding that | This applies to all timber harvest areas. To avoid confusion the THAs acronym has been described as timber harvest areas (THAs) when it first appears in the document in the timber harvest type section. |
| Washington Department of Fish and Wildlife | 20 | Reforestation Inspections paragraph 3 | **Revision:**<br>Therefore to meet WHMP inspection objectives and manage inspection costs, THA-F areas will be evaluated on the following schedule:<br><br>• Year 1-3: spring and fall inspections to determine seedling survival and invasive plant species needs. For example, a 2010 timber harvest will be inspected in spring and fall of 2011, 2012, and 2013.<br>• Year 6: fall inspection to insure that WHMP replanting standards have been achieved and to determine if or when the stand will ~~be in need of 1~~$^{st}$ the first pre-commercial thin (PCT). For example, a 2010 timber harvest would be inspected in fall 2016.<br>• Year 10: fall inspection to evaluate pruning and 2nd PCT needs. For example, a 2010 harvest would be inspected in fall 2020.<br>• An additional~~ly~~ spring inspection following interplanting, invasive plant species control, PCT, or pruning to evaluate the effectiveness of the previous year's activities.<br>**Comment:**<br>Again good edits to the text but I think it still applies to all areas. .. . . Not just F. The first two will likely apply to both This (3rd bullet) would apply to THA-F only This (4th bullet) will apply to THA-F but not all of it will likely apply to THA-S | This section applies to all THAs (THA-F or THA-S).<br>The section was modified as follows:<br>"Therefore to meet WHMP inspection objectives and manage inspection costs, THAs will be evaluated on the following schedule:<br><br>• Year 1-3 spring and fall inspections to determine seedling survival and invasive plant species needs. For example, a 2010 timber harvest will be inspected in spring and fall of 2011, 2012, and 2013.<br>• Year 6 fall inspection to insure that WHMP replanting standards have been achieved and to determine when the stand will ready for the first PCT. For example, a 2010 timber harvest would be inspected in fall 2016.<br>• Year 10 fall inspection to evaluate pruning and 2nd PCT needs. For example, a 2010 harvest would be inspected in fall 2020.<br>• An addition spring inspection following interplanting, invasive plant species control, PCT, or pruning to evaluate the effectiveness of the previous year's activities. " |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
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| Washington Department of Fish and Wildlife | 21 | Replanting last paragraph | **Revision:**<br>"The following are the desirable THA-F criteria/conditions for the first five years after a clear cut.<br><br>Year 0: Clear cut timber leaving unique areas, shrub islands and leave trees; and<br>Scarify the area.<br>Seed the area with a mixture of palatable and nutritious forb and grasses<br><br>Year 1: Plant a mixture of 222 seeding species per acre at 14 x 14 spacing.<br><br>Year 2: An average of 190 or more vigorous, undamaged commercial species seedlings per acre (WAC 222-34-010). If less than an average of 190 trees per acre, interplant as needed; Good forb and grass generation, reseed if needed.<br><br>Years 3 – 5: No more than 15% stocking mortality within the stand (WHMP), interplant as needed; and<br>Palatable and nutritious forage available, reseed as needed."<br><br>~~Therefore the reforestation inspection scheduled for year 6 post-harvest (5 years after planting) will evaluate percent mortality with standard no more than 15% mortality with the percentage based on replanting stocking levels.~~ | Replanting objectives are applied to all timber harvest areas regardless of harvest type (THA-S and THA-F). Although these condition/criteria may apply to many THAs, it does not apply to all scenarios and replanting. Reforestation objectives are adapted to the individual THA needs. This last paragraph is to explain the WHMP reforestation guidelines no longer meets our current needs so therefore to provide a more adaptive guideline the 15% mortality with the percentage based on replanting stocking levels is provided. |
| Washington Department of Fish and Wildlife | 22 | Pre-Commercial thinning (PCT) and Pruning second paragraph | **Revision:**<br>The WHMP Chapter 12 Forestland Section 12.5.9 Regeneration Practices Pre-commercial Thinning describes has the PCT stand objectives as follows. When these objects are not being met, the 1st PCT should be implemented. | Revision not accepted. This is language is from the WHMP section 12.5.9 and it states " The objective of pre-commercial thinning is to maintain a forage component in the understory on approximately 50 percent of the area for the first 15 years while additionally developing the proper spacing, growth form, and vigor of the saplings.". The following section First PCT Criteria and methods describes the criteria for meeting these objectives and when to initiate first PCT. |
