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

Date & Time: **Wednesday, December 11, 2013**
9:00 a.m. – 12:15 p.m.

Place: **Merwin Hydro Control Center**
105 Merwin Village Court
Ariel, WA 98603

Contacts: **Kirk Naylor: (503) 813-6619; cell (503) 866-8750**

Time	Discussion Item
9:00 a.m.	Welcome ➢ Review Agenda & 11/13/13 Meeting Notes ➢ Comment & accept Agenda & 11/13/13 Meeting Notes
9:30 a.m.	Orchards 2014 Budget Review
9:45 a.m.	Old Growth Connectivity
10:45 a.m.	**Break**
11:00 a.m.	Wetlands Initial Evaluation
12:00 p.m.	➢ Next Meeting's Agenda ➢ Public Comment Opportunity Note: all meeting notes and the meeting schedule can be located at: http://www.pacificorp.com/es/hydro.html
12:15 p.m.	***Adjourn***

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

Conference ID: 8098350

FINAL Meeting Notes
Lewis River License Implementation
Terrestrial Coordination Committee (TCC) Meeting
December 11, 2013
Ariel, WA

TCC Participants Present: (9)

Ray Croswell, RMEF
Bill Richardson, RMEF
Peggy Miller, WDFW
Eric Holman, WDFW
Kimberly McCune, PacifiCorp Energy
Kendel Emmerson, PacifiCorp Energy
Kirk Naylor, PacifiCorp Energy
Nathan Reynolds, Cowlitz Indian Tribe
Bob Nelson, RMEF

Calendar:

February 12, 2014	TCC Meeting	HCC
March 12, 2014	TCC Meeting	HCC

Assignments from December 11, 2013	**Status**
Emmerson: Update the December 21, 2012 Old-Growth memorandum to include summary of results from the maps and spreadsheet and redistribute to the TCC for their records.	**Pending**

Assignments from June 13, 2012	**Status**
Naylor: Review the SA/WHMP budget(s) as well as determine status and opportunity for coordination with John Cook (NCASI) and Lisa Shipley (Washington State University) doing the blacktail study and report back to the TCC.	**In Progress**

Review of Agenda and Finalize Meeting Notes
Kirk Naylor (PacifiCorp Energy) called the meeting to order at 9:40 a.m. Naylor reviewed the agenda and asked the TCC if there were any changes/additions. Additional discussion will be added to address the Cowlitz PUD Devils Backbone – Timber Management Alternatives.

Naylor reviewed the November 13, 2013 meeting notes and assignments. The meeting notes were approved at 10:00 am with the following changes:

The TCC requested removal of the following items from the parking lot:

Parking lot items from April 13, 2011 Meeting	**Status**
Naylor: Provide TCC with Riparian Management Plan for review.	**Pending**

Parking lot items from December 12, 2012 Meeting	Status
PacifiCorp: Work with TCC to proceed with second RMEF/PAC Project Proposal	**Pending**

Orchards 2014 Budget Review

Kendel Emmerson (PacifiCorp Energy) informed the TCC attendees that the 39 orchard trees will cost approximately $25.00 each (could go up to $30.00 each).

Materials to include but not limited to wire for exclosures; weed block and posts: $5,100
Time to include picking up materials, planting, mobilization: $2,800
Total: $7,900
(Average is $202.00 per tree)

Including the cost to come back and re-water and Emmerson's time the approximate cost is $12,000. Emmerson informed the TCC that it is likely the WHMP will not bear the cost of this endeavor; Pacific Power will bear the expense.

General discussion took place regarding the number of trees scheduled to be planted (39 trees) is less than what will be removed from the ROW (83 trees). Emmerson explained that is not a 1:1, but there will be an overall net increase in trees on WHMP lands because an additional 27 existing trees on WHMP lands have been included in the tree inventory. The trees to be planted will be in a better place and achieve full production, the result is creating orchard habitat instead of just a few orchard trees scattered in different locations. It was noted that ROW trees presently never reach full production as they are in poor habitat and need constant pruning to keep below hazard tree height.

The TCC reached consensus that the number of trees is not the issue but productivity/benefits to wildlife habitat is a common goal and the preferred method. This is not an issue of 1:1 tree replacement but about improving orchard habitat.

<Break 10:15am>
<Reconvene 10:30am>

Old Growth Connectivity

> Objective d: Within 5 years of Lewis River WHMP implementation, identify and evaluate specific mature conifer stands or other areas that could improve habitat connectivity between old-growth stands or increase number or size of old-growth patches, and develop a schedule to manage/protect these areas as appropriate. Complete the identification/evaluation process within 5 years of the acquisition of Interests in Land.

Emmerson provided a copy of a memorandum dated December 21, 2012 titled, Lewis River Wildlife Habitat Management Plan (WHMP) Old-Growth Management Objective D, Old Growth Connectivity (**Attachment A**) and in an email sent to the TCC dated December 2, 2013 and titled, WHMP Old-Growth Habitat Management Objective D (**Attachment B**) for TCC review, which provided background information on mature stand criteria and methods. Also provided for TCC in this email was a Mature Stand Connectivity Map Book (**Attachment C**), consisting of nine (9)

maps to provide a visual reference of each mature stand on WHMP lands, its priority type, and its proximity to riparian buffers, raptor nests, roosts, old-growth, and riparian corridors. The email also provided a spreadsheet titled Connectivity Data & Summary Spreadsheet (**Attachment D**) which provides details about each stand scoring and the overall connectivity for WHMP lands by management unit. This spreadsheet also provides a breakdown of the total acres and percent of priority vs. non-priority mature stands as well as other acres in connectivity (old-growth habitat and riparian buffers).

Emmerson informed the TCC attendees that Unit 17 was split into two smaller polygons that will remain a priority as Mature Stand ID number 154100 (18.8 acres). The polygon division is based on tree size with the larger trees in ID number 154100 (see page 4, Total Acres of Connectivity per Unit, Attachment D).

General discussion took place regarding Unit 23; all of Unit 23 has quite a lot of root rot and down trees, including a good mix of hemlock and cedar. The evaluation of Unit 23 determined that the portion of the stand east of the road is old-growth so the stand was split into a mature stand and an old-growth stand.

Emmerson communicated to the TCC that Unit 15 has a lot of light penetrating the understory (as a result of the thinning); resulting in an impenetrable mass of salmon berry, vine maple, and alder. Because the mature conifer tree canopy spacing is wide, these stands, if left, will never provide closed canopy conditions that would reduce the thick shrub understory and promote a secondary canopy layer that would provide higher quality habitat for forest raptors. The most effective option would be to do some sort of timber harvest and replant these areas back to conifer to develop secondary or tertiary conifer layers.

In response to Peggy Miller's (WDFW) questions, Naylor indicated that Unit 15 is not on a harvest schedule; there is not a specific time to go back in there to do anything (other than the commercial thin proposed from 2012 in a 28 year-old stand). Unit 15 is on target per the plan for a cover forage ratio of 70:30 (± 5%) and is currently at 71:29. The overall prescription for Unit 15 as stated in the WHMP was to move from a 50:50 ratio to a 70:30 because of the amount of area already set aside to meet raptor objectives. Naylor also said that there is not a specific prescription for this specific mature stand; in 5 years we may consider more thinning, may leave scattered big trees or may manage to meet other objectives. Unit 15 currently has 40% of its land area in connectivity. Unit 15 has a lot of snags naturally due to root rot, so there no need to create more snags. Miller requested PacifiCorp inform the TCC of any prescription plans for Unit 15 and solicit input on the polygons.

Emmerson explained the next steps are to work with PacifiCorp's GIS department to determine ways to display the priority vs non-priority mature stands in Powermap (PacifiCorp's GIS data displaying software) and how to reference the data to ensure the decisions are retained along with the process for future implementation and understanding.

The TCC reached consensus that the WHMP Old-Growth Connectivity Plan, as presented by PacifiCorp is acceptable. Emmerson will update the December 21, 2012 memorandum and redistribute to the TCC for their records.

Wetland Initial Evaluation
Emmerson provided a handout, titled Draft Wetland Summary for TCC review (**Attachment E**) that provides detail of each wetland, hydrology source, current wetland size in acres, species use and future management to name a few. There are approximately 124.49 acres of WHMP wetlands mapped, although there is not an objective that dictates the number of wetland acres required.

Emmerson explained that this wetland inventory was not a single WHMP objective, but was necessary to help with achieving Wetland Chapter objectives b, c, d, and e.

Emmerson informed the TCC attendees that some wetlands, such as Speelyai Point, were not included because the wetland is below the reservoir shoreline. She also reviewed a number of wetland photos and maps for the TCC to show areas of original wetland boundaries vs revised wetland boundaries, revised vegetation cover types, and buffers. Wetlands were previously only mapped from aerial photos and this was the first time this habitat was ground-verified.

The TCC reached consensus that the revised wetland maps, as presented by PacifiCorp are acceptable.

The TCC also reviewed the following objective specific to the wetlands objective:

Objective D: Within 5 years of WHMP implementation, investigate methods to discourage/reduce bullfrog use of wetlands. Implement appropriate identified measures over the next 5 years.

The TCC agreed that during peak bullfrog season, PacifiCorp will review wetlands to determine which wetlands have bull frogs. Also wetlands along Frasier Creek will have bullfrog egg masses removed to determine the level of effort required and to determine its effectiveness. The TCC can then discuss future bullfrog management, budget, time, surveys, etc. on WHMP lands.

Other Topics

Devils Backbone – Timber Management Alternatives
In response to the email below from Diana Gritten-MacDonald (Cowlitz PUD) **the TCC reached a consensus to proceed with getting costs for these alternatives as Gritten-MacDonald presented them** and once they receive this information, the TCC wishes to discuss the next steps to include but not limited to budget opportunities, sequenced plan, effectiveness of plan and proposed accumulative budget.

