

Swift No. 2 Hydroelectric Project
FERC No. 2213

March 18, 2022

**Wildlife Habitat Management Plan
2022 (Year 14) Annual Plan
For The
Swift No. 2 Wildlife Management Area**



Prepared by
Public Utility District No. 1 of
Cowlitz County, Washington



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Acronyms

BMPs	Best Management Practices
DB	Devil's Backbone
FERC	Federal Regulatory Energy Commission
HEP	Habitat Evaluation Procedures
HSI	Habitat Suitability Indexes
LWD	Large Woody Debris
MU	Management Unit
PUD	Public Utility District
PW	Project Works
SGD	Standards and Guidelines Document
SOPs	Standard Operating Procedures
TCC	Terrestrial Coordination Committee
WDFW	Washington Department of Fish and Wildlife
WHMP	Wildlife Habitat Management Plan
WMA	Wildlife Management Area

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**2022 (YEAR 14) Annual Plan
for the
Swift No. 2 Wildlife Management Area**

1.0 INTRODUCTION

Public Utility District No. 1 of Cowlitz County, Washington (Cowlitz PUD) owns the Swift No. 2 Hydroelectric Project (FERC No. 2213) on the Lewis River at River Mile 44 in Cowlitz and Skamania counties, Washington (Figure 1.0-1). The Swift No. 2 Project is one of four Lewis River Hydroelectric Projects. In 1999, Cowlitz PUD and PacifiCorp¹ began the Alternative Licensing Procedure (ALP) for the Lewis River Projects. In April of 2004, Cowlitz PUD filed with the Federal Energy Regulatory Commission (FERC) an Application for New License for Swift No. 2. In November 2004, Cowlitz PUD, PacifiCorp and 24 other Parties signed the Lewis River Settlement Agreement (SA) for the purpose of resolving all of the issues between the Licensees and the other Parties regarding the relicensing. The FERC issued a new 50-year License for Swift No. 2 on June 26, 2008 that incorporates without material modification Cowlitz PUD's obligations under the Settlement Agreement.

In accordance with License Article 403, Cowlitz PUD filed a Wildlife Habitat Management Plan (WHMP) with the Commission on December 23, 2008. The WHMP provides long-term guidance for management of 525 acres of Cowlitz PUD lands within the Swift No. 2 Wildlife Management Area (WMA). The WHMP includes the following:

- Section 1 explains development of the WHMP through the relicensing process.
- Section 2 describes the Swift No. 2 WMA, which includes the Devil's Backbone and Project Works management units (MUs). It describes the vegetation cover types and baseline Habitat Suitability Indexes (HSI) for Habitat Evaluation Species (HEP) evaluation species and provides maps and acreage tables for each MU.
- Section 3 summarizes the habitat-based and program-wide goals and objectives taken from the Standards and Guidelines Document (SGD) that apply to habitat types that occur in the Swift No. 2 WMA.

¹ PacifiCorp owns the Swift No. 1 (P-2111), Yale (P-2071) and Merwin (P-935) projects, also on the Lewis River. PacifiCorp filed the Application for New License for Yale in 1999 and filed Applications for Merwin and Swift No. 1 in April 2004.

- Section 4 describes potential management activities designed to meet the SGD goals and objectives and provides a tentative timeframe for implementation.
- Section 5 includes Best Management Practices (BMPs) and Standard Operating Procedures (SOPs) that explain how each of the management prescriptions will be implemented. Section 5 also contains references for specific methods.
- Section 6 contains general references used in development of the WHMP.

Appendices attached to the WHMP include: A) 2022 Cowlitz and 2021 Skamania County Weed Lists and B) Annual Plan Consultation Record.

License Article 403 states that Cowlitz PUD should file an annual plan for implementation of the WHMP. On March 31, 2009, the Commission issued an order modifying and approving the WHMP, which specifies that Cowlitz PUD should file annual reports and annual plans with the Commission by April 30 of each year. In accordance with that order, this Year 14 Annual Plan outlines proposed wildlife measures and anticipated costs for work to be completed in 2022. The annual report is being filed under separate cover.

