

LEWIS RIVER TERRESTRIAL COORDINATION COMMITTEE

Facilitator: KENDEL EMMERSON
503-813-6040; CELL 509-774-8102


Location: Merwin Hydro Control Center & Field Tour
105 Merwin Village Court Ariel, WA 98603

Date: Wednesday June 8, 2022

Time: 9:00 AM – 3:00 PM

Agenda Items

9:00 a.m.	Welcome, Review and Accept Agenda and 5/11/2022 Meeting Notes
9:10 a.m.	Public Comment Period
9:15 a.m.	Cover:forage Model review and suggestion revisions.
9:45 a.m.	Yale Saddle Dam Seismic Remediation Project Mitigation with budget loss
10:00 am	Study/Work Product Updates <ul style="list-style-type: none">➤ Moss Cave Update➤ MU 3 forest lab results➤ WSDOT Dog Creek and wetland impacts
10:15 a.m.	Safety orientation for Field Tour and Depart for Field Tour
11:15 a.m.	MU 36 shrub exclosure and vine maple removal area
11:45 p.m.	Ichabod wetland plantings
12:00 Lunch	At Ichabod Wetland
12:15 p.m.	MU 35 proposed 2022 timber harvest areas. This will include 4 small harvest areas.



2:00 pm.	Next Meeting's Agenda Note: all meeting notes and the meeting schedule can be located at: https://www.pacificorp.com/energy/hydro/lewis-river/acc-tcc.html
3:00 p.m.	Return to Merwin Hydro Control Center and Meeting Adjourn

Please bring lunch, rain gear, and sturdy walking shoes for hiking in the forest. No hard hats needed for this tour. PacifiCorp will have 2 vehicles for transportation of up to 4 additional passengers per vehicle.

Microsoft Teams meeting
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Or call in (audio only)

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Phone Conference ID: 842 906 84#

Meeting Notes
Lewis River License Implementation
Terrestrial Coordination Committee (TCC) Meeting
June 8, 2022
Merwin Hydro Control Center & Field Visit

TCC Representatives Present: (6)

Kendel Emmerson, PacifiCorp
 Summer Peterman, PacifiCorp
 Erik White, Cowlitz Indian Tribe
 Peggy Miller, WDFW
 Eric Holman, WDFW
 Bill Richardson, Rocky Mountain Elk Foundation

Guests: (2)

Sarah Montgomery, Anchor QEA (note-taker for PacifiCorp)
 Monique Ferris, WDFW

Calendar:

June 8, 2022	TCC Meeting	Teams Call and Field Visit
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Assignments for June 8, 2022	Status
Emmerson: Send the updated cover:forage model to the TCC.	In progress

Assignments for May 11, 2022	Status
Emmerson: Make a tracking sheet for 10.3.3 funding disbursements and include it in the 2022 TCC Annual Report.	In progress
Emmerson: Account for loss of WHMP land acreage through the life of the license in next round of Saddle Dam mitigation calculations.	Complete
Holman: Regarding potential 10.3.3 project opportunities, stay in touch with the WDFW private lands biologist (Monique Ferris) and connect her to the TCC if there is further interest.	Complete
All: Consider a site visit to the Eagle Island Restoration Project in August.	In progress

Assignments for April 13, 2022	Status
Emmerson: Consider seeding the timber harvest area in Unit 35 with a woody shrubs seed mix for a comparison study.	In progress
Emmerson and Holman: Coordinate on raptor data sharing.	In progress

Assignments for December 8, 2021	Status
Emmerson: Discuss potential WHMP disturbance impacts with permitting staff for the Cougar Creek highway project.	In progress (project deferred to 2023)

Assignments for January 13, 2021	Status
Emmerson: Provide a list of past timber harvest areas that have been within the WHMP buffer, associated TCC meeting notes, and reference to the WHMP language.	In progress

Kendel Emmerson (PacifiCorp) called the meeting to order at 9:02 am. No additions to the agenda were requested. Emmerson reviewed the meeting notes from May 8, 2022. The meeting notes were approved at 9:25 am with minor revisions.

Public Comment Period

None

Cover:forage Model Review and Suggested Revisions

Kendel Emmerson presented the cover:forage model to the TCC. She said she previously reviewed the model with PacifiCorp staff in 2017 and has since added more information to the table. She found a few discrepancies in how manageable acres were calculated and included in the model. The revised model has a red line for “revised management plan ratio” which considers the percent of manageable acres and the amount of forage that should be achieved. Other issues with the model include areas that are very small, or within meadows or rights-of-way.

Eric Holman asked about places that are inaccessible or too steep to be managed. Emmerson said Unit 13 includes areas that are not feasible to access except by boat, which makes logging those areas infeasible. Holman suggested counting these areas as credit in other categories, like old growth or the potential to turn into old growth. Emmerson said the goal in the inaccessible areas is 100% cover. For example, there was an area in Unit 23 that was initially designated 70:30 cover:forage, but when the culverts were removed and access was blocked to the area, the goal was changed to 100% cover because of the management decision to remove access. This area will not be harvested in the future.

Richardson suggested adding a category like “old growth” or “old growth trajectory” to show that they are providing habitat, and in a different way than originally intended. Emmerson said the original model included notes for areas where northern spotted owl habitat is present and riparian and shoreline buffers prevent logging. This category could be something like “N/A” or “no access.” Richardson suggested using a term for the areas that shows the habitat value. Summer Peterman said the quality of these habitat areas is quantified in other reports (like the raptor summary), but there is not a straightforward quantification for habitat value in the cover:forage model. Emmerson said she will evaluate the areas being discussed and see whether they qualify as old growth or old growth potential and include any updates in the cover reclassifications. Holman suggested showing somehow that it is a management choice not to log the areas rather than a regulatory or access issue (like “no access” might suggest). Emmerson clarified that the cover:forage model is not a reporting tool and is used to guide forestry decisions by prioritizing habitat types and being practical about management actions. Miller agreed with the approach to encourage natural succession in these hard to access areas and note them habitat value when discussing habitat acreages. She suggested including the no access areas in the Old Growth Connectivity plan.