From: *Diana MacDonald [mailto:dmacdonald@cowlitzpud.org]*
Sent: *Tuesday, December 03, 2013 5:44 PM*
To: *'Eric Holman (holmaewh@dfw.wa.gov)'; McCune, Kimberly; '(ewhite@cowlitz.org)'; 'Bob Nelson (nelson338@aol.com)'; Emmerson, Kendel; Naylor, Kirk; 'peggy.miller@dfw.wa.gov'; 'Ray Croswell (shedhunt@aol.com)'; Nathan Reynolds (nreynolds@cowlitz.org) (nreynolds@cowlitz.org)*
Subject: *Devils' Backbone - Timber Mgmt Alternatives*

Based on our conversation at the last TCC meeting and the responses to my request for clarification on the alternatives discussed during the Devil's Backbone site visit, I have put together a Request for Non-binding Quotes for the following three timber management Alternatives.

Alternative 1*: Create two 0.25-acre patch cuts and one 0.5-acre patch cut using chain saws and hand tools only, leaving all logs on site. Limb tops and branches and buck stems into lengths as needed to drop the material to the ground.*

Alternative 2*: Create two 0.25-acre and one 0.5-acre patch cut and conduct a variable-density thin (focused on the smaller diameter classes) between the patches so that the treated area occupies a total of 10 acres. Leave a target amount of 25 tons per acre of coarse woody debris in the largest diameter class on site. Skid and haul all other merchantable logs from the site. Scarify and seed all disturbed soils with a cool-season elk forage mix.*

Alternative 3*: Create five 1-acre and ten 0.5-acre patch cuts and conduct a variable-density thin (focused on the smaller diameter classes) on 50 acres. Leave a target amount of 25 tons per acre of coarse woody debris in the largest diameter class on site. Skid and haul all other merchantable logs from the site. Scarify and seed all disturbed soils with a cool-season elk forage mix.*

Please confirm via email by close of business Wednesday December 11th that you agree with these Alternatives. I will not be able to attend the Dec 11 TCC meeting.

Happy Holidays,

Diana M. Gritten MacDonald
Manager Environmental and Regulatory Services
Cowlitz PUD
360-577-7585
dmacdonald@cowlitzpud.org

Public Comment Opportunity
No public comment was provided.

<1:00 p.m. meeting adjourned>

Agenda items for February 12, 2014

- Review December 11, 2013 Meeting Notes
- Review 2014 WHMP Plan
- 2013 Year-end Financial Reporting

Next Scheduled Meetings
NO JANUARY MEETING

February 12, 2014	March 12, 2014
TCC Meeting	TCC Meeting
Merwin Hydro Control Center	Merwin Hydro Control Center
Ariel, WA	Ariel, WA
9:00am – 3:00pm	9:00am – 3:00pm

Attachments:

- December 11, 2013 Meeting Agenda
- November 13, 2013 Meeting Notes
- **Attachment A** – Lewis River Wildlife Habitat Management Plan Old-Growth Management Objective D, Old Growth Connectivity, dated December 21, 2012
- **Attachment B** WHMP Old-Growth Habitat Management Objective D email, dated December 2, 2013
- **Attachment C** – Mature Stand Connectivity Map Book, dated 12/11/13
- **Attachment D** – Connectivity Data & Summary Spreadsheet, dated 12/11/13
- **Attachment E** – Draft Wetland Summary, dated 12/11/13

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MEMORANDUM

DATE: December 21, 2012

TO: Terrestrial Coordination Committee

FROM: Kendel Emmerson, PacifiCorp Energy Wildlife Biologist

SUBJECT: Lewis River Wildlife Habitat Management Plan Old-Growth Management Objective D Old-Growth Connectivity

The 2008 Lewis River Wildlife Habitat Management Plan (WHMP) Old-growth Management Habitat Management section overall goal is to "promote the development, maintenance, and connectivity of old-growth coniferous forest and/or associated habitat components". This goal is achieved by implementing a variety of objectives; in particular Objective c, d, and e promote connectivity. This memo describes the strategy meeting Objective d which reads as follows:

> Objective d: Within 5 years of Lewis River WHMP implementation, identify and evaluate specific mature conifer stands or other areas that could improve habitat connectivity between old-growth stands or increase number or size of old-growth patches, and develop a schedule to manage/protect these areas as appropriate. Complete the identification/evaluation process within 5 years of the acquisition of Interests in Land.

Section 4.5.3 of the WHMP Old-growth Habitat Management Chapter described how Objective D will be achieved

> Existing mature conifer stands (i.e., mature stands identified in the maps in PacifiCorp and Cowlitz PUD [2004a]) will also be assessed to determine the existing or potential connectivity to old-growth stands within 5 years of Lewis River WHMP implementation. Newly acquired mature conifer stands will be assessed within 5 years of acquiring the land.
>
> Mature stands that are a priority to old-growth connectivity will include stands that are adjacent to and/or connected by forested buffers to old-growth stands. These priority mature stands will be evaluated in the field to determine if any management activities are required to develop old-growth habitat characteristics within the stand (i.e., snag development, thinning, and large woody debris development). Evaluations and management recommendations will be

documented and discussed with the TCC. Evaluations will follow the same procedures and use the same evaluation forms as used for the old-growth evaluations. The result of these stand evaluations will provide recommended management actions and will identify mature stands that may be developed into old-growth during the life of the licenses.

In order to identify the priority mature stands (i.e., a stand that is a priority to old-growth habitat connectivity) a GIS model was developed that essentially identified all of the old-growth (OG) and the mature (M and M-t) stands that are greater than 1.0 acre in size and on WHMP lands.

The mature stands were then scored based on criteria for size, proximity to old-growth, spotted owl habitat rating, and designated raptor and/or riparian habitat buffer. The following table lists the criteria and its applicable points.

Table 1: Mature Stand as Old-Growth Connectivity Criteria and Points

Criteria	Description	Points
Size	The stand is ≥10 acres	3
	The stand is between ≥ 5 and ≤ 9.99 acres	2
	The stand is between ≥ 1 and ≤ 4.99 acres	1
Old-Growth Proximity	The stand is adjacent (i.e., ≤ 1,000 ft.) to an old-growth stand on WHMP or USFS lands or within the SOSEA	3
	The stand is ≥ 1000 ft. and ≤ 0.25 miles from old-growth stand on WHMP or USFS lands or within the SOSEA	2
	The stand is ≥ 0.25 and ≤ 0.5 miles from old-growth stand on WHMP or USFS lands or within the SOSEA	1
Spotted Owl Habitat	Any portion of the stand is within Raptor Management Objective J lands (i.e., these are lands within the Siouxon SOSEA)	3
	Any portion of the stand that is within Raptor Management Objective I lands (i.e., These are lands, that unless separated by a reservoir, are within 2.0 miles of the Siouxon SOSEA)	2
	Any portion of the stand that is within Raptor Management Objective H lands (i.e., These are lands, that unless separated by a reservoir, are within a spotted owl circle and greater than 2.0 miles of the Siouxon SOSEA)	1
Protected Raptor Habitat	Any portion of the stand that is within a raptor nest buffer	2
	Any portion of the stand that is within a raptor roost buffer	1
Riparian Buffer	Any portion of the stand that is within the Cougar/Panamaker Conservation Covenant	3
	Any portion of the stand that is within a Fish or Non-fish Perennial steam or shoreline buffer.	2
	The stands only applicable buffer(s) is a non-fish seasonal or other stream buffer.	1

Only one point category for size, old-growth proximity, and spotted owl habitat can be applied to a mature stand, whereas a stand can have multiple points applied for Protected

Raptor Habitat (e.g. a stand within a raptor nest and roost buffer would receive a score of 3). Only the highest riparian buffer score was applied to stand that are within multiple riparian buffers (e.g. stand with 1 fish bearing streams and 2 non-fish bearing streams receives a score of 2). For example the highest score that could be obtained for a mature stand on WHMP lands would be 15 points= 3 points for being greater than 10 acres in size, 3 points for adjacent to an old-growth stand, 3 points for being within the Siouxon SOSEA, 3 points for being within a raptor nest and a raptor roost buffer, and 3 points for being in a Cougar/Panamaker Conservation Covenant. Conversely the lowest score a stand could obtain would be 1 point for a stand that is between $\geq$ 1 and $\leq$ 4.99 acres in size and meets no other criteria. The following table is a breakdown of the mature stand scores and a comparison in acres, size range, and average size.

Table 2: Mature Stand Scores and Total, Average, and Range Size Comparison

Score	Number of Stands	Total acres	Average Size	Size Range
1	8	14.40	1.80	1.05-3.34
2	5	21.49	4.29	1.29-8.67
3	17	46.50	2.74	1.00-4.16
4	13	76.40	5.88	1.13-21.69
5	20	147.56	7.38	1.56-25.09
6	18	113.30	6.29	1.53-33.88
7	15	136.43	9.10	1.86-30.28
8	8	101.38	12.67	4.46-44.86
9	6	66.84	11.14	1.68-19.85
10	2	13.12	6.56	5.32-7.80
11	0	0	0	0
12	0	0	0	0
13	3	46.37	15.45	10.36-22.80
Total	**115**	**782.77**	**6.41**	**1.00-44.86**

A priority ranking was assigned to all mature stands that scored an 8 or better. This included 19 stands for a total of 227.71 acres or 29% of the stands. Any stand that scored less than 8 was considered non-priority to old-growth connectivity. These stands totaled 556.06 acres or 71% of the total mature stand acres.

The following maps show the priority vs. non-priority mature stands in relation to old-growth stands, riparian buffer, raptor nest and roosts. Each stand is labeled with its unique 6 digit number known as Asset ID and it associated score. There is also an associated table that is sorted by Asset ID that shows the score for each criterion to see how the polygon ranking was determined.

Mature stands were originally identified during the vegetation cover typing conducted for relicensing. These stands were identified using largely aerial imagery interpretation based on the following description:

> Greater than 70% of canopy coverage is comprised of conifer. Average stand diameter 21 to 26 inches at breast height. Canopy structure has a relatively uniform vertical and horizontal texture.