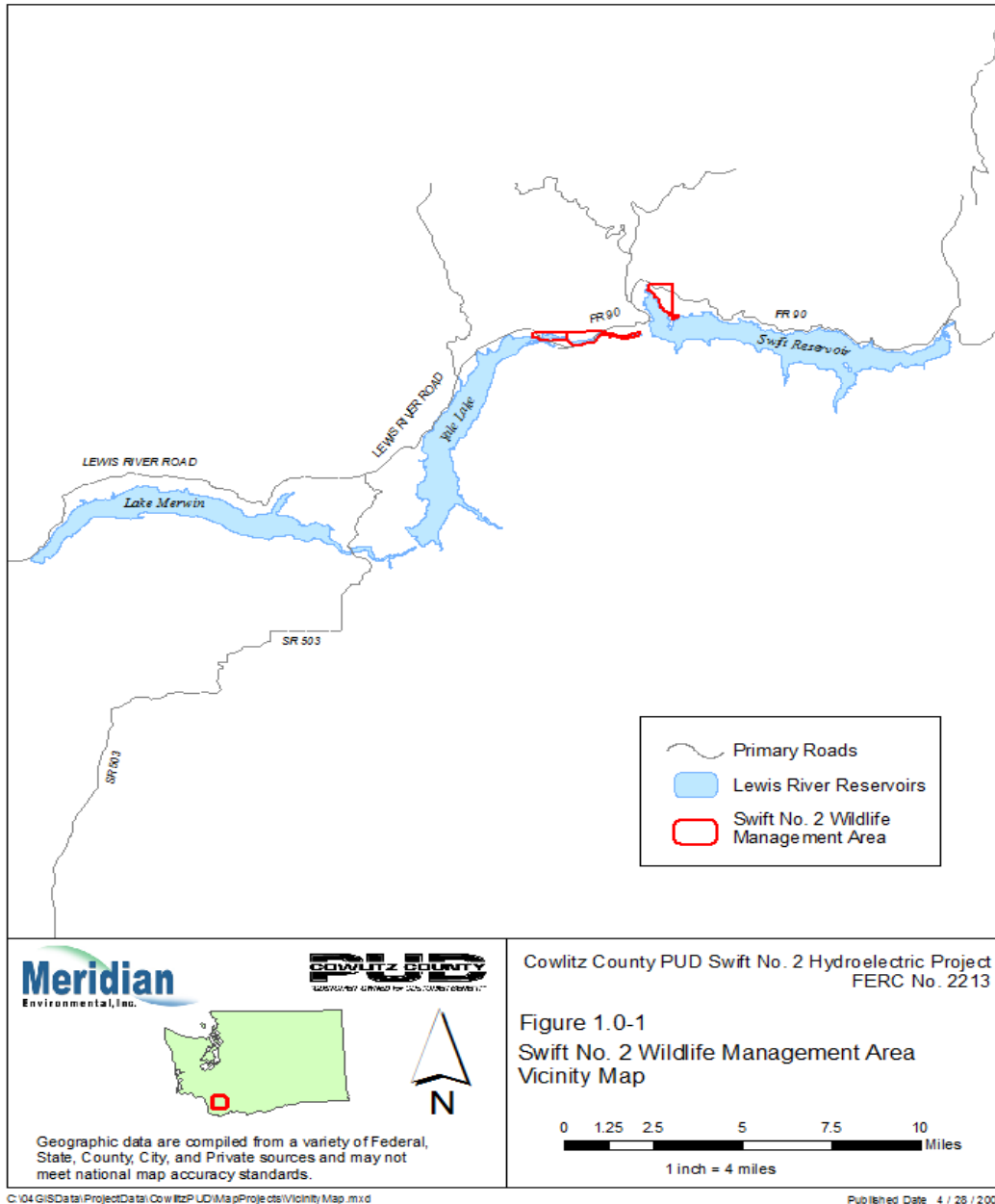


Figure 1.0-1. Project area map, project vicinity inset.

2.0 2022 (YEAR 14) MANAGEMENT ACTIVITIES

Management activities planned for 2022 (Year 14) include the following:

- *Conduct follow-up surveys at sites where weed control efforts have already been implemented.* Meridian Environmental together with Cowlitz PUD staff will conduct the invasive plant surveys in conjunction with the public access surveys. The biological goal and objectives for Invasive Plant Species Management are described in Section 3.2.1 of the WHMP. Sections 4.2.8 and 4.3.6 of the WHMP explain their application to the Devil's Backbone and Project Works MUs, while Section 5.8 of the WHMP provides detail about how the activity is to be implemented. For additional background regarding invasive plants, please see Chapter 4.1 of the Standards and Guidelines Document (WHMP Appendix B).

Initial surveys have been completed in all high priority areas in the Devil's Backbone MU, besides the newly created Elk Forage Plot. Follow-up surveys and an initial survey will occur in May or June 2022.

Initial surveys have been completed in all high priority areas in the Project Works MU. In May or June 2022, follow-up surveys will include monitoring of Scotch broom, Himalayan blackberry, Robert's geranium, and Common cat's-ear that were treated with herbicides or removed using hand tools in previous years.

Updated 2022 Cowlitz and 2021 Skamania County weed lists are attached to this Annual Plan as Appendix A.

- *Treat high priority weed infestations, including newly created 5.8-acre Devil's Backbone Elk Forage Plot.* In 2022, Cowlitz PUD extended its interlocal agreement with Skamania County to perform weed control in the WMA. Based on invasive plant surveys to date, most weed occurrences within the Swift No. 2 WMA are located within wetland, unique habitat and/or riparian buffers. Herbicides selected for application in these areas will be safe for wetland use. Herbicides will be applied in summer and/or fall, depending on the target species and the herbicide selected. Hand-pulling and mechanical methods may also be implemented at sites where these approaches are likely to be effective. Targets for 2022 include retreatment of existing Canada thistle, tansy ragwort, Robert's geranium, Common cat's-ear, and Scotch broom infestations, and continued hand-pulling of foxglove where densities are increasing.
- *Inspect all accessible lands in the Project Works and Devil's Backbone MUs to evaluate public access activity and identify any habitat concerns or*

major changes in habitat conditions. Meridian Environmental, together with Cowlitz PUD staff, will conduct the public access surveys in conjunction with the invasive plant species surveys. The biological goal and objectives for Public Access Management are described in Section 3.2.3 of the WHMP. Sections 4.2.10 and 4.3.8 of the WHMP explain their application to the Devil's Backbone and Project Works MUs. Section 5.10 provides details regarding how the activity is to be implemented. For additional background relating to public access management, please see Chapter 4.3 of the Standards and Guidelines Document (WHMP Appendix B).