Emmerson noted that areas in Unit 23 might change again soon anyway due to fish passage activities at Yale Dam. She showed a map of Unit 11 at Yale Dam and discussed how some of the smallest areas that are denoted as hard to access could feasibly be logged because they can be accessed from the side. This depends on the size of the acreage, the slope, and other site-specific features. Another example was shared in Unit 18A, where some areas were shown as logging potential but turned out not to be feasible. In this way, the cover:forage model is just a tool to focus the review of areas that may be logged, and the maps can be updated based on site-specific features.

Holman reminded the TCC that similar to harvesting over small patches that the model might deem inaccessible, the TCC also has purview to harvest in buffers. An example is thinning in dense industrial areas. Emmerson agreed and said Joe Berry (Chilton Logging) has been updating buffers in the field based on stream-typing, too. However, stream-typing has been difficult in 2022 due to the high snow load and above normal hydrology. .

Yale Saddle Dam Seismic Remediation Project Mitigation with Budget Loss

Emmerson provided an update on the Yale Saddle Dam mitigation calculations. At the previous TCC meeting, Holman suggested updating the mitigation amount to include budget loss for acreage that would be permanently removed from the WHMP (i.e., will transition to excluded lands). Emmerson shared a spreadsheet showing the budget calculations, with inflation adjusted since 2003 and estimated to the end of the license. She said this amount to approximately \$2,500 and has been added to the mitigation total.

Study/Work Product Updates

Moss Cave Update

Emmerson said she has been making progress on the Moss Cave acquisition with PacifiCorp's legal team. They recently had a meeting with WDFW staff and are working through final edits on the conservation easement. One discussion point in the conservation easement has been about the future potential changes to the road. The current roads have some drainage issues, so relocated the road may be an option. The legal teams have also been working on how to make sure the easement for the transmission line has rights over the conservation easement, then fit management agreements in as well. Next, she said the conservation easement will go to WDFW for final review. After the conservation easement is completed, the next step is to determine the fair market value (FMV). She said she is starting to prepare supporting documentation for the valuation, and in July, will evaluate the different habitat types and suitability for logging. She said there is not a lot of logging potential due to the topography, but this may affect the fair market valuation of the parcel.

MU 3 Forest Lab Results

Emmerson said a sample from the area in Unit 3 that was thought to be Amilaria root rot came back from the lab at Oregon State University and turned out to be laminated root rot. Because the root rot is spreading slowly, the plan is still to watch the area for changes over time and reevaluate the management of the unit as needed. Currently, there is a thinning planned for 2022, then another thinning will occur in 10 years unless conditions warrant a change. She said she may send more samples to the lab.

Peterman asked why it is important to the know the difference between the two types of root rot. Emmerson said the treatment for laminated root rot is generally to take out the sick trees and the

trees surrounding them. *Amillaria*, on the other hand, is more like needle fungus. It's very common and taking adjacent trees can stress the tree that does have the fungus, making its effects worse. She said the TCC can observe the effects of laminated root rot in Unit 6.

An excerpt of the lab results is show below:

Diagnosis: Laminated root rot; Wood rot fungus (*Phellinus weirii*)

Category: FUNGAL

Comments: Thank you for submitting the bark and wood samples from the trees that were dying. The wood had the presence of setal hyphae which is characteristic of laminated root rot, and when we assayed the wood using a PCR test that detects multiple wood decay fungi, only the laminated root rot fungus was detected. We did not detect any *Armillaria*.

This native root pathogen can live several decades as a saprophyte. Infection spreads from tree to tree through the stand and from stumps to roots of healthy seedlings or trees that contact infected wood. Root infections eventually lead to root and lower bole decay; the tree dies directly or as a result of windthrow. Trees are infected and killed regardless of individual vigor. Mortality increases steadily in Douglas-fir stands 30- to 150-years old but spread is slower in older stands and it takes many decades for the large old trees to be killed by the fungus.

This is the most serious disease of older Douglas-fir and true fir. Douglas-fir, mountain hemlock, grand fir and white fir are the most susceptible. Western hemlock is often infected but usually not killed. Western red cedar and pines are resistant. Bark beetles are often present in these trees.

In mixed-species areas, favor resistant species such as cedar, pine, or hardwoods when planting, thinning, or harvesting.

Excavating infected stumps has helped on industrial land, as has thinning stands to decrease root contacts.

Best regards,
Melodie Putnam

WSDOT Dog Creek and Wetland Impacts

Emmerson provided an update on the WSDOT Dog Creek project and wetland impacts associated with the project. She said WSDOT has a culvert on Dog Creek that is failing and causing some concerns for the highway. In addition, there is a tributary into Dog Creek that also has a culvert that is also failing. The plan is to put a bridge over Dog Creek and replace the culvert at the tributary to Dog Creek. Both will be fish-passable, knowing the fish passage will be occurring at Yale Dam in the future. Wetland mitigation may be required for the project, so Emmerson asked the TCC to keep this in mind for projects. Miller asked for clarification on which creek has the failed culvert. Emmerson said tributary to the west of Dog Creek has the failed culvert that is at its structural life and needs to be replaced. The failed culvert at Dog Creek is resulting in water running under the highway and causing a sinkhole at the tributary.

WHMP Annual Report

Emmerson said PacifiCorp is working to finalize the 2021 WHMP Annual Report and will be sending it to FERC soon.

Cowlitz County Weed Control

Emmerson said she has been coordinating with Cowlitz County regarding weed control. She said the county intended to perform scotch broom biological control in an area that PacifiCorp was about to spray. So, PacifiCorp and the county are going to meet and release scotch broom biological controls in Unit 1 where seed continues to come into the unit from adjoining landowners. She said she understands it can take over 10 years for the biological controls to work but that it can make a big difference over time.

Monique Ferris, Eric Holman, Summer Peterman, and Kendel Emmerson attended the field visit.