Because diameter at breast height is the most definitive characteristic for mature stands, but the least accurate to determine with aerial imagery, it is likely that many stands may not meet the mature stand criteria. The stands identified as a priority (scored $\geq$ 8) will be field verified to ensure that they meet the mature stand definition for mature cover. Several areas have been field verified and corrected since receiving the license as part of the old-growth inventory or cover type correcting for timber harvest management units. The following table has every stand identified as priority and whether or not it has been field verified.

Asset ID	Score	Acres	Unit	Field Verified
152138	10	5.32	31-14	Yes
152183	8	15.02	31-9	No
152332	9	8.12	31-1	Yes
152684	13	10.36	23	No
152806	13	13.21	23	No
153638	9	9.01	21	No
153749	8	4.46	30	No
153903	13	22.80	23	No
154100	8	44.86	17	Yes
154301	8	8.16	11	Yes
154305	8	7.97	11	Yes
155662	9	15.28	5	Yes
156159	8	9.92	15	Yes
156170	8	6.43	15	Yes
156215	9	19.85	16	Yes
156227	9	12.91	16	Yes
158629	9	1.68	22	Yes
158631	8	4.55	22	Yes
158633	10	7.80	22	Yes

Future management in these stands will need to be determined, but is limited to snag creation and thinning only if the average stands diameter remains between 21 and 26” dbh and canopy cover remains above 70 percent.

McCune, Kimberly

From: Barnard, Heather
Sent: Monday, December 02, 2013 10:05 AM
To: '(brichardson@RMEF.org)'; (ewhite@cowlitz.org); Bob Nelson (nelson338@aol.com); Diana MacDonald (dmacdonald@cowlitzpud.org); Emmerson, Kendel; Eric Holman (holmaewh@dfw.wa.gov); Fish First (j.malinowski@ieee.org); James H Malinowski (jim.malinowski@icloud.com); Joanna Meninick (joannam@yakama.com); John Clapp (jmcmaple@gmail.com); LouEllyn Jones; 'Mariah Stoll-Smith Reese'; Michelle Day (michelle.day@noaa.gov); Mitch Wainwright; Nathan Reynolds (nreynolds@cowlitz.org); Naylor, Kirk; Olson, Todd; Pam Johnson (johnson@co.skamania.wa.us); Patrick Lee (patrick.lee@clark.wa.gov); 'peggy.miller@dfw.wa.gov'; Ray Croswell (shedhunt@aol.com); Shannon E. Wills (biologist@cowlitz.org); 'Weinheimer, John (DFW)'
Cc: Emmerson, Kendel; McCune, Kimberly
Subject: WHMP Old-Growth Habitat Management Objective D old-growth connectivity
Attachments: ObjD_OGConnectivityV2.pdf; Mature Stand Connectivity Map Book12.18.12.pdf; ConnectivtyData&Summary.xlsx; Mature Stand Connectivity Map Book.pdf

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

Dear TCC Members

Objective D of the WHMP old-growth chapter has been completed and is being submitted to you for review. We will be discussing this in more detail at our December 11 TCC meeting, but I wanted to allow time for review and for you to determine any questions and suggested revisions you may have.

The ObjD_OGConnectivityV2.pdf memo and Mature Stand Connectivity Map Book 12.18.12.pdf map are original documents you received prior to the March 21, 2013 TCC meeting and have been provided as reference material. The actual summary of the mature stand evaluation and connectivity are provided on the Mature Stand Connectivity Map Book and ConnectivityData&Summary spreadsheet. I have tried to make these as intuitive as possible, but this is a complex subject so I have provided further explanation of the results below.

Mature Stand Connectivity Map Book

This provides a visual reference of each mature stand on WHMP lands, it's priority type, and its proximity to riparian buffers, raptor nests, roosts, old-growth, and riparian corridors. Each mature stand is identified with a number that is a single digit followed by a dash and 6 digits (e.g. 7-158636). The first digit is the overall score and the 6 digits is the mature stand ID number. Each stand has been categorized into a priority type:

Stands that will remain as a priority to connectivity are Type 1 and Type 3
Type 1 = These are stands that scored greater than 8 in the initial modeling and the evaluation determined they should remain as a priority stand.
Type 3= These are stands that scored less than 8 in the initial modeling, but due to their location they have been determined to be a priority stand to connectivity.

Stand that are not a priority to connectivity are Type 2 and Type 4.
Type 2 = These are stands that scored greater than 8 in the initial modeling and the evaluation determined that they should not remain as priority stand because they were vegetation cover type incorrectly or the model scoring was incorrect.
Type 4 = These are stands that scored less than 8 in the initial modeling and will remain as a non-priority stand.

Some changes that should be noted:

- Unit 17 Mature Stand ID 154100 was split into two smaller polygons one 18.8 acre stand that will remain a priority as Mature Stand ID number 154100 and second stand that is 26.1 acres and was provided a new Mature Stand ID number of 159401. The polygon division is based on tree size with the larger trees in 154100.
- Unit 23 Mature Stand ID 152806 evaluation determined that the portion of the stand east of the road is old-growth so the stand was split into an mature stand and an old-growth stand.
- Unit 22 Mature Stand 158633 does not meet the vegetation cover type description for mature and was changed to upland mixed (UM) stand.
- Unit 31-9 Mature Stand 152183 does not meet the vegetation cover type description for mature and was changed to mid-successional conifer stand (MS).

ConnectivityData&Summary Spreadsheet

This excel workbook provides details about each stand and the overall connectivity for WHMP lands by management unit.

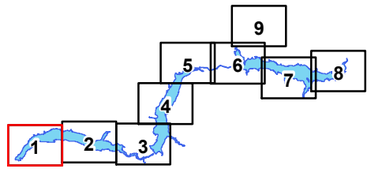
The Mature Stand Data sheet provides the overall and criteria scores for each mature stand. The bottom of the sheet provides a breakdown of the total acres and percent of priority vs. non-priority mature stands.

The Total Connectivity Acre Per Unit sheet provides a breakdown of the total connectivity acres per management unit. Connectivity acres include riparian buffers, priority mature stands, and old-growth acres. To avoid double counting, only the portions of mature stands and old-growth that outside of a riparian buffer have been included in the summary. I have included the cover:forage goal and current cover:forage for each management unit to insure that managing for old-growth connectivity does not prevent us from achieving other WHMP goal and objectives.

If you have any questions prior to the meeting feel free to email me and cc: Kim McCune. Please submit your commits to me and cc: Kim McCune before December 11 or bring them for the discussion at the next TCC meeting.

Kendel Emmerson
PacifiCorp Energy | Wildlife Biologist
503 813-6040 | 825 NE Multnomah Suite 1500 Portland, Oregon 97232

Lewis River
Mature Stand Connectivity
Sheet 1



Mature Stands are labelled with the total score and the Asset ID.

Legend

- Priority Mature Stand
- Non-priority Mature Stand
- Road
- Stream
- Stream Buffer
- Raptor Nest Buffer
- Raptor Roost Buffer
- Spotted Owl Area
- Old Growth
- Cougar Creek Conservation Covenant
- Siouxon SOSEA
- Siouxon SOSEA Buffer
- Management Unit
- Water Body

1:20,000

0 0.25 0.5 Miles

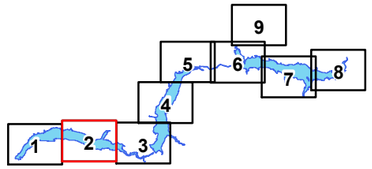
0 1,000 2,000 Feet

PACIFICORP ENERGY
A DIVISION OF PACIFICORP

GIS Support Services
Solutions Group
gisdept@Pacificorp.com

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

Lewis River
Mature Stand Connectivity
Sheet 2



Mature Stands are labelled with the total score and the Asset ID.

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- Water Body

1:20,000

0 0.25 0.5 Miles

0 1,000 2,000 Feet

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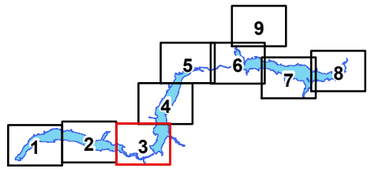
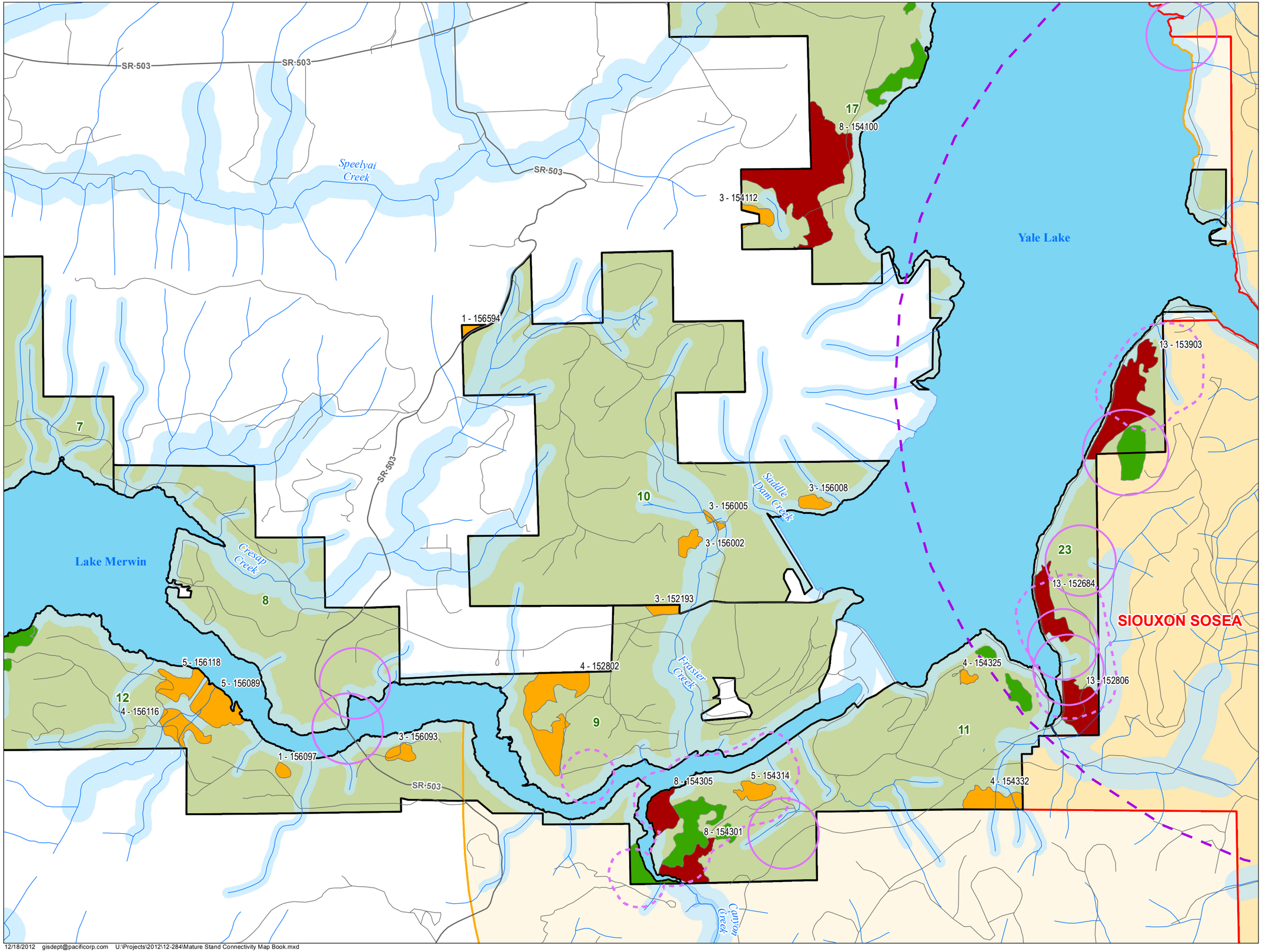
GIS Support Services
Solutions Group
gisdept@Pacificorp.com