2.1 2022 (YEAR 14) ANNUAL PLAN BUDGET

Consistent with the SA budget of \$27 per acre per year to manage 525.2 acres, the total WHMP budget is \$14,180 in 2003 dollars. Adjusting that base amount for inflation (using the formula specified in the Definitions section of the SA) yields a 2022 (Year 14) budget of \$28,327.

As provided in Section 10.8.2.3, WHMP funds shall accrue interest from the date the monies are due to be placed in the fund. Funds remaining from previous years, if any, are also added to the fund. At year end, \$8,193 remained in the WHMP fund and was carried forward from 2021. For these reasons, the total budget for 2022 is \$28,327, which includes \$8,193 carry forward and \$20,134 annual payment.

Consistent with SA Section 10.8.3, the anticipated 2022 starting budget shown in Table 2.1-1 includes an estimate of the costs of Cowlitz PUD employees and contractors to implement all aspects of the WHMP in 2022, including overall management, administrative costs associated with specific management activities, and implementation costs for specific management activities. These budget numbers are preliminary, and the actual costs may be lower or higher than those shown in Table 2.1-1. As mentioned above, monies not spent remain in the WHMP budget and could be used to implement additional management activities during the current plan year or during following years.

If during the course of implementing this Annual Plan, to the extent known and at such time as Cowlitz PUD identifies significant cost savings or identifies cost overruns, Cowlitz PUD will notify the TCC.

Table 2.1-1. Anticipated 2022 (Year 14) Annual Plan Budget (2022 dollars).

2022 Budget		
Dec 26, 2021 Annual Payment	\$20,134	
2021 Carry Forward	\$ 7,935	
Interest on 2021 Ending Balance	\$ 258	
Total 2022 Budget	\$ 28,327	
WHMP Activity	Estimated 2022 Cost	Assumptions
Administration	\$5,000	Includes general oversight and accounting, preparing Annual Report and Annual Plan, contracting, maintaining project files, participating in TCC meetings related to implementing Cowlitz PUD's WHMP.
Annual inspection to monitor and manage public access	\$0	Included in invasive plant surveys.
Invasive plant surveys at high priority sites	\$5,000	Includes initial survey at Elk Forage Plot.
Invasive plant species control	\$5,000	Includes 2 herbicide applications.
Reseeding Devil's Backbone	\$1,500	Fall application, if needed.
Estimated cost of management activities	\$16,500	
Estimated amount remaining in 2022 budget at year end	\$11,827	Any funds not spent by year end, plus accrued interest, remain in the WHMP budget to be carried into the following year. ²

² TCC members desire that any unspent monies/carry forward be designated for future timber management activities.

3.0 SITE MANAGEMENT PLANS

As discussed in sections 4.2 and 4.3 of the WHMP, Cowlitz PUD delineated and mapped 12 management sites within the Devil's Backbone MU and four within the Project Works MU. The site boundaries are based on vegetation cover type mapping, review of aerial photographs and site visits, but also take into account factors such as slope, soils, understory composition, and access, that represent management opportunities and constraints.

Cowlitz PUD has developed a Site Management Plan for each site, as a means of identifying management opportunities and needs, and tracking the implementation of management activities through the license period. Each Site Management Plan identifies the SGD goals and objectives, baseline HSI values, and analysis species associated with the cover type; summarizes baseline site conditions, including any apparent management constraints; identifies proposed management actions; and documents the actions that were implemented. The Site Management Plans will also serve as the basis for each Annual Report and the following year's Annual Plan.

Each Site Management Plan is part of a Site File in the Swift No. 2 WMA database. Site Files are the "home" for the documentation associated with each site's management. In addition to the Site Management Plan, each Site File includes a site map and all photos and field forms that record the results of inspections, treatments, and follow-up activities.

3.1 DEVIL'S BACKBONE MANAGEMENT UNIT

The following section provides an aerial photo of the Devil's Backbone MU (Figure 3.1-1), cover type map showing management sites (Figures 3.1-2), and Site Management Plans for sites 1 through 12. No management sites were delineated in the Devil's Backbone Conservation Covenant area because no management activities are planned, other than protection of existing habitat values.



Figure 3.1-1. Devil's Backbone Management Unit.