| Washington Department of Fish and Wildlife | 23 | First PCT Criteria and Methods 1st paragraph | **Revision:**<br>Due to variations in stand production, some THAs may need to be PCT prior to stand year 10. Therefore, all THAs should be evaluated 6 years following harvest, when the trees would be in their 5th growing season (e.g. THA harvested in year 2000 would be evaluated year 2006 and should have the first PCT completed by 2011). ~~Assuming all WHMP stands were planted the year following harvest this would occur 11 years post-harvest. For example, stands harvested in year 2000 should have the first PCT completed by 2011.~~<br><br>~~Due to variations in stand production, some THAs may need to be PCT prior to stand year 10. Therefore, all THAs should be evaluated 6 years following harvest, when the trees would in their 5th growing season (e.g. THA harvested in year 2005 would be evaluated year 2011). THA will be evaluated for the following criteria prior to PCT:~~ | Accepted |
| Washington Department of Fish and Wildlife | 24 | First PCT Criteria and Methods following the 1st paragraph | **Revision:** Criteria:<br>When the following criteria are met or exceeded the first PCT should be implemented:<br>Years 6 - 10 | The last sentence of the 1st paragraph was revised to the following:<br>"When a THA meets or exceeds the following criteria the first PCT may be implemented:" |
| Washington Department of Fish and Wildlife | 25 | First PCT Criteria and Methods following the 1st paragraph | **Revision:**<br>Insert the following bullet<br>• Adjacent tree branches overlapping, and palatable and nutritious forage is diminishing | This bullet is addressing two separate concerns overcrowding and forage. The "palatable and nutritious forage is diminishing" is already address in the second to the last bullet. A bullet will be inserted that will read " Adjacent trees have overlapping branches" to address overcrowding. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 26 | First PCT Criteria and Methods Section Comment to 3rd bullet regarding percent forage | **Comment:**<br>Confusing. If greater than 50 % forage cover we may want to wait longer to PCT, not decide if using flat or steep prescriptions. Canopy coverage, basal coverage, or stems per acre may be a better metric. If soils are poor and forage and trees will never grow well we may want to shift the unit to THA-S prescriptions permanently. Also the first three bullets are when to PCT. The last two bullets are how to PCT, so they really don't fit here. | THE WHMP PCT objective is to maintain a forage component (shrubs, grasses, forbs) in the understory on approximately 50 percent of the area for the first 15 years. This achieved through the PCT methods; therefore it is not a criteria for determining when to implement PCT in a stand. The first PCT should occur in every stand regardless of forage quantity or quality. The only difference is the which PCT method implemented. If soils are so poor to support forage or trees then it would likely change the vegetation cover type to a non-forest type. The last two bullets will be moved to first PCT methods. "All stands will be PCT using the same methods spacing, selection, and removal methods. The only difference will be how the slash (i.e., debris from tree removal ) will be managed:<br>• THA-F stand and have > 50 percent remaining forage (grasses, shrubs, and forbs) then slash will be managed to WHMP standards to cut sapling 4 inches of the ground and the limbs are lopped off and scattered to accelerate decomposition.<br>• THA-S stands and THA-F stands with < 50 percent remaining forage will have slash managed more in line with industrial forest methods, which only minimally handle the slash only to ensure that it does not impeded the growth of the remaining trees.<br><br>These PCT methods will apply to every stand regardless of timber harvest type or percent forage. " |
| Washington Department of Fish and Wildlife | 27 | First PCT Criteria and Methods Section insert the following paragraphs following bullets | **Revision:**<br>After the 1st PCT, THA-F desired stand conditions are trees 5 feet or taller at a spacing of 14 x 14 or greater allowing for continued forage growth and the eventual establishment of shrub-based understory.<br><br>There are some exceptions to the THA-F 1st PCT criteria. For THA-F stands between six and 10 years after clear cutting that have trees above 7 feet tall, dbh >3 inches, little to no under growth, and have well over 222 TPA, adaptive management will be implemented. The stand will be evaluated for potential response and resource availability for implementing a PCT to THA-S conditions. Trees identified for thinning will be felled and left in place. Likely, no additional action will be taken until trees reach the minimum marketable condition, at which time the stand will be harvested. After harvest, the THA-F area will revert to WHMP management standards to promote optimal wildlife habitat and canopy cover.<br><br>THA-S stands will also be evaluated for potential response and resource availability for implementing a 1st PCT. Likely 1st PTC will not occur unless trees can be easily felled by hand. Felled trees will be left in place. Otherwise the stand will naturally thin through succession and environmental processes.<br>**Comment:**<br>"Not so sure I agree with this . .. . we still want these areas thinned if reasonably possible. Eric, I see your point. I'm not sure if there are safety concerns going in with a chain saw on steep slopes. If not the I'd recommend thinning to the 1st PCT standards i.e. trees 5 feet or taller at a spacing of 14 x 14, with chain saw or hand equipment" | Not included. All stands (THA-F and THA-S) will be PCT to the same spacing. |