Field Visit: MU 36 Shrub Exclosure and Vine Maple Removal Area

At this location the group observed the 40x40 exclosure and observed the notable changes in size and amount of flowering dogwood, vine maple, and huckleberry within the exclosure. Also, the timber harvest (163654CC) is one of the timber harvest areas in MU 36 that is having competing vine maple removed that around conifer seedlings. Vine maple that are not competing with conifer seedlings are remained intact. All vine maples are cut by hand left to resprout.

Field Visit: Ichabod Wetland Plantings

In preparation for the field visit, Emmerson showed a figure of Ichabod Pond and a table of the wetland plants that were installed. She said the initial delineation of Ichabod Pond was done using the National Wetland Inventory maps, but it is much larger than that boundary. The pond and associated wetland are hummocky and marshy. She said it was planted with shrubs and trees in March 2022, after being logged up to the wetland edge, which is different than the usual prescription of planting conifers and grasses.

Emmerson noted the plant table does not reflect the total cost of planting (it does not include labor) and there were some minor changes in what was planted. The planting took two visits, and due to some shortages of material, Plantskyd will be used on some plants instead of vexar or Protex tubes.

Field Visit: MU 35 Proposed 2022 Timber Harvest Areas

In preparation for the field visit, Emmerson showed the TCC the harvest areas in Unit 35 (three small areas of 4, 5, and 7 acres). In the LOCO harvest unit, she described how field crews found a bear den in the area. She pointed out a palustrine emergent wetland that was discovered and said the hydrology in the area has made delineating streams very difficult. The stand is made up of a mix of western hemlock, Douglas fir, Noble fir and some Western red cedar. It does not have much of a shrub component. In the TARGET harvest area, large root wads are present. The prescription for harvest here will include maintaining legacy wood by logging around any root wads that are over four feet high. The pink polygon on the map shows a special management area of multiple downed logs. Holman asked what the prescription will be for leave trees. Emmerson said the leave trees will include some snags and future snags. One white pine was found and identified as a leave tree, as well as a few large alders because they are relatively rare in this area. A few noble firs are also identified as leave trees. In the DIABLO management unit, Emmerson said there are a many large hemlock trees with good limb structure marked as leave trees. She also pointed out the BAD JIM management unit, which does not have any special habitat features of note.

The group was able to visit Loco (223502CC) and Diablo (223505CC) proposed timber harvest areas. In Loco the group was able to see bear den and other burrow in a leave tree, the leave tree distribution, and stream with it associated buffers. At Diablo the group was able to see the gnarly hemlock trees that will be left as wildlife leave trees.

Field Visit: MU 1 Timber Harvest Areas

To show Monique some of the timber harvest practices in the lower elevation and where all timber harvest practices were completed by PacifiCorp the group visited the 2017 commercial thinned areas (170107CT) and 2017 clearcut (170112CC).

Agenda items for July 13, 2022

- Review June 8, 2022, Meeting Notes
- Study/Work Product Updates
- Fair Market Value for Moss Cave Acquisition
- Cover:forage model updated
- Visit 2022 Management Unit 6 proposed harvest areas.

Next Scheduled Meeting

July 13, 2022
Merwin Hydro Control and Field Visit

Attachments:

- June 8, 2022, Meeting Agenda
- Cover:forage Model
- Unit 35 Aerial Map
- Ichabod Pond Wetland Planting

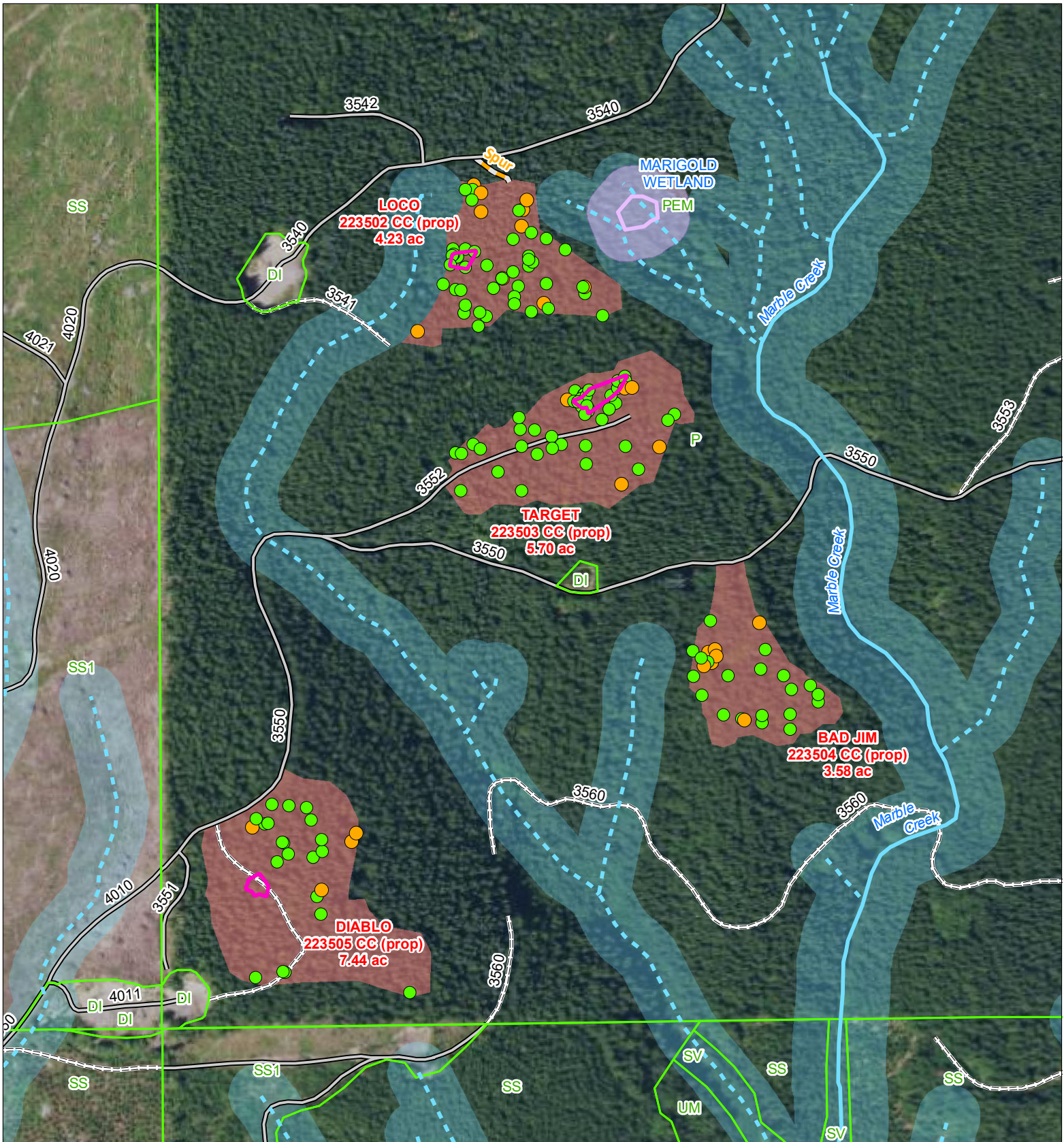
Adjourn Conference Call 10:00 a.m.