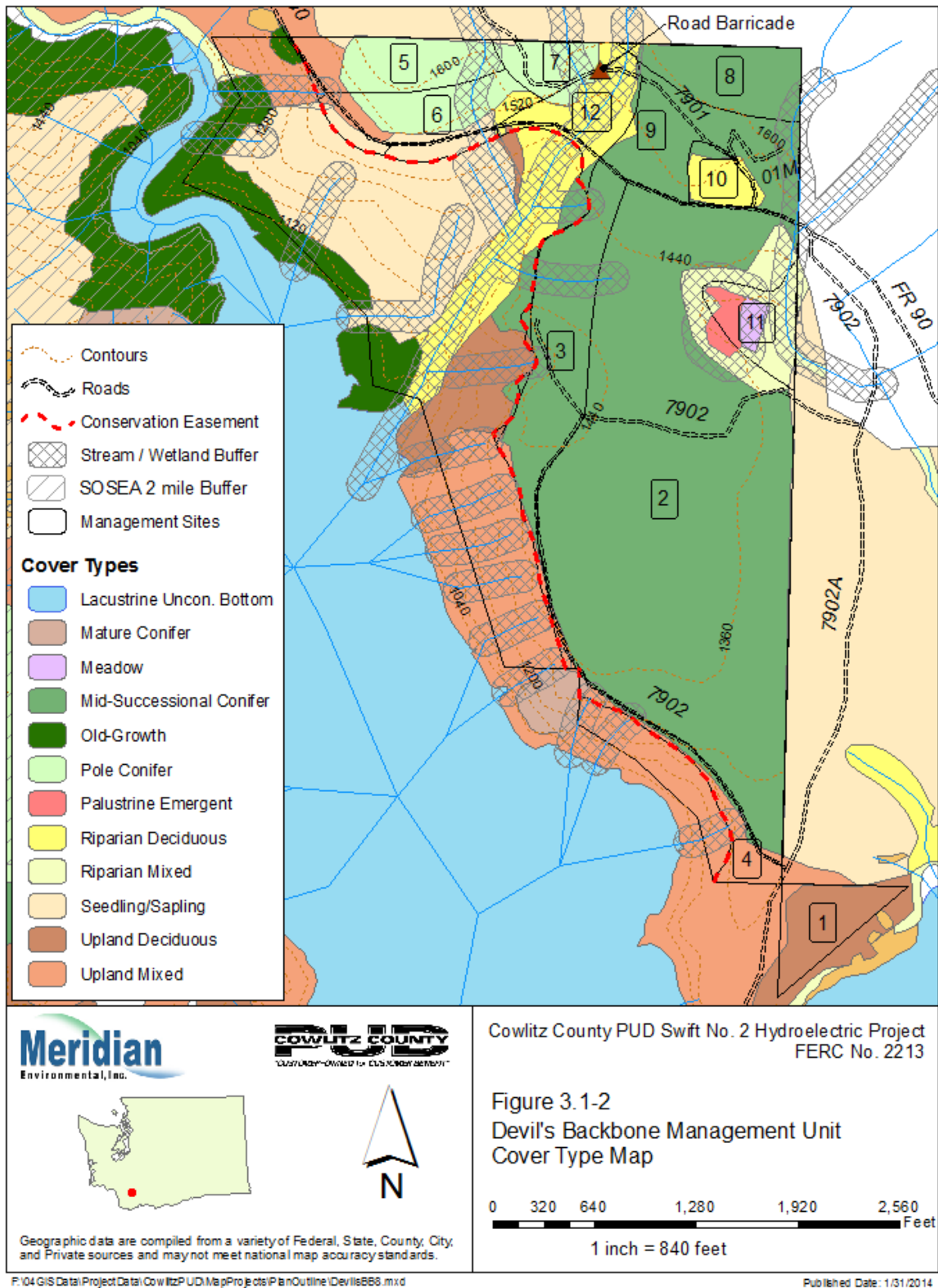


Figure 3.1-2. Devil's Backbone Management Unit cover type map.