| Washington Department of Fish and Wildlife | 28 | First PCT methods first bullet | **Revision:**<br>Trees identified for thinning that are < 3 inches in diameter should be felled, and lopped, and scattered to reduce slash competition for grasses and shrubs. When chainsaws are used, the sapling is cut within 4 inches of the ground. This only applies to THA-H that will be PCT to meet WHMP Standards. | Not accepted. Trees selected for removal are based on spacing, not dbh. The method to remove the tree may vary depending on the size of the tree (e.g.. dbh). |
| Washington Department of Fish and Wildlife | 29 | First PCT methods second bullet | **Revision:**<br>THA-F and Tha-H_F areas with less than 50 percent forage will be PCT to forest industry THA-S standards where will have trees are felled in place. | Not accepted. This distinguish between THA-F and THA-S PCT slash management is described in bullets in the first paragraph. |
| Washington Department of Fish and Wildlife | 30 | First PCT methods third bullet | **Revision:**<br>• PCT in THAs with trees identified for thinning that are > 3 inches diameter may be conducted using a hack-n-squirt method (herbicides applied to a cut [hack] through the tree bark into the cambium layer). This method of thinning trees, while they are still standing, reduces slash accumulation. | Not accepted. Typically only one tree removal method is applied during a PCT either hack and squirt or cutting down. |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
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| Washington Department of Fish and Wildlife | 31 | First PCT methods fourth bullet | **Revision**:<br>Hardwood tree species that are to remain in the plantation include cottonwood, bitter cherry, cascara, and dogwood. Red alder and bigleaf maple may be retained ~~in some THAs~~ to maintain or increase diversity.<br>**Comment**:<br>"Nice job here Peggy. I completely agree with the theme of your edits and you comment below. We want diversity in these stands and don't mind if the hardwood trees are able to secure a spot for themselves among the conifer . .. in fact we should favor it and promote more of this. Lets make sure that the final version includes "protections" for the hardwood trees. | Accepted |
| Washington Department of Fish and Wildlife | 32 | First PCT methods fifth bullet | **Revision:**<br>• Trees and shrubs that provide forage but are competing for sunlight with desired conifer seedlings can be cut back to promote resprouting and reduce competition. This is only ~~done~~ considered where these trees and shrubs are within 5 feet of the lateral branches of the seedlings.<br>**Comment:**<br>"Why? Future harvest value of conifer? If for wildlife may not want to cut shrubs back especially if limited amount of shrubs in area, instead may want to sacrifice sapling." | Accepted |
| Washington Department of Fish and Wildlife | 33 | First PCT methods sixth fifth bullet | **Revision:**<br>~~• When chainsaws are used, the sapling is cut within 4 inches of the ground and the limbs are lopped off and scattered to accelerate decomposition. This only applies to THA-F stand that will be PCT to meet WHMP standards. THA-S and THA-F that have less 50 percent forage will be PCT to forest industry standards and will have trees felled in place.~~ | Accepted |
| Washington Department of Fish and Wildlife | 34 | Pruning and Second PCT Criteria and Methods 1st paragraph | **Revision:**<br>Pruning and, if needed, a second PCT will occur when the stands are between 10 and 15 years. This is a critical age for determining dominant trees, growth characteristics, and promoting understory forage and diversity. The objective of pruning is to promote understory diversity and prolong forage. Diversity and prolong forage. ~~Therefore, pruning will only occur in THA-F that have > 30 percent of forage (grasses, shrubs, and forbs) remaining in the understory.~~<br>**Comments:**<br>"Should this be less than 30%? Otherwise should have a range such as >30% but <50%. If >50% you may not need to prune at that time.<br>Eric, See if suggestion below meets the intent."<br>"No I think she's trying to say that if it is already below 30 percent that its probably too hard to try to reclaim it and not much bang for the buck. I'm fine with 30 percent staying here. I think it's a practical course of action on stands that have already closed their canopy too much to really recover nice forage. " | Deleted sentence will remain. Stands that have less than 30% forage will not be pruned. It is assumed that pruning will retain existing forage, not increase forage amount. |