Field visit conducted 10:15 a.m. to 3:00 p.m.

Updated 6/2/2022		MANAGEMENT UNITS																												
	TOTAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
COVER																														
# Old Growth (>26" dbh)	468.9		33.9					30.0			23.1	15.2			8.8	35.6	17.9	6.6		12.7	3.8	6.9	13.1						6.1	
# Mature Conifer (21-26" dbh)	694.5	3.6	17.5	4.3	30.8		75.0			22.9	8.3	30.4	29.0	51.5	49.5	35.1	36.2	47.7	37.3		31.1	31.8	26.8	39.0		5.3		6.2		
# Mature Conifer (Thinned) > than 5 years since commercially thinned	110.2		5.1	5.9		15.3	62.4					4.8	3.1			11.6														
# Mid-Successional Conifer (16-20" dbh)	2379.7	25.5	32.4	57.5	26.3	130.0	200.3	62.9	61.2	56.0	56.8	8.0	11.7	60.9	6.0	60.2		86.4	112.7	54.4	123.4	44.1	151.3	13.5		1.5	144.3	149.0	73.9	
# Mid-Successional Conifer (Thinned) > than 5 years since commercially thinned	127.1	10.9			2.2	28.5	51.8	10.1	2.5																				21.0	
# Upland Mixed (conifer 30-70%)	2158.8	20.0	76.7	84.3	84.3	18.6	119.9	233.0	138.3	55.1	38.1	81.6	113.2	86.4	18.4	125.4	130.2	77.4	98.5	12.8	125.5	41.8	85.2	58.9	4.0	25.8	33.4	70.6		
# Upland Mixed (Thinned) > than 5 years since commercially thinned	9.4							3.4				1.9							4.1											
# Young Upland Mixed	27.2							3.2			4.1			8.1		5.4					6.4									
# Pole Conifer (8-15" dbh)	2801.4	14.4		63.8	55.5	21.8	13.7	32.1	7.4	19.5	329.8	57.6	56.0			70.4	58.7			6.8	432.6					53.2		22.7	8.0	
# Pole Conifer (Thinned); (8-15" dbh) > 5 years since commercially thinned	195.0		12.5		14.8	30.4	72.1	31.3	4.4		4.0					4.4				21.2										
# Lodge Pole Pine	71.7																					65.1			6.6					
# Riparian Mixed	213.0			14.0	7.5		11.5	5.5	7.7	10.5			1.0			38.5					82.2	3.8			2.4		10.2	10.2		
# subtotal	9257.1	74.4	178.1	229.8	221.4	244.6	606.8	411.5	221.4	163.9	441.1	207.4	229.3	198.7	82.1	350.0	270.4	229.4	255.1	99.3	813.9	190.4	270.2	124.5	12.9	1.5	239.0	192.6	129.9	78.6
FORAGE																														
# Young Upland Deciduous	41.5				14.4	2.5	1.0				1.3	1.0	2.8		3.5	11.3		2.5											1.2	
# Mature Conifer (Thinned) < 5 years since commercially thinned	1.6															1.6														
# Pole Conifer (Thinned); (8-15" dbh) < 5 years since commercially thinned	194.0	7.8	22.1							63.4						47.6	45.7											7.3		
# Upland Mixed (Thinned) < than 5 years since commercially thinned	1.6															1.6														
# Mid-Successional Conifer (Thinned) < than 5 years since commercially thinned	1.7								1.7																					
# Riparian Shrub	4.1																								4.1					
# Riparian Deciduous	174.0	5.6	2.7			11.3	11.0	0.5	2.0		17.7		2.5			9.5	4.0	25.8			5.7			32.9	21.4			1.3	7.4	
# Upland Deciduous (>70% deciduous)	1530.1		7.8	19.2	34.4	22.8	39.1	10.9	1.6	66.6	18.8	116.8	93.5	0.9	11.4	62.6	32.2	90.7	90.4	48.9	22.8	124.7	246.6	42.3	9.8	50.3	212.7	30.6	3.9	
# Oak Woodland	10.3	0.6				2.0	7.3	0.4																						
# Right-Of-Way	234.8	5.5	18.0	18.1	16.3	3.0	32.9	4.7		12.8			11.6			18.2	4.6	27.9	3.5	14.0	21.1						19.6			
# Meadow	132.2			6.0			0.6	4.4	2.5		15.8	6.0	17.4		2.5	3.6		28.0	3.7		3.8			2.0	6.6	2.3	1.2	1.0		
# Shrub	53.1			5.9	3.7	3.5	3.2						1.2		2.9													3.6		
# Orchard	8.6						1.3			1.1	1.3	0.4	2.4			2.2														
# Agriculture	30.2										30.2																			
# Seedling / Sapling (5-8" dbh)	1958.7	10.1	24.7	12.6	24.6	50.8	73.4	62.4	23.1	24.5		21.9	71.5			1.2	8.9	118.7			13.0			11.7			28.7	3.6		
# Seedling / Sapling (New) (<4"dbh)	1783.6	26.6		7.0	28.9	17.3	38.9	28.7	13.1	8.3	85.8	28.7		20.4	31.3		14.4	24.8	8.2		51.1						16.7	18.4		
# Wetland (Palustrine Wetland)	95.9						0.2		5.5	3.7	8.0	7.7	2.8			1.0	1.5	0.4			30.9			4.2	11.3					
# subtotal	6255.9	56.3	75.3	68.8	122.4	113.2	208.7	112.1	49.4	180.3	179.0	183.7	204.6	0.9	40.8	170.8	111.6	286.3	147.3	60.6	104.6	182.4	246.6	54.0	53.0	126.0	247.3	57.5	7.1	11.3
# COVER & FORAGE TOTAL		130.7	253.4	298.6	343.8	357.8	815.5	523.6	270.9	344.2	620.1	391.1	433.8	199.6	122.9	520.9	382.1	515.8	402.4	159.9	918.5	372.8	516.8	178.5	66.0	127.5	486.3	250.1	137.0	89.9
NEITHER																														
# Lacustrine Unconsolidated Bottom	0.0																													
# Riverine Unconsolidated Shore	25.3															3.0						0.1			14.2				2.0	
# Sparse veg.; Disturbed; Developed	44.0		0.6				0.1	1.4	1.5	2.2	5.1	0.8					0.9		1.9			0.5			4.7	9.0	0.5	3.6	1.3	
# Highway ROW	81.2		4.2		2.9	0.7	8.1		2.4				2.2					0.3	9.8	2.0	4.9	6.3			1.8	1.8	6.7	5.2	5.3	
# Recreation	53.1						1.6		3.6	0.3	0.4			1.7					1.8	1.2		42.5								
# Rock Outcropping and Talus	34.0					1.9	3.0	1.7						2.3		1.4					11.4	0.3							5.7	
# Residential	6.6								0.6	1.6								1.8	2.0	0.3		0.3								
# Open Water	47.2						0.2			1.6	20.2	6.9					0.5	1.2				2.8			3.6	6.7			0.2	
# subtotal	291.3	0.0	4.8	0.0	2.9	2.7	13.0	3.1	8.2	5.6	25.6	7.7	2.2	5.0	0.0	1.4	3.5	4.2	13.6	5.4	16.3	52.9	0.0	0.0	24.2	17.4	7.2	5.2	16.8	1.3
# TOTAL ACRES	15,804.3	130.7	258.1	298.6	346.7	360.5	828.5	526.7	279.0	349.9	645.7	398.8	436.1	204.6	122.9	522.3	385.6	520.0	415.9	165.4	934.7	425.7	516.8	178.5	90.2	145.0	493.5	255.2	153.8	91.1
# MANAGEABLE ACRES	5,360.7	70.5	79.8	113.9	170.4	179.5	373.9	119.0	119.3	192.2	254.1	137.5	187.0	9.8	12.9	142.1	77.0	190.5	118.7	102.8	147.7	119.4	7.9	2.9	7.8	26.0	204.5	85.6	75.5	0.0
# PERCENT OF MANAGEABLE ACRES	34%	54%	31%	38%	49%	50%	45%	23%	43%	55%	39%	34%	43%	5%	11%	27%	20%	37%	29%	62%	16%	28%	2%	2%	9%	18%	41%	34%	49%	0%
# COVER / FORAGE RATIO		0.57	0.70	0.77	0.64	0.68	0.74	0.79	0.82	0.48	0.71	0.53	0.53	1.00	0.67	0.67	0.71	0.44	0.63	0.62	0.89	0.51	0.52	0.70	0.20	0.01	0.49	0.77	0.95	0.87
# Revised Lewis River Wildlife Habitat Management Plan recommended ratio (+/-5%)		50:50	70:30	60:40	55:45	50:50	60:40	80:20	60:40	50:50	70:30	70:30	60:40	100:0	90:10	75:25	80:20	70:30	70:30	50:50	85:15	NSO	NSO	100:0	NSO	85:15	60:40	70:30	50:50	100:0
# Original Lewis River Wildlife Habitat Management Plan recommended ratio (+/-5%)		50:50	60:40	50:50	60:40	60:40	50:50	50:50	55:45	50:50	50:50	60:40	60:40	85:15	70:30	70:30	70:30	50:50	50:50	60:40	60:40	NSO	NSO	70:30	NSO	15:85	70:30	70:30	50:50	50:50
# Acres to achieve 5% permanent forage		3.52	3.99	5.70	8.52	8.97	18.70	5.95	5.97	9.61	12.70	6.88	9.35	0.49	0.65	7.11	3.85	9.52	5.94	5.14	7.39	0.00	0.00	0.15	0.00	1.30	10.22	4.28	3.77	0.00
# Current Permanent Forage Acres		6.1	18.0	30.0	20.1	8.5	45.4	9.5	8.0	17.6	55.4	15.3	34.2	0.0	5.4	5.8	19.2	34.1	32.0	3.5	17.8	52.0	0.0	0.0	6.3	37.5	5.9	1.2	1.0	0.0
# Meets (Y/N) permanent Forage goal		Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N	Y	NA	NA	N	NA	Y	N	N	N	NA
# Most recent Timber Harvest		2017	2020	2016	2013	2015	2012	2017	2017	2020	2021	2010	2005		2017	2021	2021	2010	2010	2016	2019			1993		2012	2008	2019	2011	
# Percent of SS/SS1 in Management Unit		28%	10%	7%	15%	19%	14%	17%	13%	9%	13%	13%	16%	0%	17%	6%	2%	26%	6%	5%	7%	0%	0%	7%	0%	12%	6%	7%	2%	0%