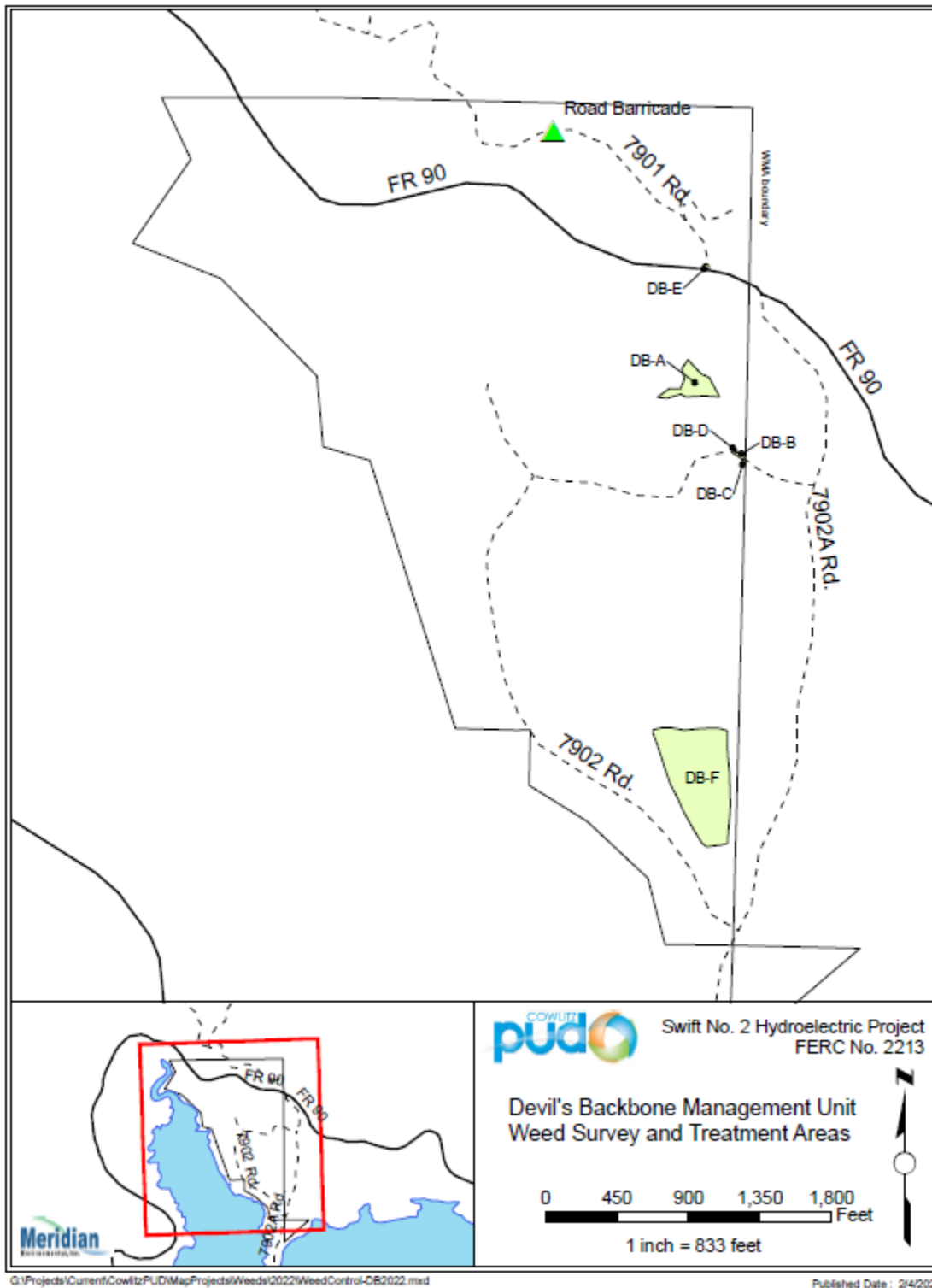


Figure 3.1-3. Devil's Backbone Management Unit Weed Survey and Treatment Areas.

Site Management Plan: DBMU-1		
Cover type	Upland deciduous forest	
Acres	6.6	
SGD Management Goals	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSIs	Pileated woodpecker: 0.28 Black-capped chickadee: 0.80 Elk: 0.43 in Unit S-1	
Analysis Species	Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Mix of deciduous trees and conifers, including some western red cedars > 24 in. dbh.	
Site Constraints	None	
Access	FR 90 to 7902 Rd (gated near FR 90); 7902A Rd. crosses corner of site. Cowlitz PUD has easement on 7902 Rd.	
Management Strategies	Maintain as mixed stand. Manage for species and habitat diversity. Monitor and manage invasive plants and public access.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Surveys conducted May 13. No access concerns identified.
2009	Conduct invasive plant survey at 7902 Rd./7902A Rd. in May and control invasive plants as needed.	Surveys conducted May 13. No invasive plants observed within the site, but invasive plants were documented along the 7902A Rd. on adjacent property near the entrance to the Devil's Backbone MU
2010	Monitor and manage public access.	Survey conducted May 28. No access concerns identified.
2010	Contact adjacent landowner to evaluate invasive plant treatment options	Survey conducted May 28. Scotch broom documented in 2009 has been effectively treated by adjacent landowner.
2011	Monitor and manage public access.	Survey conducted June 8. No access concerns identified.
2011	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Survey conducted June 8. No re-growth of Scotch broom on adjacent ownership was noted.
2012	Monitor and manage public access.	Survey conducted on July 2, 2012. Vehicular access noted on the 7902 Road, likely related to the illegal squatter's cabin on BLM land at the south end of the 7902 Rd. No access concerns noted in DBMU-1.

Site Management Plan: DBMU-1		
2012	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Not done due to safety concerns related to the illegal squatter's cabin on BLM land at the south end of the 7902 Rd.
2013	Monitor and manage public access.	Survey conducted on June 28, 2013. No evidence of motorized access or other access concerns noted.
2013	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Survey conducted on June 28, 2013. No re-growth of Scotch broom noted on property adjacent to DBMU-1.
2014	Monitor and manage public access.	Survey conducted on June 30, 2014. No evidence of motorized access or other access concerns noted.
2014	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Survey conducted on June 30, 2014. No re-growth of Scotch broom noted on property adjacent to DBMU-1.
2015	Monitor and manage public access.	Survey conducted on June 24, 2015. No evidence of motorized access or other access concerns noted.
2015	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Survey conducted on June 24, 2015. No re-growth of Scotch broom noted on property adjacent to DBMU-1.
2016	Monitor and manage public access.	Survey conducted on May 25, 2016. No evidence of motorized access or other access concerns noted. Squatter's cabin on BLM land at the south end of the 7902 Rd was removed December 1, 2015.
2016	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Survey conducted on May 25, 2016. No re-growth of Scotch broom noted on property adjacent to DBMU-1.
2017	Monitor and manage public access.	Survey conducted on May 30, 2017. No evidence of motorized access or other access concerns noted.
2017	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Survey conducted on May 30, 2017. No re-growth of Scotch broom noted on property adjacent to DBMU-1.
2018	Monitor and manage public access.	Survey conducted on May 30, 2018. No evidence of motorized access or other access concerns noted.
2018	Monitor invasive plants on adjacent property in conjunction with public access surveys.	Survey conducted on May 30, 2018. No re-growth of Scotch broom noted on property adjacent to DBMU-1.
2019	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.

Site Management Plan: DBMU-1		
2021	No monitoring of public access or invasive plants due to budget constraints.	Not applicable.
2022	Monitor and manage public access.	
2022	Monitor invasive plants on adjacent property in conjunction with public access surveys.	