| Washington Department of Fish and Wildlife | 35 | Pruning and Second PCT Criteria and Methods insert the following after 1st paragraph | **Suggested Revision**:<br>Inspection in year 10 will evaluate the THA-F pruning and 2nd PCT needs. If 2nd PCT is needed it may occur at the same time as pruning to reduce costs.<br><br>Years 10 – 15 THA-F Pruning and 2nd PCT criteria:<br>• Tree height is over 20-24 feet tall.<br>• Spacing is less than 15' x 15' and/or 194 tree per acre. | The 2nd paragraph reads as follows:<br>"Reforestation Inspection in year 10 will evaluate the THA-F pruning needs and if a 2nd PCT is required. If 2nd PCT is required, to reduce costs, it may occur at the same time as pruning. All THA-F that meet the following criteria will have a 2nd PCT:<br><br>• Tree height is 20-24 feet tall.<br>• Spacing is less than 15' x 15' and/or 194 tree per acre." |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 36 | Pruning and Second PCT Criteria and Methods insert the following after 3rd paragraph | **Revision:**<br>Pruning Methods:<br>~~• When saplings reach a height of 20 to 24 feet,~~ Prune the lower branches of the trees ~~should be pruned~~ to a height of 5 to 6 feet.<br>• Dominant trees should not be pruned, dominant trees ~~this will~~ break the line-of-sight and provide hiding cover, ~~avoid~~ pruning dominant trees ~~creating~~ creates long open visual corridors that should be avoided, ~~and maintain hiding cover.~~<br>• If a stand meets pruning criteria and has less than 30% available forage (grasses, shrubs, and forbs), the stand will not be pruned. | Last bullet not accepted because it is stated in the last sentence of the first paragraph |
| Washington Department of Fish and Wildlife | 37 | Pruning and Second PCT Criteria and Methods insert the following after 3rd paragraph | **Revision:**<br>~~Reforestation Inspection in year 10 will evaluate the THA-H pruning needs and if a 2nd PCT is required. If 2nd PCT is required it may occur at the same time as pruning to reduce costs. All THA-H that meet the following criteria will have a 2nd PCT:~~<br><br>~~THA has > 30 percent of forage (grasses, shrubs, and forbs).~~<br>~~Tree height is 20-24 feet tall.~~<br>~~Spacing is less than 15' x 15' and/or 194 tree per acre.~~ | Accepted |
| Washington Department of Fish and Wildlife | 38 | Second PCT Methods 2nd bullet | **Revision:**<br>• If PCT is occurring in THA-F and concurrently with pruning, then trees may be felled, ~~and~~ lopped, and scattered to reduce slash competition for grasses and shrubs. | **Sentence was revised as follows:**<br>• If PCT is occurring in THA-F and concurrently with pruning, then trees may be felled and branches lopped and scattered to reduce slash competition for grasses and shrubs. |
| Washington Department of Fish and Wildlife | 39 | Second PCT Methods 3rd bullet | **Revision:**<br>• Hardwood tree species ~~that are to~~ should ~~include~~ remain in the plantation.<br>~~c~~Cottonwood, bitter cherry, cascara, ~~and~~ dogwood, ~~R~~red alder and bigleaf maple maybe retained ~~in some THAs~~ to maintain or increase diversity.<br>**Comment**:<br>"Per our mutual comments above .. .. we would like stronger language here to promote diversity in the forests. " | **Bullet was revised as follows:** •<br>Hardwood tree species should remain in the plantation. Cottonwood, bitter cherry, cascara, dogwood, red alder and bigleaf maple may be retained to maintain or increase diversity. |
| Washington Department of Fish and Wildlife | 40 | Second PCT Methods 4th bullet | **Revision:**<br>• ~~The spacing objective is~~ PCT to approximately 15 by 15 feet (4.5 by 4.5 m) spacing or 194 trees per acre (479 per ha). | Accepted |
| Washington Department of Fish and Wildlife | 41 | Following Second PCT Methods following the bullets | **Revision:**<br>After the 2nd PCT and/or pruning, desired stand conditions are a tree spacing of 15 x 15 or greater yielding 194 TPA or less with lower limbs removed allowing for continued development of a shrub-based understory. In addition, select trees should disrupt the line of sight and create hiding cover.<br>THA-S will not be pruned or have a 2nd PCT. Thinning and pruning will occur through natural succession and environmental processes. | The first paragraph will not be included because this already stated in section. THA-S may be PCT if needed and this is stated in the first paragraph of this section. |
| Washington Department of Fish and Wildlife | 42 | Commercial Thinning WDFW comment | **Comment:**<br>"Someplace either in this section or the CC section below I want them to get down in writing that if too much of the landscape (i.e. if cover forage ratios aren't being met in the Unit and won't recover any time soon), that clearcutting stands as soon as they are commercially feasible is an activity that the TCC may want to implement. Essentially, we would want to be able to cut these trees down in the clear cut fashion as soon as the project could pay for itself with the value of the wood. This will allow a much quicker course of action towards re-establishing these stands under WHMP standards. This is very unconventional forestry and certainly not what you would choose to do with a commercial tree farm<br><br>Eric does addition in Clear Cut section meet your intent?" | Last paragraph in Clearcut Timber Harvest Section read as follows:<br>"Some of the THAs that PacifiCorp acquired are beyond silviculture management due to stocking, lack of management by prior owner, and age. The TCC has determined that these THAs do not currently meet WHMP objectives and would be too costly or unable to manage them to meet WHMP objectives. Therefore these stands will be allowed to grow until they provide merchantable timber, at which time they will be evaluated for clearcutting and to begin WHMP practices." |