Updated 6/2/2022		TOTAL	30	31-1	31-2	31-3	31-4	31-5	31-6	31-7	31-8	31-9	31-12	31-13	31-14	31-15	31-16	32	33	34	35	36	37	38	39	40	
COVER																											
#	Old Growth (>26" dbh)	468.9		6.1	8.5								0.1	0.2		14.8	0.8		8.6						216.0		
#	Mature Conifer (21-26" dbh)	694.5	9.1	10.0	5.1				1.5	1.0	0.4				5.3							1.2	3.5	38.1			
#	Mature Conifer (Thinned) > than 5 years since commercially thinned	110.2																	2.0								
#	Mid-Successional Conifer (16-20" dbh)	2379.7								4.7		15.0					1.5	3.2	299.0		56.1	36.9	62.4	3.2	67.7	20.1	
#	Mid-Successional Conifer (Thinned) > than 5 years since commercially thinned	127.1																									
#	Upland Mixed (conifer 30-70%)	2158.8	37.6	8.5	15.7		4.2			10.3								6.1	11.4					7.7			
#	Upland Mixed (Thinned) > than 5 years since commercially thinned	9.4																									
#	Young Upland Mixed	27.2																									
#	Pole Conifer (8-15" dbh)	2801.4																	39.5	599.0	683.7	77.6	71.4		6.1		
#	Pole Conifer (Thinned); (8-15" dbh) > 5 years since commercially thinned	195.0																									
#	Lodge Pole Pine	71.7																									
#	Riparian Mixed	213.0			0.7			1.1	0.3									5.9									
#	subtotal	9257.1	46.7	24.6	30.0	0.0	4.2	1.1	1.9	16.1	0.4	15.0	0.1	0.2	5.3	14.8	2.2	15.1	360.5	599.0	739.8	115.7	137.4	265.0	73.8	20.1	
FORAGE																											
#	Young Upland Deciduous	41.5																									
#	Mature Conifer (Thinned) < 5 years since commercially thinned	1.6																									
#	Pole Conifer (Thinned); (8-15" dbh) < 5 years since commercially thinned	194.0																									
#	Upland Mixed (Thinned) < than 5 years since commercially thinned	1.6																									
#	Mid-Successional Conifer (Thinned) < than 5 years since commercially thinned	1.7																									
#	Riparian Shrub	4.1																									
#	Riparian Deciduous	174.0			0.6		0.3											3.9	3.5					4.4			
#	Upland Deciduous (>70% deciduous)	1530.1		6.6	2.6	3.6												5.1									
#	Oak Woodland	10.3																									
#	Right-Of-Way	234.8																2.9									
#	Meadow	132.2																	3.2		0.6	1.3		11.7	3.9	4.0	
#	Shrub	53.1																		24.2	5.0						
#	Orchard	8.6																									
#	Agriculture	30.2																									
#	Seedling / Sapling (5-8" dbh)	1958.7																	310.3			202.4	250.6	96.8	160.8	352.4	
#	Seedling / Sapling (New) (<4"dbh)	1783.6																	103.2	51.1	44.6	202.2	160.7	100.3	394.1	258.5	
#	Wetland (Palustrine Wetland)	95.9																	5.7	1.8			4.9		5.5	0.7	
#	subtotal	6255.9	0.0	6.6	3.1	3.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	426.0	77.1	50.2	405.9	416.1	213.2	564.4	615.7	
#	COVER & FORAGE TOTAL		46.7	31.2	33.1	3.6	4.5	1.1	1.9	16.1	0.4	15.0	0.1	0.2	5.3	14.8	2.2	26.9	786.5	676.1	790.0	521.6	553.5	478.2	638.2	635.7	
NEITHER																											
#	Lacustrine Unconsolidated Bottom	0.0																									
#	Riverine Unconsolidated Shore	25.3		0.5															3.6					1.8			
#	Sparse veg.; Disturbed; Developed	44.0				0.7												0.8			2.7	0.1	3.1			1.4	
#	Highway ROW	81.2		0.5															16.1								
#	Recreation	53.1																									
#	Rock Outcropping and Talus	34.0																			6.3						
#	Residential	6.6																									
#	Open Water	47.2		0.4														2.9	0.0	0.0							
#	subtotal	291.3	0.0	1.5	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	19.7	0.0	9.0	0.1	3.1	1.8	0.0	1.4	
#	TOTAL ACRES	15,804.3	46.7	32.7	33.1	4.3	4.5	1.1	1.9	16.1	0.4	15.0	0.1	0.2	5.3	14.8	2.2	30.6	806.2	676.2	799.0	521.7	556.6	480.0	638.2	637.1	
#	MANAGEABLE ACRES	5,360.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	221.6	260.6	337.5	229.1	150.0	136.6	351.4	345.1	
#	PERCENT OF MANAGEABLE ACRES	34%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	27%	39%	42%	44%	27%	28%	55%	54%	
#	COVER / FORAGE RATIO		1.00																0.46	0.89	0.94	0.22	0.25	0.55	0.12	0.03	
#	Revised Lewis River Wildlife Habitat Management Plan recommended ratio (+/-5%)		NSO	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	75:25	70:30	60:40	60:40	75:25	75:25	50:50	50:50
#	Original Lewis River Wildlife Habitat Management Plan recommended ratio (+/-5%)		NSO	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	RB	30:70	50:50	50:50	50:50	50:50	70:30	50:50	50:50
#	Acres to achieve 5% permanent forage		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.08	13.03	16.87	11.46	7.50	6.83	17.57	17.25	
#	Current Permanent Forage Acres		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	8.9	26.0	5.6	1.3	4.9	11.7	9.4	4.7	
#	Meets (Y/N) permanent Forage goal		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	Y	N	N	N	Y	N	N	
#	Most recent Timber Harvest																		2011	2019	2015	2016	2016	2016	2016	2019	
#	Percent of SS/SS1 in Management Unit		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	51%	8%	6%	78%	74%	41%	87%	96%