Site Management Plan: DBMU-2		
Cover type	Mid-successional conifer forest	
Acres	104.5	
SGD Management Goals	Old-growth: Promote the development, maintenance, and connectivity of old-growth coniferous forest and/or associated habitat components for wildlife species that use old-growth habitat. Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Old-growth-c: Protect and manage forested buffers to promote development of large trees where appropriate. Old-growth-e: Within areas to be thinned to develop old-growth characteristics, leave LWD. Forestland-a: At the MU level, provide a range of alternatives for developing and maintaining a mix of forage and hiding cover for elk. Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSIs	Black-capped chickadee: 0.85 Pileated woodpecker: 0.47 Elk: 0.43 in Unit S-1	
Analysis Species	Old-growth: Northern flying squirrel, marten, Larch Mountain salamander, northern spotted owl, bald eagle Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Flat site dominated by Douglas-fir and western hemlock from 8 to 18 in. dbh, with a quadratic mean diameter of 11.6 in. Stand age = 35 yrs in 2006; crown closure = 100%; canopy height = 80 ft., trees per acre = 266. Few small diameter snags, no large diameter snags, moderate LWD. Variable understory; dominated by Oregon grape and swordfern. Patchy herbaceous cover includes oxalis, inside-out flower, bedstraw, vanilla leaf.	
Site Constraints	None	
Access	Good: FR 90 to 7092 Rd. (gated near FR 90); 7092A Rd. crosses through stand. Cowlitz PUD has easement on 7092 Rd.	
Management Strategies	Consider patch cuts to mimic canopy gaps in old-growth stands and increase number of vegetation layers. Consider thinning to accelerate development of large diameter live trees and potential snags, and increase shrub and herbaceous cover that will improve elk forage. Seed disturbed soils with elk forage mix. Consider establishing and maintaining elk forage plots. Monitor and manage snags/LWD to meet target densities as trees mature. Monitor and manage invasive plants and public access.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Surveys conducted on May 13. No access concerns identified.

Site Management Plan: DBMU-2 cont.		
2009	Conduct invasive plant survey at 7902 Rd. in May and control invasive plants as needed.	Surveys conducted on May 13. Invasive plants documented within project boundary along 7902 Rd. were treated with herbicide in July and September. Invasive plants also observed on adjacent property along the MU boundary.
2010	Monitor and manage public access.	Survey conducted on May 28. No access concerns identified.
2010	Conduct follow-up invasive plant surveys in May and re-treat as necessary. Contact adjacent landowner to evaluate treatment options.	Survey conducted on May 28. Scattered Canada thistle and common cat's ear remain within previously treated areas. Scotch broom treatment 100 percent effective.
2011	Monitor and manage public access.	Survey conducted on June 8. No access concerns identified.
2011	Conduct follow-up invasive plant survey in May and re-treat as necessary.	Scattered common cat's ear remains; one large, well-established Scotch broom plant observed inside WMA boundary that was overlooked in 2010 survey. Scotch broom re-sprouting vigorously on adjacent ownership, outside WMA boundary.
2012	Monitor and manage public access.	Survey conducted on July 2, 2012. Vehicular access noted on the 7902 Road, likely related to the illegal squatter's cabin on BLM land at the south end of the 7902 Rd. No access concerns noted in DBMU-2.
2012	Conduct follow-up invasive plant survey in conjunction with public access survey; remove Scotch broom inside WMA boundary using hand tools; coordinate with adjacent landowner regarding re-treatment.	Not done due to safety concerns related to the illegal squatter's cabin on BLM land at the south end of the 7902 Rd.
2013	Monitor and manage public access.	Survey conducted on June 28, 2013. No evidence of non-motorized access or other access concerns noted.
2013	Conduct follow-up invasive plant survey in conjunction with public access survey; remove Scotch broom inside WMA boundary using hand tools; coordinate with adjacent landowner regarding re-treatment.	Survey conducted on June 28, 2013. Scattered Scotch broom plants observed within the WMA boundary were sprayed in conjunction with herbicide application in DBMU-11 (DB-A) in July and September, 2013. Dense patches of Scotch broom and scattered individual plants were observed along the 7902 Road outside the WMA boundary; coordination with the adjacent landowner has been deferred until plans for forest management activities in DBMU-1 are finalized and needs for road improvements, if any, are identified.

Site Management Plan: DBMU-2 cont.		
2013	Complete planning for patch cuts, as described in Appendix B (Patch Cut Implementation Plan)	Patch cuts laid out as planned on June 20-21, 2013, and site visit with the TCC conducted on September 11, 2013. Based on TCC recommendations, the PUD requested non-binding quotes for three different forest management alternatives (patch cuts, thinning, and a combination of the two) from 12 logging firms. No firms provided quotes.
2014	Monitor and manage public access.	Survey conducted on June 30, 2014. No evidence of motorized access or other access concerns noted.
2014	Conduct follow-up invasive plant survey in conjunction with public access survey; continue to treat Scotch broom inside WMA boundary; coordinate with adjacent landowner regarding Scotch broom treatment as forest management plans are finalized.	Survey conducted on June 30, 2014. On December 10, 2014, the TCC agreed to defer forest management actions until sufficient WHMP funds have accrued.
2015	Monitor and manage public access.	Survey conducted on June 24, 2015. Observed motorcycle track, but no evidence of off-road activity.
2015	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on June 24, 2015. Good control of weeds within project boundary. Scotch broom observed outside boundary. Herbicides applied to DB-A in August 2015.
2016	Monitor and manage public access.	Survey conducted on May 25, 2016. Blowdown trees continue to encroach into 7902 Road at the south end.
2016	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on May 25, 2016. Scotch broom on land just east of project boundary has been treated recently and is under better control. No Scotch broom observed inside boundary.
2017	Monitor and manage public access.	Survey conducted on May 30, 2017. One patch of broken glass on 7902 Road at west end. Blowdown trees continue to encroach into 7902 Road at the south end.
2017	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on May 30, 2017. A few Scotch broom on adjacent property are regenerating, but none observed inside boundary.
2018	Monitor and manage public access.	Survey conducted on May 30, 2018. Some additional blowdown along the 7902 Road at the south end, which assists in preventing public access.