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

Lewis River
Mature Stand Connectivity
Sheet 3



Mature Stands are labelled with the total score and the Asset ID.



Legend

- Priority Mature Stand
- Non-priority Mature Stand
- Road
- Stream
- Stream Buffer
- Raptor Nest Buffer
- Raptor Roost Buffer
- Spotted Owl Area
- Old Growth
- Cougar Creek Conservation Covenant
- Siouxon SOSEA
- Siouxon SOSEA Buffer
- Management Unit
- Water Body

1:20,000

0 0.25 0.5 Miles

0 1,000 2,000 Feet

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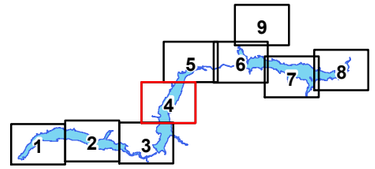
Data is projected in UTM Zone 10, NAD83, meters.

Lewis River
Mature Stand Connectivity
Sheet 4



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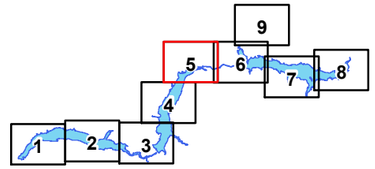
Lewis River
Mature Stand Connectivity
Sheet 5



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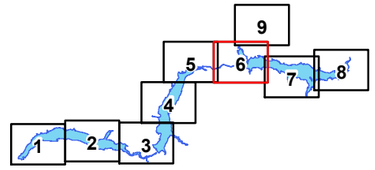
Lewis River
Mature Stand Connectivity
Sheet 6



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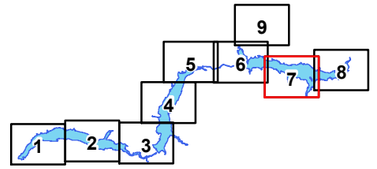
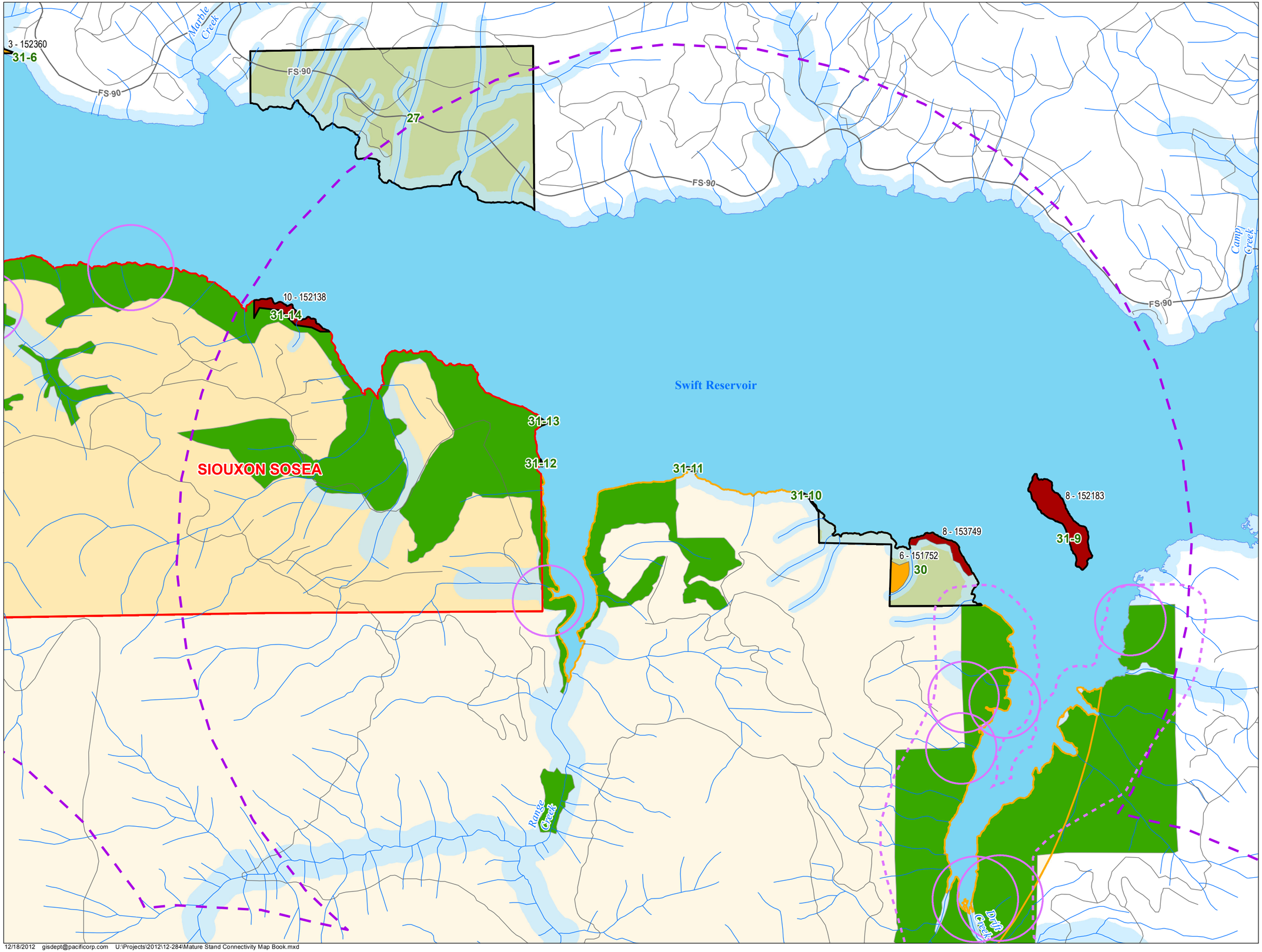
Lewis River
Mature Stand Connectivity
Sheet 7



Mature Stands are labelled with the total score and the Asset ID.



Legend

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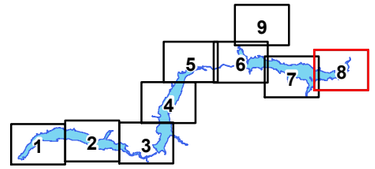
Lewis River
Mature Stand Connectivity
Sheet 8



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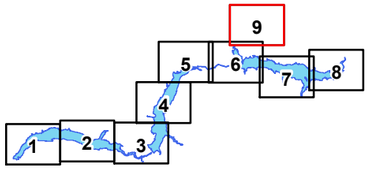
Lewis River
Mature Stand Connectivity
Sheet 9