Cover:Forage Model Instructions by ROW (updated 1/6/21)			
ROW(S)	ROW Title	Instructions	Data Maintenance
ROW 1	Update	Last date that GIS data was inputted into spreadsheet	Update manually as needed
ROW 3-16	COVER	These are the vegetation cover types (VCT) that provide cover habitat	Acres provided by GIS and subtotal are formulated
ROW 17-35	FORAGE	These are the VCT that provide forage habitat	Acres provided by GIS and subtotal are formulated
ROW 36	COVER AND FORAGE TOTAL	These are the total acres of cover and forage combined.	This total is formulated
ROW 37-46	NEITHER	These vegetation cover types do not provide cover nor forage and so are not included in the cover:forage calculation.	Acres provided by GIS and subtotal are formulated
ROW 47	TOTAL ACRES	These are the cover, forage, and neither acres combined and should be equal to total acres within the management unit (MU)	This total is formulated
ROW 48	MANAGEABLE ACRES	<p>This is the total amount of acres within the management unit that are available to manage for cover:forage. This is calculated by taking the total acres of the MU and subtracting acres of that are classified as Reserved Habitat Acres, Restricted Acres, No Access and Marginal Access.</p> <p>Reserved Habitat Acres = VCTs that are not suitable for forestry management or timber harvest are not allowed, such as OW and OG.</p> <p>Restricted Acres = Acres within WHMP buffers (e.g. riparian, wetlands, shoreline, raptor nest, bald eagle roosting staging areas), Priority Mature Stand, or Conservation Covenants.</p> <p>No Access = Areas that are inaccessible due to location, size of suitable acres, and slope. Suitable acres that are ≥ 1000 feet from PacifiCorp-owned road (this does not include orphaned or abandoned roads, or secondary highways) will be considered to have No Access. Suitable Acres that ≤ 2.0 acres in size and ≥ 1000 feet from the nearest suitable acres will be classified as No Access. Suitable acres that $>60\%$ slope will be classified as No Access.</p> <p>Marginal Access = This include all areas that are difficult to access because the suitable acres are between 40-60% slope and/or >500 feet from a PacifiCorp-owned road, not including orphaned or abandoned roads, or secondary highway.</p>	Acres provided by GIS
ROW 49	PERCENT OF MANAGEABLE ACRES	Total amount of Manageable Acres divided by the total MU acres. This provides the percent of acres available to manage for cover:forage habitat.	This total is formulated
ROW 50	COVER:FORAGE RATIO	The total acres of COVER divided by the COVER AND FORAGE TOTAL. All cells highlighted in Orange are $> 5\%$ of the WHMP recommended ratio. All cells highlighted in Yellow are $< 5\%$ of the WHMP recommended ratio. All cells with no highlighting are within 5% of the WHMP recommended ratio or no WHMP recommendation has been determined.	This total is formulated
ROW 51	Lewis River Wildlife Habitat Management Plan Recommended Cover:Forage Ratio	COVER:FORAGE ratios that were provided in the Lewis River Wildlife Habitat Management Plan Forestry Management Chapter Section 12.5.2. NSO = the entire MU is within a Northern Spotted Owl circle and cannot be managed for cover:forage. RB = the entire MU is within a riparian/shoreline buffer and cannot be managed for cover:forage. C:F ratio in red mean the C:F ratio was determined after the WHMP because lands were acquired after license issue, revised due to additional acres added to the MU after the license, or WHMP never assigned a ratio.	These are inputted from the WHMP and should not change
ROW 52	Acres to achieve 5% permanent forage	This is determined by finding 5% of the total manageable acres (ROW 48) for all management units that have a c:f recommended ratio	This total is formulated
ROW 53	Current Permanent Forage	This is determined by the sum of VCTs that regardless of succession or management activities provide forage, which include the following VCT: OW, ROW, MD, SH, AG, OR, and PW. The rows are highlighted green.	This total is formulated
ROW 54	Meets (Y/N) permanent Forage goal	If ROW 53 $>$ then ROW 52 then Yes. If ROW 53 $<$ then ROW 52 then No.	Some are formulated, some are manual entry.
ROW 55	Most Recent Timber Harvest	This is the year of the most recent year that timber harvest was completed.	Manually updated
ROW 56	Percent SS/SS1 of Management Unit	WHMP Section 12.5.1 Forestland Best Management Practices Page 12-10 Timber Harvest Area Scheduling and Planning bullet 3 "Distribute harvest units throughout the Management Unit in time to avoid having more than 25 percent of the clearcut areas within 10 years of age" . If the percentage is greater than 25% need to determine the amount acres less than 10 years in age before scheduling a timber harvest. $MU \geq 25\%$ are highlighted in orange and $MU < 25\%$ in yellow.	This total is formulated. The highlighting needs to be updated.

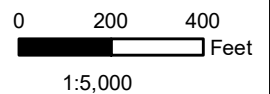


WHMP - Unit 35

Planned Harvests

Harvest Area	Leave Tree	Snag
BAD JIM 223504CC	20	7
DIABLO 223505CC (prop)	20	4
LOCO 223502CC	41	10
TARGET 223503CC	41	6