Site Management Plan: DBMU-2 cont.		
Site Management Plan: DBMU-2, cont.		
2018	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on May 30, 2018. Scotch broom on adjacent property was treated successfully, none observed inside boundary.
2018	Complete planning for patch cuts, as described in Appendix C – Patch Cut Implementation Plan.	Planning activities were completed along with the submission of a RMEF PAC Project Proposal. On December 4, 2018, Washington State Department of Natural Resources approved the submitted Alternative Plan for the 5.8-acre patch cut with no additional conditions.
2019	No monitoring of public access or invasive plants, to put all resources towards Patch Cut.	Not applicable.
2019	Complete bidding process, goshawk survey and harvesting, as described in Appendix C – Elk Forage Plot Treatment Prescription.	Cowlitz PUD completed the bidding process, goshawk survey and harvesting of the agreed upon 5.8-acre patch cut.
2020	No monitoring of public access or invasive plants, to put all resources towards Patch Cut completion.	Not applicable.
2020	Complete the burning of slash and stumps, seeding and roadwork as described in Appendix C – Elk Forage Plot Treatment Prescription.	Cowlitz PUD completed the 5.8-acre Elk Forage Plot Project.
2021	Treat invasive plant species. No monitoring of public access or invasive plants due to budget constraints.	Herbicides applied to meadows and Elk Forage Plot.
2022	Monitor and manage public access.	
2022	Monitor invasive plants in conjunction with public access surveys.	

Site Management Plan: DBMU-3		
Cover type	Mid-successional conifer forest	
Acres	17.2	
SGD Management Goals	Old-growth: Promote the development, maintenance, and connectivity of old-growth coniferous forest and/or associated habitat components for wildlife species that use old-growth habitat. Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Old growth-c: Protect and manage forested buffers to promote development of large trees where appropriate. Old-growth-e: Within areas to be thinned to develop old-growth characteristics, leave LWD. Forestland-a: At the MU level, provide a range of alternatives for developing and maintaining a mix of forage and hiding cover for elk. Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSIs	Black-capped chickadee: 0.85 Pileated woodpecker: 0.47 Elk: 0.43 in Unit S-1	
Analysis Species	Old-growth: Northern flying squirrel, marten, Larch Mountain salamander, northern spotted owl, bald eagle Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Flat site dominated by Douglas-fir and western hemlock from 8 to 18 in. dbh.	
Site Constraints	None	
Access	Good: FR 90 to 7902 Rd. (gated near FR 90), which crosses through stand. Cowlitz PUD has easement on 7902 Rd.	
Management Strategies	Consider 1) patch cuts to mimic canopy gaps in old-growth stands and increase number of vegetation layers; 2) thinning to accelerate development of large diameter live trees and potential snags, and increase shrub and herbaceous cover that will improve elk forage, and seed disturbed soils with elk forage mix; and 3) establishing and maintaining elk forage plots. Monitor and manage snags/LWD to meet target densities as trees mature. Monitor and manage invasive plants and public access.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Surveys conducted on May 13. No access concerns identified.
2009	Conduct invasive plant survey at 7902 Rd. in May and control invasive plants as needed.	Surveys conducted on May 13. No invasive plants observed. Low priority for additional weed surveys.
2010	Monitor and manage public access.	Survey conducted on May 28. No access concerns identified.

Site Management Plan: DBMU-3		
2011	Monitor and manage public access.	Survey conducted on June 8. No access concerns identified.
2012	Monitor and manage public access.	Survey conducted on July 2, 2012. Vehicular access noted on the 7902 Road, likely related to the illegal squatter's cabin on BLM land at the south end of the 7902 Rd. No access concerns noted in DBMU-3.
2013	Monitor and manage public access.	Survey conducted on June 28, 2013. No evidence of non-motorized access or other access concerns noted.
2013	Complete planning for patch cuts, as described in Appendix B (Patch Cut Implementation Plan)	No patch cuts were sited in DBMU-3 (see above, DBMU-2).
2014	Monitor and manage public access.	Survey conducted on June 30, 2014. No evidence of non-motorized access or other access concerns noted.
2015	Monitor and manage public access.	Survey conducted on June 24, 2015. Observed motorcycle track, but no evidence of off-road activity.
2016	Monitor and manage public access.	Survey conducted on May 25, 2016. No evidence of non-motorized access or other access concerns noted.
2017	Monitor and manage public access.	Survey conducted on May 30, 2017. No evidence of non-motorized access or other access concerns noted.
2018	Monitor and manage public access.	Survey conducted on May 30, 2018. No evidence of non-motorized access or other access concerns noted.
2019	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2021	No monitoring of public access or invasive plants due to budget constraints.	Not applicable.
2022	Monitor and manage public access.	