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Mature Stand Data

Mature Stand ID Number	Vegetation Cover Type	Management Unit	Acres	Total Score	PRI_FLG	Size Score	Riparian Score	Old-Growth Proximity Score	Spotted Owl Habitat Score	Raptor Nest Score	Raptor Roost Score	Priority type	STAND_NOTES	Recommended Management
152529	M	1	4.16	3	N	1	2	0	0	0	0	4	Score is less than 8	
153092	M	2	2.29	6	Y	1	2	3	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
155585	M	2	1.70	6	N	1	2	3	0	0	0	4	Score is less than 8	
155588	M	2	2.23	6	N	1	2	1	0	2	0	4	Score is less than 8	
155598	M	2	3.77	6	Y	1	2	3	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
155601	M	2	1.53	6	Y	1	2	3	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
155603	M-T	2	5.12	5	N	2	0	1	0	2	0	4	Score is less than 8	
156587	M	2	1.50	4	N	1	0	3	0	0	0	4	Score is less than 8	
156826	M	2	4.54	5	N	1	1	3	0	0	0	4	Score is less than 8	
152557	M	3	1.81	1	N	1	0	0	0	0	0	4	Score is less than 8	
152561	M	3	1.31	1	N	1	0	0	0	0	0	4	Score is less than 8	
157649	M	3	1.18	1	N	1	0	0	0	0	0	4	Score is less than 8	
155617	M	4	5.13	7	N	2	2	3	0	0	0	4	Score is less than 8	
155621	M	4	2.62	3	Y	1	2	0	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
155625	M	4	2.13	3	N	1	2	0	0	0	0	4	Score is less than 8	
155642	M	4	4.99	4	N	1	2	1	0	0	0	4	Score is less than 8	
155953	M	4	11.87	7	N	3	2	0	0	2	0	4	Score is less than 8	
155954	M	4	3.22	5	Y	1	2	0	0	2	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
157037	M	4	2.20	4	N	1	0	2	1	0	0	4	Score is less than 8	
155662	M-T	5	15.28	7	N	3	2	1	1	0	0	4	Stand Score was corrected to 7 because original OG proximity score was wrong	
155719	M	6	1.60	3	Y	1	2	0	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
155737	M	6	3.24	6	N	1	2	3	0	0	0	4	Score is less than 8	
155743	M-T	6	33.88	6	N	3	0	3	0	0	0	4	Score is less than 8.	
155744	M-T	6	11.43	5	N	3	2	0	0	0	0	4	Score is less than 8	
155745	M-T	6	14.88	5	N	3	2	0	0	0	0	4	Score is less than 8	
155760	M	6	3.34	1	N	1	0	0	0	0	0	4	Score is less than 8	
155764	M	6	14.99	6	N	3	2	1	0	0	0	4	Score is less than 8	
155771	M	6	3.83	3	N	1	1	1	0	0	0	4	Score is less than 8	
155810	M	6	12.59	6	Y	3	2	1	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
155945	M	6	7.24	3	N	2	1	0	0	0	0	4	Score is less than 8	
156029	M	6	12.00	4	N	3	0	1	0	0	0	4	Score is less than 8	
156921	M	6	1.63	5	N	1	0	3	1	0	0	4	Score is less than 8	
157083	M	6	8.67	2	N	2	0	0	0	0	0	4	Score is less than 8	
157104	M	6	5.60	2	N	2	0	0	0	0	0	4	Score is less than 8	
158461	M-T	6	3.15	2	N	1	1	0	0	0	0	4	Score is less than 8	
152193	M	9	2.55	3	N	1	2	0	0	0	0	4	Score is less than 8	
152802	M	9	21.69	4	N	3	0	1	0	0	0	4	Score is less than 8	
156002	M	10	3.04	3	N	1	2	0	0	0	0	4	Score is less than 8.	
156005	M	10	1.03	3	Y	1	2	0	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
156008	M	10	2.85	3	Y	1	2	0	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
156594	M	10	1.05	1	N	1	0	0	0	0	0	4	Score is less than 8	
154301	M	11	8.16	8	Y	2	2	3	0	0	1	1	Good Connectivity- Canyon Creek	
154305	M	11	7.97	8	Y	2	2	3	0	0	1	1	Good Connectivity- Canyon Creek	
154314	M	11	4.39	5	N	1	0	3	0	0	1	4	Score is less than 8	
154325	M	11	1.38	4	N	1	0	3	0	0	0	4	Score is less than 8	
154332	M	11	8.36	4	N	2	1	1	0	0	0	4	Score is less than 8	
156089	M	12	11.83	5	N	3	2	0	0	0	0	4	Score is less than 8	
156093	M-T	12	3.09	3	N	1	2	0	0	0	0	4	Score is less than 8	
156097	M	12	1.39	1	N	1	0	0	0	0	0	4	Score is less than 8	
156116	M	12	7.38	4	N	2	2	0	0	0	0	4	Score is less than 8	
156118	M	12	7.37	5	N	2	2	1	0	0	0	4	Score is less than 8	
152198	M	13	14.27	7	Y	3	2	0	0	2	0	3	Score is less than 8. Stand is inaccessible	
152714	M	13	5.14	7	Y	2	2	3	0	0	0	3	Score is less than 8. Stand is inaccessible	
153868	M	13	7.08	4	Y	2	2	0	0	0	0	3	Score is less than 8. Stand is inaccessible	
157019	M	13	25.09	5	Y	3	2	0	0	0	0	3	Score is less than 8. Stand is inaccessible	
153052	M	14	30.28	7	Y	3	2	0	0	2	0	3	Score is less than 8. Stand is inaccessible	
153072	M	14	13.64	5	Y	3	2	0	0	0	0	3	Score is less than 8. Stand is inaccessible	
153857	M	14	1.03	3	Y	1	2	0	0	0	0	3	Score is less than 8. Stand is inaccessible	
156159	M-T	15	9.92	8	N	2	2	3	0	0	1	2	Stand is barely at 70% CC with impenetrable shrub cover so habitat is low value. Canopy is at highest potential so snags or thinning will not improve the habitat conditions. This stand could be VCT as UM.	

Mature Stand Data

Mature Stand ID Number	Vegetation Cover Type	Management Unit	Acres	Total Score	PRI_FLG	Size Score	Riparian Score	Old-Growth Proximity Score	Spotted Owl Habitat Score	Raptor Nest Score	Raptor Roost Score	Priority type	STAND_NOTES	Recommended Management
156164	M-T	15	11.52	7	N	3	0	3	0	0	1	4	Stand is barely at 70% CC and could be UM. The shrub cover is impenetrable mass that make this a lower quality habitat. Stand is too close to road for snags and an increase line light will only increase shrubs. Best options is to let red alder understory grow and harvest at later date.	Allow red alder to mature and then harvest at later date.
156170	M	15	6.43	8	Y	2	2	3	0	0	1	1	Almost the entire stand is within riparian and shoreline buffer, good connectivity, and too steep to mange	
156173	M	15	3.20	6	N	1	1	3	0	0	1	4	Stand Score was corrected to 6 because size category was originally an A	
156180	M	15	5.50	4	N	2	2	0	0	0	0	4	Score is less than 8	
156185	M	15	13.95	5	N	3	2	0	0	0	0	4	Score is less than 8	
158546	M	15	1.29	2	Y	1	1	0	0	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
158561	M	15	2.38	1	N	1	0	0	0	0	0	4	Score is less than 8	
156201	M	16	3.70	7	Y	1	2	1	0	2	1	3	Unable to manage due to stream and raptor restraints	
156209	M	16	2.78	2	N	1	0	1	0	0	0	4	Score is less than 8	
156215	M	16	19.85	9	Y	3	2	3	0	0	1	1	Too steep to manage	
156227	M	16	12.91	9	Y	3	2	3	0	0	1	1	Unable to manage due to stream and raptor restraints	
154100	M	17	18.76	8	Y	3	2	3	0	0	0	1	Unit is managed for big game and historically had low raptor use. If entire stand is protected then big game target for unit may not be achieved. This polygon was divided into two separate mature stands two (154100 and 159401). 154100 is the eastern portion adjacent to old-growth that will remain priority. 159401 is the western portion and will be e managed as needed to meet Unit goals.	Snag creation to increase habitat structure, down wood, and light to the forest floor.
154112	M	17	3.00	3	N	1	2	0	0	0	0	4	Score is less than 8	
159401	M	17	26.10	6	N	3	1	2	0	0	0	2	Unit is managed for big game and historically had low raptor use. If entire stand is protected then big game target for unit may not be achieved. This polygon was dividing two (154100 and 159401). 154100 is the eastern portion adjacent to old-growth that will remain priority. 159401 is the western portion and will be e managed as needed to meet Unit goals.	
154188	M	18	1.95	4	N	1	0	3	0	0	0	4	Score is less than 8	
154197	M	18	3.35	5	N	1	2	2	0	0	0	4	Score is less than 8	
154209	M	18	1.56	5	N	1	1	3	0	0	0	4	Score is less than 8	
154218	M	18	8.09	7	N	2	2	3	0	0	0	4	Score is less than 8	
154251	M	18	1.95	3	N	1	1	1	0	0	0	4	Score is less than 8	
156488	M	18	9.17	7	N	2	2	3	0	0	0	4	Score is less than 8	
156493	M	18	6.28	7	N	2	2	3	0	0	0	4	Score is less than 8	
156758	M	18	3.16	3	N	1	2	0	0	0	0	4	Score is less than 8	
157089	M	18	1.63	6	N	1	2	3	0	0	0	4	Score is less than 8	
152626	M	20	9.04	5	Y	2	3	0	0	0	0	3	Entire stand is within Cougar/Panamaker Conservation Easement	
152632	M	20	5.14	5	Y	2	3	0	0	0	0	3	Entire stand is within Cougar/Panamaker Conservation Easement	
156750	M	20	4.80	5	N	1	3	0	1	0	0	4	Score is less than 8	
156874	M	20	2.58	5	Y	1	3	0	1	0	0	3	Entire stand is within Cougar/Panamaker Conservation Easement	
153638	M	21	9.01	9	Y	2	2	2	3	0	0	1	Stand Score is >8	
156876	M	21	8.26	6	N	2	3	0	1	0	0	4	Score is less than 8	
156877	M	21	17.21	7	Y	3	2	1	1	0	0	3	Score is less than 8. Too steep and almost entirely in shoreline buffer.	
158629	M	22	1.68	9	Y	1	2	3	3	0	0	1	Stand Score is >8	No further management is required
158631	M	22	4.55	7	Y	1	0	3	3	0	0	3	Evaluation determined that there were no streams within the stand, so the score was corrected to 7. Stand is still a priority because it is inaccessible.	
158633	UM	22	7.80	10	N	2	2	3	3	0	0	2	Stand Score is >8. Change VCT to UM.	
158636	M	22	2.51	7	Y	1	2	1	3	0	0	3	Score is less than 8. Entire stand is within Riparian buffer.	
158645	M	22	9.64	6	N	2	1	0	3	0	0	4	Score is less than 8	
158648	M	22	7.17	7	N	2	2	0	3	0	0	4	Score is less than 8	
158650	M	22	1.24	4	N	1	0	0	3	0	0	4	Score is less than 8	
152684	M	23	10.36	13	Y	3	2	3	2	2	1	1	Stand Score is >8	
152806	M	23	5.88	12	Y	2	2	3	2	2	1	1	The portion of the stand east of 2310 was change to 7.33 acres OG stand and the remaining portion 5.88 acres west of 2310 remained M	Create snag clusters with osprey potential.
153903	M	23	22.80	13	Y	3	2	3	2	2	1	1	Stand Score is >8	No further management is required
156259	M	26	1.85	6	N	1	1	2	2	0	0	4	Score is less than 8	
156260	M	26	1.65	5	N	1	1	1	2	0	0	4	Score is less than 8	
156272	M	26	2.21	7	N	1	1	3	2	0	0	4	Score is less than 8	
156497	M	28	3.55	6	N	1	2	3	0	0	0	4	Score is less than 8	
157442	M	28	1.69	6	Y	1	2	3	0	0	0	3	Score is less than 8. Stand is inaccessible	
158655	M	28	1.13	4	Y	1	0	3	0	0	0	3	Score is less than 8. Stand is inaccessible	
151752	M	30	3.59	6	Y	1	1	2	2	0	0	3	Score is less than 8. Stand is inaccessible	
153749	M	30	4.46	8	Y	1	2	3	2	0	0	1	Inaccessible	