**Attachment A**

| Commenter | Comment Number | Location | Comment | Response |
|---|---|---|---|---|
| Washington Department of Fish and Wildlife | 43 | Commercial thinning 3rd paragraph | **Revision:**<br>In general, ~~THAs~~ THA-F may be commercially thinned once as pole and potentially again as mid-successional conifer; upland mixed stands usually are only commercially thinned once. ~~THAs~~ THA-F areas should be evaluated for commercial thinning at 25 years post-harvest. Stands that meet some or all of the following criteria may be a candidate for commercial thinning: | Accepted |
| Washington Department of Fish and Wildlife | 44 | Commercial Thinning above bullets | **Revision:**<br>Year 25 commercial thinning criteria | Not accepted. This is because this implies that this a rotation year. These ages are years a stand may be considered for commercial thinning. |
| Washington Department of Fish and Wildlife | 45 | Commercial thinning following the bullets | **Revision:**<br>The desired stand condition after a commercial thin is an open, diverse stand structure where trees can maximize growth potential while still providing optimal mature stand wildlife habitat. The canopy cover should be < 70% such that canopy cover will be at or below 70% at harvest, and TPA less than 100 with an average dbh > than 8 inches.<br><br>THA-S areas will not be commercially thinned but will thin through natural succession and environmental processes. | The sentence was included but revised to remove reference to mature stand since many of the commercial thinning occur will occur in pole habitat.<br>The WAC 222-34-010 Required reforestation--West of Cascades Summit<br>(b) Reforestation is not required where: (iii) Trees are removed under a thinning program reasonably expected to maximize the long-term production of commercial timber; or<br>(iv) An average of 190 vigorous, undamaged, well-distributed seedlings per acre of a commercial tree species are established on the area harvested (up to 20 percent of the harvested area may contain fewer than 190 seedlings per acre, but no acre of the harvested area with timber growing capacity may contain less than 150 seedlings per acre); or<br>(v) A minimum of 100 vigorous, undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof, remain on the area harvested.<br>Therefore to meet Forest Practice Board rules the sentence will be revised as follows:<br>"The desired stand condition after a commercial thinning should be an open, diverse stand structure where trees can maximize growth potential while still providing wildlife habitat. The canopy cover should be < 70%, no less than 100 undamaged, well-distributed saplings or merchantable trees per acre of a commercial species or combinations thereof remaining and an average dbh > than 8 inches.<br><br>• THA-S areas will not be commercially thinned but will thin through natural succession and environmental processes." |
| Washington Department of Fish and Wildlife | 46 | Clearcut Timber Harvest | **Revision:**<br>Title changed to from Clearcut to Clear cut Timber Harvest | Not accepted. The correct and recognized spelling for clearcut timber harvest is as one word. |
| Washington Department of Fish and Wildlife | 47 | Clearcut Timber Harvest | **Revision:**<br>At approximately 60 years stands will be evaluated for clear cut harvest. THA-F areas selected for harvest will be dependent on cover:forage model priorities. If cover forage ratios are not being met in the Unit, a clear cut harvest will be considered as soon as stands are commercially feasible to meet WHMP cover forage ratio standards. THA-S areas will not be harvested and will continue to provide mature stand habitat. | Accepted |

# Attachment B

## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 33***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

0 450 900
Feet

1:7,000

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

U:\Projects\Hydro\Lewis\Elk Habitat\Silviculture Map - All Units.mxd 12/10/2018 p30089