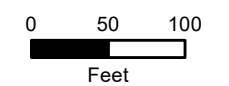
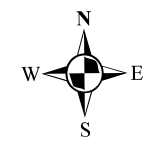
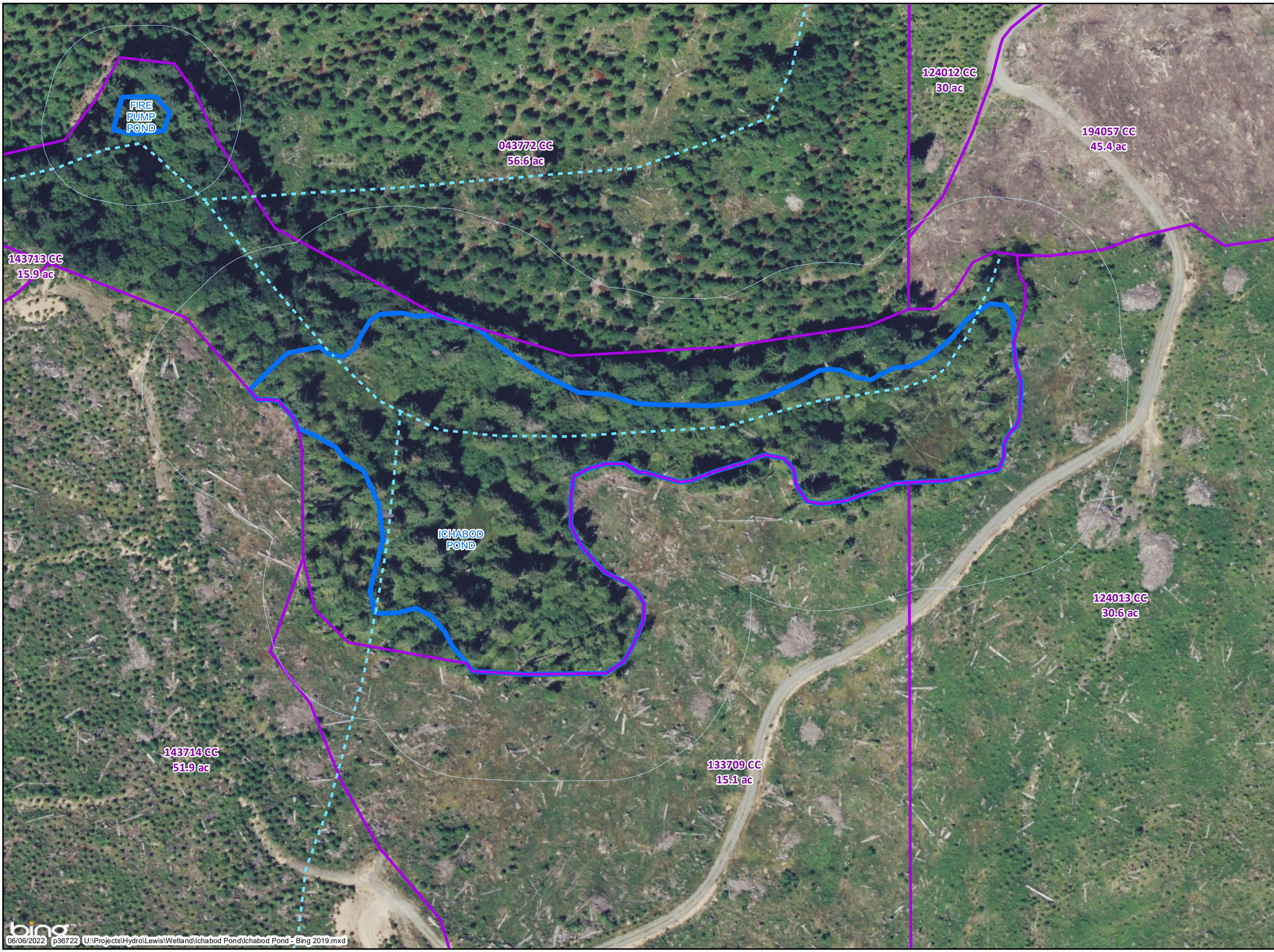
- Planned CC
- Special Management Area
- Leave Tree
- Snag
- Road
- Abandon/Orphan Road
- Other Road
- Vegetation Cover
- Non-fish Perennial
- Non-fish Seasonal
- Riparian Buffer
- Wetland
- Wetland Buffer



Ichabod Pond

-  Wetland
-  Wetland Buffer
-  Harvest Area
- Stream Type
 -  Non-fish Seasonal

**Bing Imagery in this area appears to be derived from 2019 NAIP as of 6/6/2022*



1:1,500



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Common Name	Species Name	Age, Source Size	Quantity	Cost	Wetland Status	Preferred Planting Area	Vexar Tubes
Black Hawthorne	<i>Crataegus douglasii</i>	1-0 WW 12"+	25	= $\$1.54 \times 25 = \38.5	FAC	Anywhere without standing water	No
Pacific Ninebark	<i>Physocarpus capitatus</i>	1-0 WW 12"+	50	= $\$1.54 \times 50 = \77.00	FACW	Wet areas low spots but not standing water	No
Nootka Rose	<i>Rosa nutkana</i>	1-0 WW 12"+	25	= $\$1.54 \times 25 = \38.5	FAC	Anywhere without standing water	Yes
Thimble berry	<i>Rubus parviflorus</i>	1-0 WW 12"+	25	= $\$1.54 \times 25 = \38.5	FACU	Upland drier area and plant at least 2 within 3 feet of each other.	Yes
Twinberry	<i>Lonicera involucrata</i>	1-0 WW 12"+	25	= $\$1.54 \times 25 = \38.5	FAC	Anywhere without standing	Yes
Red Alder	<i>Alnus rubra</i>	1-0 WW 12"+	100	= $\$1.08 \times 100 = \108.00	FAC	Anywhere without standing water	No
Black Cottonwood	<i>Populus balsamifera</i> ssp. <i>Trichopera</i>	Cutting WW Thurston 36"	100	= $\$1.00 \times 100 = \100	None	Anywhere without standing water	No
Red Flowering Current	<i>Ribes sanguineum</i>	1-0 WW 12"+	25	= $\$1.54 \times 25 = \38.5	FACU	Upland drier areas.	No
Red osier dogwood	<i>Cornus sericea</i>	1-0 WW 12"+	25	= $\$1.54 \times 25 = \38.5	None	Anywhere without standing water	No
Pacific Willow	<i>Salix lucida</i> ssp. <i>lasiandra</i>	Cutting WW 36"	100	= $\$1.00 \times 100 = \100	FACW	Wet areas low spots but not standing water	Yes
Total			500	\$616.00			

Protex and vortex were very limited at time of planting. All Rose and Salix were in tubes.

** Added in cedar and 100 spirea to plant area to make up for plant shortage.