Mature Stand Data

Mature Stand ID Number	Vegetation Cover Type	Management Unit	Acres	Total Score	PRI_FLG	Size Score	Riparian Score	Old-Growth Proximity Score	Spotted Owl Habitat Score	Raptor Nest Score	Raptor Roost Score	Priority type	STAND_NOTES	Recommended Management
157314	M-T	33	1.93	1	N	1	0	0	0	0	0	4	Score is less than 8	
152332	M	31-1	8.12	9	Y	2	2	3	2	0	0	1	Stand is inaccessible	
152352	M	31-1	1.86	7	Y	1	2	2	2	0	0	3	Score is less than 8. Stand is inaccessible	
152138	M	31-14	5.32	10	Y	2	2	3	3	0	0	1	Inaccessible	
152350	M	31-2	2.35	5	Y	1	2	1	1	0	0	3	Score is less than 8. Stand is inaccessible	
157441	M	31-2	3.65	6	Y	1	2	3	0	0	0	3	Score is less than 8. Stand is inaccessible	
152360	M	31-6	2.21	3	Y	1	2	0	0	0	0	3	Score is less than 8. Stand is inaccessible	
152187	M	31-7	1.00	3	Y	1	2	0	0	0	0	3	Score is less than 8. Stand is inaccessible	
152183	MS	31-9	15.02	8	N	3	2	2	1	0	0	2	Change stand to MS	

Priority Type	Definition	Total Acres	Percent of Total Mature Stands
1	Stand met criteria retained as priority	141.70	18.25%
2	Stand met criteria and was not retained as priority	58.85	7.58%
3	Stand did not meet criteria but was identified as priority	191.53	24.67%
4	Stand did not meet criteria and was not identified as	384.35	49.50%
	Total Mature Stand Acres	**776.44**	
	Total Acres of Priority Mature Stands	**333.23**	**42.92%**
	Total Acres of Non-Priority Mature Stands	**443.20**	**57.08%**

Criteria	Description	Points
Size	The stand is ≥10 acres	3
	The stand is between ≥ 5 and ≤ 9.99 acres	2
	The stand is between ≥ 1 and ≤ 4.99 acres	1
Old-Growth Proxmity	The stand is adjacent (i.e., ≤ 1,000 ft.) to an old-growth stand on WHMP or USFS lands or within the SOSEA	3
	The stand is ≥ 1000 ft. and ≤ 0.25 miles from old-growth stand on WHMP or USFS lands or within the SOSEA	2
	The stand is ≥ 0.25 and ≤ 0.5 miles from old-growth stand on WHMP or USFS lands or within the SOSEA	1
Spotted Owl Habitat	Any portion of the stand is within Raptor Management Objective J lands (i.e., these are lands within the Siouxon SOSEA)	3
	Any portion of the stand that is within Raptor Management Objective I lands (i.e., These are lands, that unless separated by a reservoir, are within 2.0 miles of the Siouxon SOSEA)	2
	Any portion of the stand that is within Raptor Management Objective H lands (i.e., These are lands, that unless separated by a reservoir, are within a spotted owl circle and greater than 2.0 miles of the Siouxon SOSEA)	1
Protected Raptor Habitat	Any portion of the stand that is within a raptor nest buffer	2
	Any portion of the stand that is within a raptor roost buffer	1
Riparian Buffer	Any portion of the stand that is within the Cougar/Panamaker Conservation Covenant	3
	Any portion of the stand that is within a Fish or Non-fish Perennial steam or shoreline buffer.	2
	The stands only applicable buffer(s) is a non-fish seasonal or other stream buffer.	1

Total Acres of Connectivity by Unit

Management Unit	Total Management Unit Acres	Total Acres in 100-foot Riparian Buffers	Total Acres in 150-foot Riparian Buffers	Total Acres in 200-foot Riparian Buffers	Total Acres in 300-foot Riparian Buffers	Total Acres in 500-foot Riparian Buffers	Total Acres in Riparian Buffers	Total Percent of Acres in Riparian Buffers	Total Acres of Priority Mature Stand	Percent of Acres in Priority Mature Stand	Total Acres of Priority Mature Stands not within Riparian Buffers	Percent of Priority Mature Stand not within Riparian Buffers	Total Acres of Old-Growth not within Riparian Buffers	Percent of Acres Old-Growth not within Riparian Buffers	Total Acres in Connectivity	Percent of Connectivity Acres	Proposed Cover: forage	Existing Cover: forage
1	131.18	10.29	14.43	7.02	1.89		**33.63**	25.64%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	33.63	25.64%	50:50	52:48
2	258.87	4.63	3.86	44.03	43.78		**96.30**	37.20%	7.59	2.93%	**0.19**	**0.07%**	**12.41**	**4.79%**	108.89	42.06%	60:40	67:33
3	298.04	0.81	1.03	49.34	91.61		**142.79**	47.91%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	142.79	47.91%	50:50	54:46
4	352.71	14.71	20.52	17.47	40.32		**93.00**	26.37%	5.84	1.66%	**0.22**	**0.06%**	**0.00**	**0.00%**	93.22	26.43%	60:40	50:50
5	360.59	58.03	38.76		2.37		**99.17**	27.50%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	99.17	27.50%	60:40	56:44
6	832.24	77.99	29.39	86.40	17.39		**211.17**	25.37%	14.20	1.71%	**34.03**	**4.09%**	**0.00**	**0.00%**	245.19	29.46%	50:50	65:35[4]
7	527.15	73.42	3.72	64.64	38.65		**180.43**	34.23%	0.00	0.00%	**0.00**	**0.00%**	**23.87**	**4.53%**	204.30	38.76%	50:50	60:40
8	279.22	15.94		45.05	47.47		**108.46**	38.84%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	108.46	38.84%	55:45	57:43
9	349.84	2.29		49.09	43.56		**94.94**	27.14%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	94.94	27.14%	50:50	51:49
10	644.83	21.38	42.69	17.48	83.00		**164.55**	25.52%	3.88	0.60%	**1.28**	**0.20%**	**0.00**	**0.00%**	165.83	25.72%	30:70	29:71
11	392.40	30.21		47.67	15.60		**93.48**	23.82%	16.13	4.11%	**7.40**	**1.88%**	**22.83**	**5.82%**	123.71	31.53%	60:40	47:53[2]
12	419.52	6.25	38.85	77.95	25.75		**148.80**	35.47%	0.00	0.00%	**0.00**	**0.00%**	**3.05**	**0.73%**	151.86	36.20%	60:40	61:39
13	204.65	25.46	15.64	67.08	7.29		**115.47**	56.42%	51.58	25.20%	**25.42**	**12.42%**	**0.00**	**0.00%**	140.89	68.84%	85:15	95:05
14	119.69			37.27	1.74		**39.01**	32.59%	44.95	37.56%	**19.86**	**16.60%**	**0.00**	**0.00%**	58.87	49.19%	None	64:36
15	529.36	30.57	84.58	64.98	26.42		**206.55**	39.02%	7.72	1.46%	**0.89**	**0.17%**	**5.30**	**1.00%**	212.74	40.19%	70:30	71:29[4]
16	386.67	35.02	59.56	43.08	27.74		**165.39**	42.77%	36.46	9.43%	**23.79**	**6.15%**	**19.96**	**5.16%**	209.14	54.09%	70:30	54:46
17	521.07	9.65	6.53	72.33	66.35		**154.85**	29.72%	18.76	3.60%	**18.20**	**3.49%**	**12.45**	**2.39%**	185.50	35.60%	50:50	46:54[1]
18	423.00	35.02	11.89	57.51	41.28		**145.70**	34.44%	0.00	0.00%	**0.00**	**0.00%**	**5.58**	**1.32%**	151.27	35.76%	50:50	31:69
19	163.53			33.03	20.29		**53.32**	32.60%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	53.32	32.60%	60:40	39:61
20	939.44	133.81		0.38	175.27	158.61	**468.07**	49.82%	16.76	1.78%	**0.08**	**0.01%**	**0.00**	**0.00%**	468.14	49.83%	60:40	37:63
21	432.99	22.04		93.32	33.47	19.96	**168.79**	38.98%	26.22	6.06%	**15.60**	**3.60%**	**0.00**	**0.00%**	184.39	42.59%	None	21:79
22	513.68	37.31	23.01	64.78	71.22		**196.33**	38.22%	8.74	1.70%	**3.68**	**0.72%**	**4.72**	**0.92%**	204.73	39.86%	None	33:67
23	179.64	4.07		51.13	14.29		**69.49**	38.68%	39.04	21.73%	**23.23**	**12.93%**	**6.25**	**3.48%**	98.97	55.09%	70:30	37:63
24	91.14			6.70	66.25		**72.95**	80.05%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	72.95	80.05%	None	none
25	145.02	8.05	6.34	10.40	48.68		**73.46**	50.66%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	73.46	50.66%	15:85	99:01
26	497.28	45.00	39.07	1.14	17.59		**102.81**	20.67%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	102.81	20.67%	70:30	30:70
27	254.87	45.27	22.83	33.22			**101.32**	39.75%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	101.32	39.75%	none	53:47
28	153.78	4.76	5.62	26.54	13.87		**50.78**	33.02%	2.82	1.83%	**1.40**	**0.91%**	**2.57**	**1.67%**	54.75	35.60%	50:50	77:23[3]
29	91.12	9.10	0.35	16.45	22.05		**47.95**	52.63%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	47.95	52.63%	50:50	18:82
30	49.63	4.55		19.92			**24.47**	49.31%	8.05	16.22%	**2.76**	**5.55%**	**0.00**	**0.00%**	27.23	54.87%	none	10:90
31-1	33.53	2.16		25.57	1.86		**29.58**	88.23%	9.98	29.77%	**0.33**	**0.99%**	**0.00**	**0.00%**	29.91	89.22%	none	none
31-2	34.46	2.83		24.67	4.50		**31.99**	92.84%	6.00	17.41%	**0.75**	**2.18%**	**0.19**	**0.57%**	32.94	95.59%	none	none
31-3	4.51			4.49			**4.49**	99.53%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	4.49	99.53%	none	none
31-4	4.70			4.23			**4.23**	90.02%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	4.23	90.02%	none	none
31-5	0.99			0.99			**0.99**	100.00%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	0.99	100.00%	none	none
31-6	2.95			1.12	1.83		**2.95**	100.00%	2.21	75.01%	**0.00**	**0.00%**	**0.00**	**0.00%**	2.95	100.00%	none	none
31-7	16.06	0.38		9.47	5.27		**15.12**	94.15%	1.00	6.23%	**0.00**	**0.00%**	**0.00**	**0.00%**	15.12	94.15%	none	none
31-8	0.35			0.35			**0.35**	100.00%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	0.35	100.00%	none	none
31-9	15.03			14.83			**14.83**	98.69%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	14.83	98.69%	none	none
31-10	0.26			0.26			**0.26**	100.01%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	0.26	100.01%	none	none
31-11	0.21			0.21			**0.21**	100.01%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	0.21	100.01%	none	none
31-12	0.11			0.11			**0.11**	100.00%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	0.11	100.00%	none	none
31-13	0.25			0.25			**0.25**	99.97%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	0.25	99.97%	none	none
31-14	5.32			5.31			**5.31**	99.93%	5.32	100.04%	**0.00**	**0.00%**	**0.00**	**0.00%**	5.31	99.93%	none	none
31-15	14.82			13.56	1.26		**14.82**	100.00%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	14.82	100.00%	none	none
31-16	2.24			2.24			**2.24**	100.00%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	2.24	100.00%	none	none
32	30.55		6.36		19.01		**25.37**	83.05%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	25.37	83.05%	none	none
33	802.98	103.34	159.17		116.47		**378.98**	47.20%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	378.98	47.20%	none	none
34	678.30	167.89					**167.89**	24.75%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	167.89	24.75%	none	none
35	791.21	214.59			35.34		**249.93**	31.59%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	249.93	31.59%	none	none
38	320.11	24.27			184.96		**209.23**	65.36%	0.00	0.00%	**0.00**	**0.00%**	**0.00**	**0.00%**	209.23	65.36%	none	none
	13,302.05	**1,281.11**	**634.19**	**1,313.05**	**1,475.65**	**178.57**	**4,882.57**	**36.71%**	**333.25**	**2.51%**	**179.10**	**1.35%**	**119.17**	**0.90%**	**5,180.84**	**38.95%**		