063307 CC
20 ac

053802 CC
52.5 ac

053801 CC
34.3 ac

Unit 38

043305 CC
30.6 ac

043304 CC
11.5 ac

043304 CC
11.5 ac

Unit 33

063314 CC
3.7 ac

093315 CC
42.9 ac

093315 CC
42.9 ac

093315 CC
42.9 ac

Unit
39

163981 CC
22.2 ac

063313 CC
3.6 ac

073913 CC
6.2 ac

063312 CC
3.1 ac

063311 CC
52.2 ac

073911 CC
19.4 ac

063310 CT
2 ac

ELKELBERRY
WETLAND

123932 CC
25 ac

043303 CC
6.4 ac

133316 CC
31.8 ac

133316 CC
31.8 ac

113318 CC
24.1 ac

VIOLET
WETLAND

BUTTERCUP
WETLAND

043302 CC
3.7 ac

133317 CC
20.6 ac

063308 CC
23.5 ac

113319 CC
1.8 ac

043306 CC
6.2 ac

043331 CC
26.7 ac

063309 CC
43.4 ac

043331 CC
26.7 ac

063308 CC
23.5 ac

043332 CC
24.7 ac

043333 CC
18.1 ac

113320 CC
17.6 ac

123931 CC
31.4 ac

133904 CC
3.9 ac

043333 CC
18.1 ac

133710 CC
20.3 ac

053708 CC
9 ac

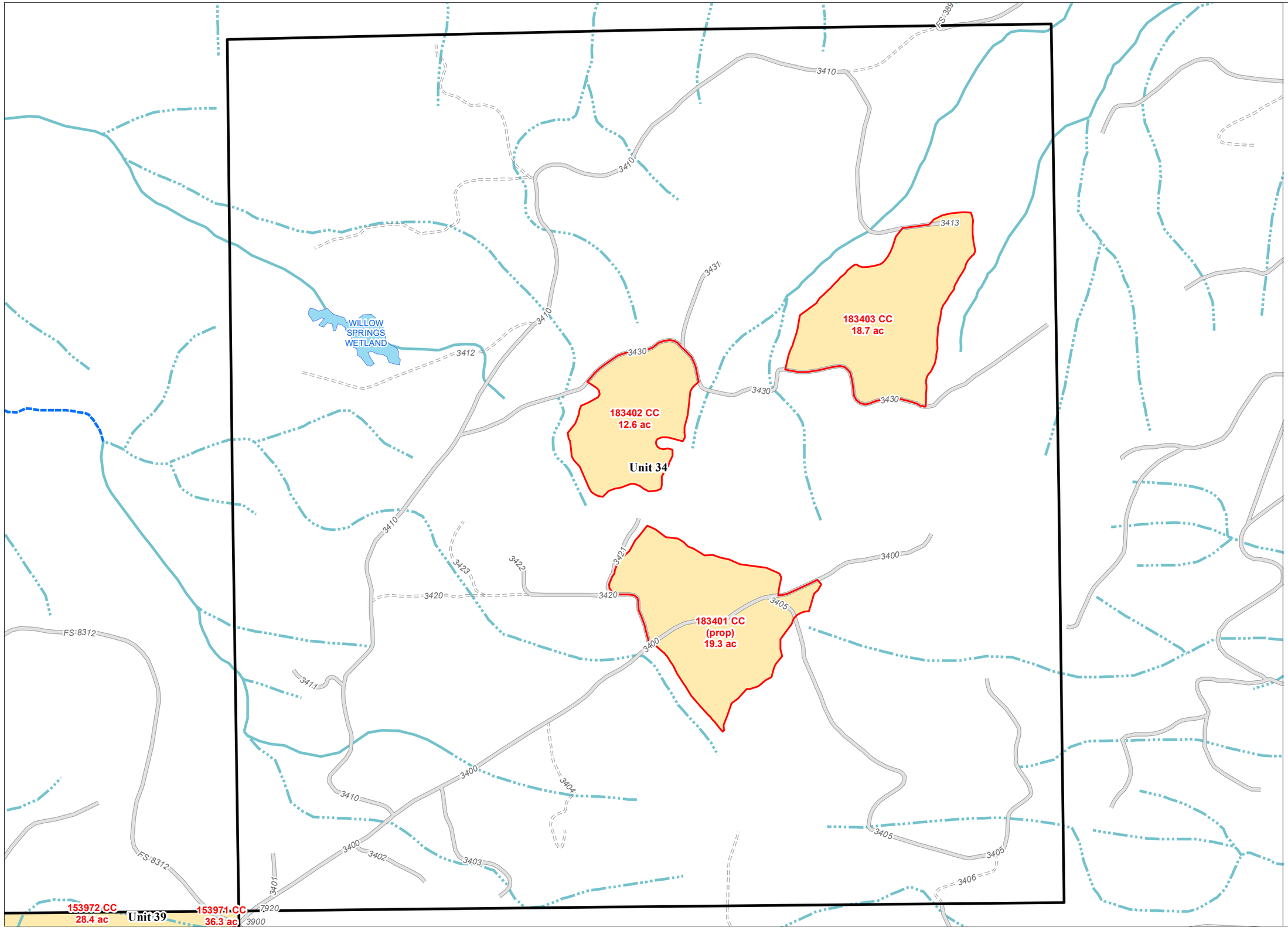
Unit 37

163712 CC
32 ac

013702 CC
32.7 ac

Swift Creek

# Attachment B




## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 34***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 440 880
Feet

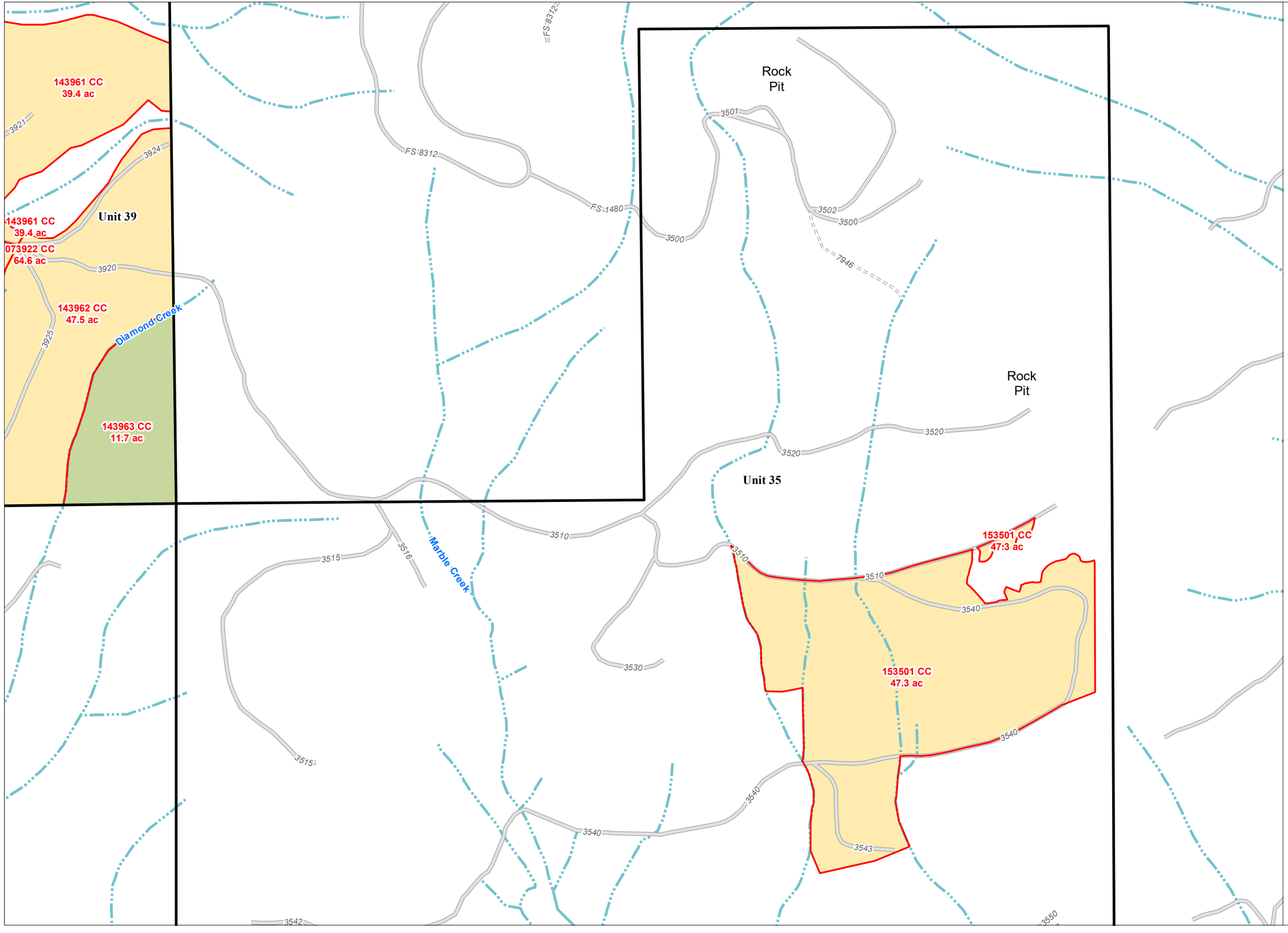
1:6,800

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

U:\Projects\Hydro\Lewis\Elk Habitat\Silviculture Map - All Units.mxd 12/10/2018 p30089

# Attachment B




## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 35 - North***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 380 760
Feet

1:6,000

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

U:\Projects\Hydro\Lewis\Elk Habitat\Silviculture Map - All Units.mxd 12/10/2018 p30089

# Attachment B

## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 36***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 440 880
Feet

1:6,800

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

U:\Projects\Hydro\Lewis\Elk Habitat\Silviculture Map - All Units.mxd 12/10/2018 p30089

Unit 37
923701 CC
71.4 ac
143715 CC
28.5 ac
043632 CC
40.8 ac
043631 CC
11.9 ac
053643 CC
47.6 ac
053642 CC
52.8 ac
883622 CC
27.1 ac
883621 CC
32.5 ac
053641 CC
50.1 ac
Unit 36
163653 CC
20.2 ac
163654 CC
42.2 ac
163656 CC
2.4 ac
163655 CC
40.2 ac
163651 CC
49.9 ac
163652 CC
45.9 ac
883601 CC
18 ac
Unit 35
Unit 27
Unit 31-6
Rock Pit
Diamond Creek
Marble Creek
Swift Reservoir
WAPITI WAY
FS 90
FS 90
FS 90
FS 90
FS 90
3720
3602
3600
3600
3600
3600
3601
7960
3617
3620
3610
3613
3630
3610
3614
3620
3615
3610
3610
3630
3640
3630
7905
3640
9015
9015
9015
3551
3550
7960
3560
3612
3610
9015
3630

# Attachment B

043333 CC
18.1 ac
043333 CC
18.1 ac
043332 CC
24.7 ac
113320 CC
17.6 ac
063308 CC
23.5 ac
Unit 33
063309 CC
43.4 ac
063309 CC
43.4 ac
123931 CC
31.4 ac
133904 CC
3.9 ac
073921 CC
37.1 ac
073922 CC
64.6 ac
Unit 39
053708 CC
9 ac
163712 CC
32 ac
133710 CC
20.3 ac
163712 CC
32 ac
013702 CC
32.7 ac
133710 CC
20.3 ac
043771 CC
6.9 ac
023705 CC
41.5 ac
013704 CC
3.9 ac
133710 CC
20.3 ac
013703 CC
39.1 ac
043772 CC
56.7 ac
Unit 37
143713 CC
15.9 ac
043762 CC
29 ac
043761 CC
31.9 ac
133709 CC
15.1 ac
143714 CC
51.8 ac
143715 CC
28.5 ac
923701 CC
71.4 ac
043632 CC
40.8 ac
Unit 36
3300
3301
3315
3900
7900
7920
3700
3710
3711
3712
3713
3721
3720
3722
3725
3723
3724
3726
3727
3602

## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 37***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