[1]=2009 Annual Report
[2]=2010 Annual Report
[3]= 2011 Annual Report
[4]=2012 Annual Report

Draft Wetland Summary 12.11.13

Unit	Wetland Name	Original Wetland Size (Acres)	Current Wetland Size (Acres)	Original Vegetation Cover Types	Revised Vegetation Type	Hydrology Source	Water Control Structure	Pond-Breeding Amphibian	Mink	Yellow Warbler	Beaver	Great Blue Heron	Wood Duck	Bull Frogs	Future management	Comments
4	ROW 9/14 Pond	0.05	0.00	PUB	RM	non-fish perennial stream	Culvert with standpipe, stop logs, and dike	NA	NA	NA	NA	NA	NA	NA	Monitor culvert annually for debris.	Not a wetland just a small pool upstream of a culvert. No wildlife value. Best to keep stop logs into slow flow and reduce debris.
6	ROW 6/12 Ponds	0.07	0.12	PEM	PEM, PAB	Springs/Seep, intermittent stream	Dike	Known (TAGR ABGR)	Suspected	Unlikely	Suspected	Unlikely	Unlikely	Suspected	Unmanaged wetland. Control brush under ROW.	Upper portion dries out by June.
	ROW 8/12 Pond	0.06	0.21	PEM, PUB	PEM, PAB	non-fish perennial stream	Culvert with standpipe, stop logs, and dike (road 600)	Known (TAGR PSRE)	Suspected	Unlikely	Known	Unlikely	Unlikely	Suspected	Manage wetland. Control stop logs as needed. Control brush under ROW. Keep top two logs out year round due to beaver activity and annual high flows.	Stream can be extremely flashy with lot of debris that clogs culvert
7	Speelyai Point Wetland	0.56	0.00	PEM	Reservoir	Wetland is below shoreline	No	NA	NA	NA	NA	NA	NA	NA	Wetland is below shoreline and not on WHMP lands	
8	Cresap Campground Wetland	1.04	5.16	PFO	PSS, PFO, PEM	Groundwater, seeps, surface run-off, spring/seeps	No	Suspected	Suspected	Suspected	Unlikely	Unlikely	Unlikely	Suspected	Unmanaged wetland.	
	Cresap Creek Wetland	0.38	0.00	PFO	UM	None	No	NA	NA	NA	NA	NA	NA	NA	None	Not a wetland it is an upland area near the mouth of Cresap Creek.
9	Borrow Area Wetlands	1.94	3.35	PSS	PEM,PFO	Borrow pits for Yale Dam fed by rainfall, unchannelized surface run-off, groundwater and springs.	No	Suspected	Suspected	Unlikely	Unlikely	Suspected	Unlikely	Suspected	Unmanaged. Need future reed canary grass control. Could have additional shrub plantings	
	Crossroad Pond	0.11	0.11	PUB	PUB	non-fish perennial stream, spring/seeps	Culvert with standpipe, stop logs, and dike	Known (TAGR)	Suspected	Unlikely	Suspected	Suspected	Suspected	Suspected	Manage. Remove stop logs annually as needed for draw down to control bull frogs.	
	Lake Line 5/10 Wetland	1.05	0.36	PFO	PEM	Ground water, spring/seeps	No	Known (TAGR)	Suspected	Unlikely	Suspected	Unlikely	Unlikely	Suspected	Unmanaged. Clean the downstream side of culvert	
	Pumphouse Pond	1.46	1.46	PUB ,PSS , PEM	PUB	Ground water, spring/seeps	Culvert with standpipe, stop logs, and dike	Known (TAGR, PSRE)	Suspected	Suspected	Known	Known	Known	Suspected	Manage. Remove stop logs annually as needed for draw down to control bull frogs.	Consider creating snags in the riparian area and enhancing shrubs on the island to increase yellow warbler habitat.
10	Bankers Pond	0.24	0.62	PUB	PEM, PUB	non-fish perennial stream	Culvert with standpipe, stop logs, and dike	Known (TAGR, RAAU, ABGR)	Suspected	Suspected	Known	Known	Known	Known	Manage. Remove stop logs annually as needed for draw down to control bull frogs.	
	Cedar Grove Pond	0.20	0.33	PUB	PEM, PUB	non-fish perennial stream	Culvert with standpipe, stop logs, and dike	Known (TAGR)	Suspected	Unlikely	Known	Known	Known	Known	Manage. Remove stop logs annually as needed for draw down to control bull frogs.	
	Chestnut Grove Pond	0.04	0.10	PUB[2]	PEM, PUB	diversion from a non-fish perennial stream	Culvert with standpipe, stop logs, and dike	Known (TAGR)	Suspected	Unlikely	Known	Known	Known	Known	Manage. Remove stop logs annually as needed for draw down to control bull frogs.	
	Cresap Pond	0.00	2.28	RD	PEM, PAB	Springs/seeps, surface run-off	none	Suspected	Suspected	Unlikely	Suspected	Suspected	Suspected	Known	Unmanaged.	Two paitned turtles present at inspection. Wetland is high quality waterfowl habitat.
	Frasier Pond	19.80	23.26	PUB, PSS , PEM	PAB, PEM, PFO	Ground water, spring/seeps	Gabion dam with stop logs	Known (TAGR)	Suspected	Unlikely	Known	Known	Known	Known	Manage. Check dam for debris frequently	
	Road Pond	0.14	0.38	PUB	PEM, PUB	Created wetland fed by Frasier Creek and shallow groundwater. Water levels vary with precipitation and the elevation of Yale Reservoir.	Culvert with standpipe, stop logs, and dike	Known (RAAU, ABGR, TAGR)	Suspected	Unlikely	Known	Known	Known	Known	Manage. Remove stop logs annually as needed for draw down to control bull frogs.	
	Saddle Mt. Gate North	0.00	0.57	UM	PSS	Springs/Seep	No	Suspected	Suspected	Suspected	Suspected	Unlikely	Suspected	Suspected	Unmanaged	
	Saddle Mt. Gate South	0.00	0.60	PUB, PSS, PFO	PSS,PUB	Spring/seep	No	Suspected	Suspected	Suspected	Unlikely	Suspected	Suspected	Suspected	Unmanaged	Cannot access wetland due to the impenetrable mass of willow and sprirea thickets that borders the wetland. Can see it from Hwy road bed and appears to be in good condition.
11	Lower Yale Pond	0.80	1.41	PUB	PAB, PEM, PUB	Borrow pits for Yale Dam fed by seasonal streams,surface run-off, groundwater and springs.	1140 road	Known (RAAU)	Suspected	Unlikely	Known	Known	Known	Known	Unmanaged. Need future reed canary grass control	
	North IP Pond	4.60	3.42	PFO, PUB, PEM	PFO, PAB, PEM	Natural wetland fed by perennial and seasonal streams and hydrologically connected to South IP Pond by road culvert 1150C1.	Road Dike, culvert and beaver dam	Suspected	Suspected	Unlikely	Known	Known	Known	Suspected	Unmanaged. Need future Himalayan blackberry and reed canary grass control	Very diverse wetland with lots of wildlife potential
	Postage Stamp Pond	0.16	0.21	PUB	PUB, PEM	Spring fed and headwaters to seasonal stream	No	Suspected	Suspected	Unlikely	Suspected	Unlikely	Suspected	Suspected	Unmanaged	
	South IP Pond	2.70	2.10	PFO , PUB, PSS, PEM	PAB, PEM	Natural wetland fed by perennial and seasonal streams. Hydrologically connected to South IP Pond by road culvert 1150C1 and Yale Reservoir by Culvert 1150C2.	Road Dike, culvert and beaver dam	Suspected	Suspected	Unlikely	Known	Known	Known	Suspected	Unmanaged. Need future Himalayan blackberry and reed canary grass control	
	Middle Yale Pond	0.00	1.23	PUB, PEM, PSS, PFO	PAB, PEM	Borrow pits for Yale Dam fed by seasonal streams, unchannelized surface run-off, groundwater and springs.	Beaver Dams	Known	Suspected	Unlikely	Known	Known	Known	Known	Unmanaged	This was originally considered to be part of Upper Yale Pond. It clearly divided by a small stream and beaver dam
	Upper Yale Pond	6.70	5.79	PUB, PEM, PSS, PFO	PAB, PEM. PUB	Borrow pits for Yale Dam fed by seasonal streams, rainfall, unchannelized surface run-off, groundwater and springs.	Beaver Dams	Known	Suspected	Unlikely	Known	Known	Known	Known	Unmanaged	
12	Bridge Wetland	1.60	0.82	PUB, PEM, PFO	PFO	Artificially enhanced by highway fill slope. Hydrology includes surface run-off, spring and seeps.	No	Known (ABGR, RAAU)	Suspected	Suspected	Unlikely	Unlikely	Unlikely	Suspected	Unmanaged	Lots of ash shurbs under the canopy of mature ash that provide YEWA habitat.
	Riparian Bridge Wetland	0.70	0.00	PEM	Reservoir	Shoreline wetland dependent on Merwin Reservoir	No	NA	NA	NA	NA	NA	NA	NA	Wetland is below shoreline and not on WHMP lands	
14	Buncombe Hollow Wetland	unknown	0.00	Unknown		Shoreline wetland dependent on Merwin Reservoir	No	NA	NA	NA	NA	NA	NA	NA	Wetland is below shoreline and not on WHMP lands	
16	Hatchery Wetland	1.99	4.53	PSS	PAB, PSS	Shoreline wetland fed by seasonal streams and Lewis River water levels	No	Suspected	Suspected	Unlikely	Suspected	Suspected	Suspected	Suspected	Unmanaged. Upland areas need invasive plant species control	
17	Beaver Pond Road Wetland	0.82	0.40	PUB	PUB	Wetland fed by a Speelyai Creek (perennial fish-bearing stream)	No	Suspected	Suspected	Suspected	Known	Suspected	Suspected	Suspected	Unmanaged.	Most of wetland is not on WHMP and road that provides the dike is a public road.
	Speelyai Canal Wetland	1.18	0.60	PFO	PEM, PUB	Spring/seep/perennial stream. Seep comes from Speelyai canal flows that go under arrowhead road.	No	Known (PSRE)	Suspected	Suspected	Known	Suspected	Suspected	Suspected	Unmanaged	Wetland could be improved with noxious weed removal and plantings.
	Hamm Wetland	0.00	0.33	NA	PEM, PSS, PUB	Springs/Seeps, seasonal stream	No	Known (PSRE)	Unlikely	Suspected	Suspected	Unlikely	Suspected	Suspected	Unmanaged. Could later change when improved. Wetland has good potential it needs some dike and culvert outfall repair. The reed canarygrass needs to be controlled.	Wetland dries early in the season sometimes by June 1.