N
W E
S

0 425 850
Feet

1:6,600

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

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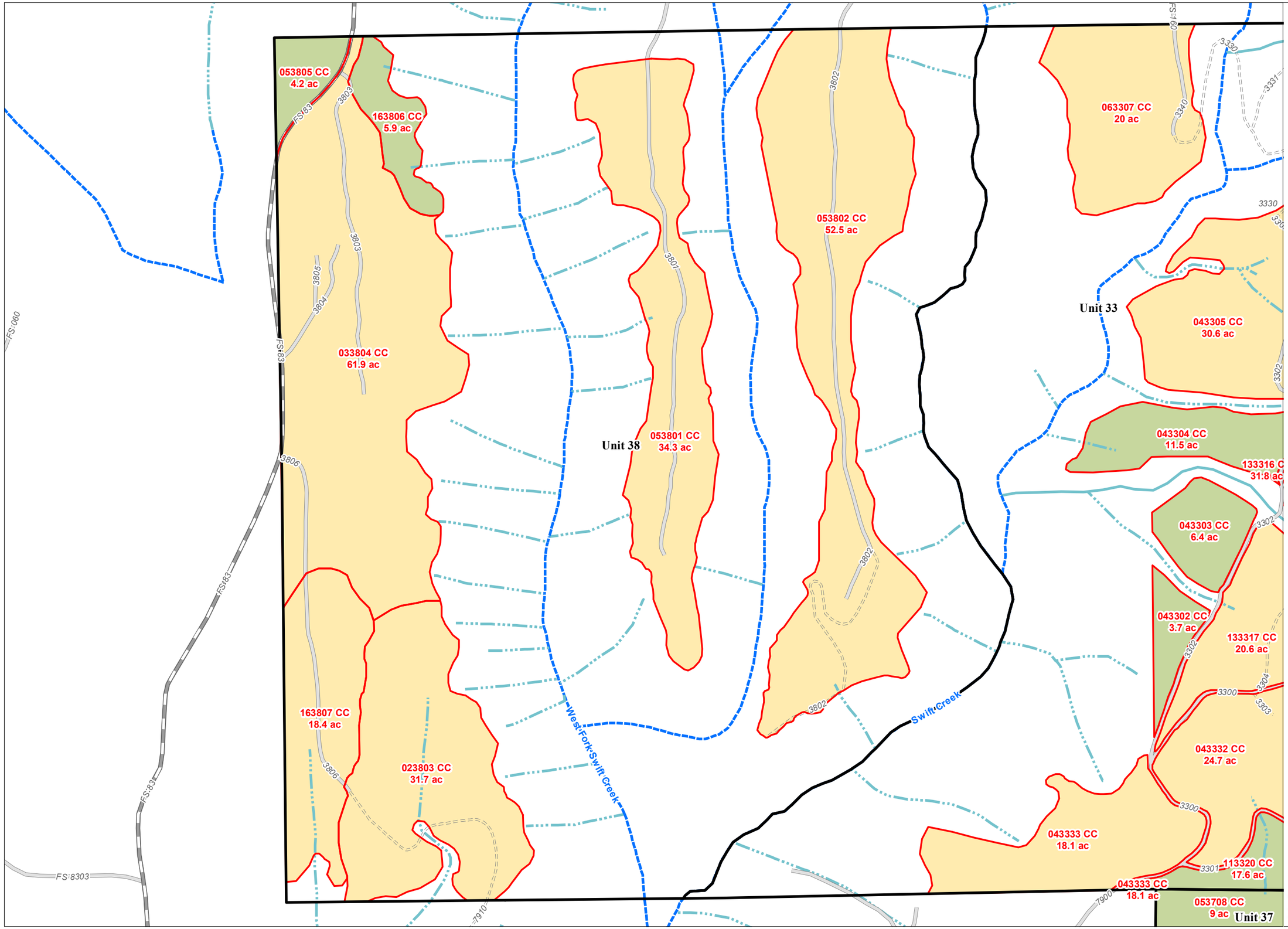
# Attachment B




## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 38***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

0 420 840
Feet

1:6,500

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

U:\Projects\Hydro\Lewis\Elk Habitat\Silviculture Map - All Units.mxd 12/10/2018 p30089

# Attachment B

063314 CC
3.7 ac
093315 CC
42.9 ac
093315 CC
42.9 ac
163981 CC
22.2 ac
063313 CC
3.6 ac
073913 CC
6.2 ac
093315 CC
42.9 ac
063312 CC
3.1 ac
073911 CC
19.4 ac
063311 CC
52.2 ac
063310 CT
2 ac
123932 CC
25 ac
073912 CC
32.7 ac
113318 CC
24.1 ac
113319 CC
1.8 ac
063308 CC
23.5 ac
063308 CC
23.5 ac
063309 CC
43.4 ac
063308 CC
23.5 ac
063308 CC
23.5 ac
133904 CC
3.9 ac
163712 CC
32 ac
133710 CC
20.3 ac
163982 CC
21.4 ac
163983 CC
49.5 ac
163984 CC
52.7 ac
123931 CC
31.4 ac
073921 CC
37.1 ac
073922 CC
64.6 ac
153972 CC
28.4 ac
153971 CC
36.3 ac
133905 CC
30.9 ac
143961 CC
39.4 ac
143962 CC
47.5 ac
143963 CC
11.7 ac

WHISTLE PIG WETLAND
VOLE WETLAND
ELKELBERRY WETLAND
BUTTERCUP WETLAND
Diamond Creek

Unit 33
Unit 34
Unit 35
Unit 37
Unit 39

FS 8312

## Lewis River

*Silviculture*
(All Units)

*SWIFT*
***Unit 39***

**Timber Harvest Area Type**

- Flat
- Steep

- Harvest Area
- Management Unit
- Fish Stream
- Non-fish Perennial
- Non-fish Seasonal
- Other Stream
- Water Body
- Wetland, Pond
- Highway
- Road
- Abandon/Orphan Road

0 440 880
Feet

1:6,800

PACIFICORP

Data is projected in UTM Zone 10, NAD83, meters.

U:\Projects\Hydro\Lewis\Elk Habitat\Silviculture Map - All Units.mxd 12/10/2018 p30089