Draft Wetland Summary 12.11.13

Unit	Wetland Name	Original Wetland Size (Acres)	Current Wetland Size (Acres)	Original Vegetation Cover Types	Revised Vegetation Type	Hydrology Source	Water Control Structure	Pond-Breeding Amphibian	Mink	Yellow Warbler	Beaver	Great Blue Heron	Wood Duck	Bull Frogs	Future management	Comments
	Lower Winter Creek Wetlands	1.59	1.08	PFO, PUB, PEM	PEM, PUB	intermittent stream	No	Suspected	Suspected	Unlikely	Known	Suspected	Known	Suspected	Unmanaged. Wetland is in good condition. Could control reed canary grass	Wetland dries early in the season sometimes by June 1.
	Upper Winter Creek Wetlands		0.65		PEM	surface run-off,	No	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unlikely	Unmanaged. Buffer from mowing and fertilizing.	Wetland dries early in the season sometimes by June 1.
18	Yale Park Wetland	0.50	0.95	PEM	PEM	Shoreline wetland entirely dependent on Yale Reservoir levels.	No	Unlikely	Unlikely	Suspected	Unlikely	Unlikely	Unlikely	Unlikely	Unmanaged.	
21	Beaver Bay Wetlands	36.60	31.93	PFO, PUB, PSS	PEM, PFO, PSS, PUB	Natural wetland fed by 2 seasonal streams, subsurface flow and is hydrologically connected to Yale Reservoir.	No	Known	Suspected	Suspected	Known	Known	Known	Suspected	Unmanaged.	
	Cougar Campground Wetland	0.17	0.00	PEM, PSS	UD	Yale reservoir	No	NA	NA	NA	NA	NA	NA	NA	Wetland portion is below shoreline and not on WHMP lands. Portion on WHMP lands is upland.	Change VCT to UD it is not a wetland
	IP Road Bridge Wetland	0.24	0.00	PSS	Reservoir	Shoreline wetland dependent on Yale Reservoir	No	NA	NA	NA	NA	NA	NA	NA	Wetland is below shoreline and not on WHMP lands	
	Swift Bypass Wetland	0.24	0.00	PSS	MD	None	No	NA	NA	NA	NA	NA	NA	NA	Not a wetland.	Change VCT to MD it is not a wetland
	Yale Island Wetland	0.24	0.00	Unknown	Reservoir	Shoreline wetland dependent on Yale Reservoir	No	NA	NA	NA	NA	NA	NA	NA	Wetland is below shoreline and not on WHMP lands	
23	2300C6 Pond	0.21	0.29	PUB, PFO, PEM	PEM, PUB	Fed by a small perennial fish-bearing stream and springs/seeps. Wetland is hydrologically connected to Yale Reservoir.	No	Known (PSRE)	Suspected	Unlikely	Known	Suspected	Suspected	Suspected	Unmanaged. Majority of wetland is not on PacifiCorp lands	
24	Spillway Wetland	0.68	0.00	PFO	UD	None	No	NA	NA	NA	NA	NA	NA	NA	Not a wetland.	Change VCT into adjacent UD polygon, not a wetland
	Swift Bypass Wetland 2	5.51	2.98	PSS	PEM, PFO	Natural wetlands created by floodplains maintained by beaver dams.	No	Suspected	Suspected	Unlikely	Suspected	Suspected	Suspected	Suspected	Unmanaged. A very nice series of wetland very diverse.	
	Wetland 1-Constructed Channel	0	1.24	RD	PFO	Springs/Seeps, perennial stream	No	Suspected	Suspected	Unlikely	Suspected	Suspected	Suspected	Suspected	Unmanaged	Wetlands are flooded areas created and enhanced by the constructed channel.
25	Swift Canal Ponds	9.03	8.59	PUB, PFO, PSS	PEM, PFO, PSS, PUB	Borrow pits for facility construction. Fed by one perennial stream and hydrologically connected to the Swift Canal.	Dike	Suspected	Suspected	Suspected	Known	Known	Suspected	Suspected	Unmanaged	Culvert 2500C8 is impacted and undersized for capacity.
	Swift Dam Wetland	0.18	0.00	PEM, PSS	UM	None	No	NA	NA	NA	NA	NA	NA	NA	Not a wetland.	Not a wetland change to UM
	Swift Warehouse Ponds	10.40	9.41	PUB, PSS, PFO	PEM, PFO, PUB	Natural wetland fed by perennial stream and springs/seeps. This pond is informally known as Ole's Pond	Culvert with a standpipe and dike	Known (PSRE)	Suspected	Suspected	Known	Known	Known	Suspected	Unmanaged	Needs to have the dike repair and enlarged. Overall wetland is in good shape.
33	Buttercup Wetland	0.00	0.36	NA	PEM	Groundwater, surface run-off, spring/seeps	No	Suspected	Suspected	Unlikely	Suspected	Unlikely	Unlikely	Unlikely	Unmanaged	
	Violet Wetland	0.00	0.67	NA	PEM	Groundwater, surface run-off, spring/seeps	No	Suspected	Suspected	Unlikely	Suspected	Unlikely	Unlikely	Unlikely	Unmanaged	
	Elkeberry Wetland	0.00	4.75	NA	PEM, PUB	Groundwater, surface run-off, spring/seeps	No	Yes (PSRE)	Suspected	Unlikely	Suspected	Unlikely	Unlikely	Unlikely	Unmanaged	
34	Willow Springs	0.00	1.84	NA	PAB, PEM, PSS	Groundwater, surface run-off, spring/seeps	No	yes (RAAU)	Suspected	Suspected	Known	Unlikely	Unlikely	Unlikely	Unmanaged	
		113.98	124.49													