Site Management Plan: DBMU-4		
Cover type	Upland mixed forest	
Acres	4.3	
SGD Management Goal	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Forestland-a: At the MU level, provide a range of alternatives for developing and maintaining a mix of forage and hiding cover for elk. Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSIs	Black-capped chickadee: 0.71 Pileated woodpecker: 0.19 Elk: 0.43 in Unit S-1	
Analysis Species	Northern flying squirrel, northern spotted owl	
Site Description	Primarily Douglas-fir and hemlock, 8 to 18” dbh, with some big-leaf maple and alder growing on western edge.	
Site Constraints	Narrow, linear configuration between project road and steep slope down to the Conservation Easement boundary. One intermittent stream/stream buffer.	
Access	Good: adjacent to 7902 Rd. (gated near FR 90). Cowlitz PUD has easement on 7902 Rd.	
Management Strategies	Maintain as buffer between road and Conservation Easement. Manage for species and habitat diversity. Monitor and manage invasive plants and public access.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Surveys conducted on May 13. No access concerns identified.
2009	Conduct invasive plant survey at 7902 Rd. in May and control invasive plants as needed.	Surveys conducted May 13. No invasive plants observed within the site boundary, but documented on adjacent property.
2010	Monitor and manage public access.	Survey conducted on May 28. No access concerns identified.
2010	Contact adjacent landowner to evaluate invasive plant treatment options.	Survey conducted on May 28 indicated Scotch broom effectively treated by adjacent landowner.
2011	Monitor and manage public access.	Survey conducted on June 8. No access concerns identified.
2011	Monitor Scotch broom in conjunction with public access surveys.	Survey conducted on June 8 indicated no re-growth of Scotch broom on adjacent land ownership.

Site Management Plan: DBMU-4		
2012	Monitor and manage public access.	Survey conducted on July 2, 2012. Vehicular access noted on the 7902 Road, likely related to the illegal squatter's cabin on BLM land at the south end of the 7902 Rd. No access concerns noted in DBMU-4.
2012	Monitor Scotch broom in conjunction with public access surveys.	Not noted during July access survey.
2013	Monitor and manage public access.	Survey conducted on June 28, 2013. No evidence of motorized access or other access concerns noted.
2013	Monitor Scotch broom in conjunction with public access surveys.	Survey conducted on June 28, 2013. No re-growth of Scotch broom noted on property adjacent to DBMU-4.
2014	Monitor and manage public access.	Survey conducted on June 30, 2014. One tree was cut and bucked but there is no evidence of motorized access.
2014	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on June 30, 2014. No re-growth of Scotch broom noted on property adjacent to DBMU-4.
2015	Monitor and manage public access.	Survey conducted on June 24, 2015. Observed motorcycle track, but no evidence of off-road activity.
2015	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on June 24, 2015.
2016	Monitor and manage public access.	Survey conducted on May 25, 2016. Blowdown trees continue to encroach into 7902 Road at the south end.
2016	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on May 25, 2016. No Scotch broom observed inside property boundary.
2017	Monitor and manage public access.	Survey conducted on May 30, 2017. Blowdown trees continue to encroach into 7902 Road at the south end.
2017	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on May 30, 2017. No invasive species observed inside property boundary.
2018	Monitor and manage public access.	Survey conducted on May 30, 2018. Some additional blowdown along the 7902 Road at the south end, which assists in preventing public access.
2018	Monitor invasive plants in conjunction with public access surveys.	Survey conducted on May 30, 2018. No invasive species observed inside property boundary.
2019	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.

Site Management Plan: DBMU-4		
2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2021	No monitoring of public access or invasive plants due to budget constraints.	Not applicable.
2022	Monitor and manage public access.	
2022	Monitor invasive plants in conjunction with public access surveys.	

Site Management Plan: DBMU-5		
Cover type	Pole conifer forest	
Acres	8.8	
SGD Management Goal	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSI	Black-capped chickadee: 0.43 Pileated woodpecker: 0.18 Elk: 0.43 in Unit S-1	
Analysis Species	Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Primarily Douglas-fir and western hemlock	
Site Constraints	Steep slopes, possible wet soils.	
Access	Bordered by FR 90 on the west. 7901 Rd. does not pass through site.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage snags/LWD to meet target densities as trees mature. Monitor and manage invasive plants and public access.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Surveys conducted on May 13. No access concerns identified.
2010	Monitor and manage public access.	No survey conducted; 7901 Rd. does not pass through site and access from FR 90 is difficult. Low priority for additional survey.
2011-2013	No survey planned.	No survey conducted.
2014	Monitor and manage public access.	No survey conducted; 7901 Rd. does not pass through site. Barrier in 7901 Rd intact and working well. Access from FR 90 is difficult. Low priority for additional survey.
2015-2021	No survey planned.	No survey conducted.
2022	No survey planned.	

Site Management Plan: DBMU-6		
Cover type	Pole conifer forest	
Acres	8.2	
SGD Management Goal	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSI	Black-capped chickadee: 0.43 Pileated woodpecker: 0.18 Elk: 0.43 in Unit S-1	
Analysis Species	Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Primarily Douglas-fir and western hemlock	
Site Constraints	Steep slopes, possible wet soils.	
Access	Bordered by FR 90 on the west and south. 7901 Rd. does not pass through site.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage snags/LWD to meet target densities as trees mature. Monitor and manage invasive plants and public access.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Survey conducted on May 13. No access concerns identified.
2010	Monitor and manage public access.	No survey conducted; 7901 Rd. does not pass through site and access from FR 90 is difficult. Low priority for additional survey.
2011-2013	No survey planned.	No survey conducted.
2014	Monitor and manage public access.	No survey conducted; 7901 Rd. does not pass through site. Barrier in 7901 Rd intact and working well. Access from FR 90 is difficult. Low priority for additional survey.
2015-2021	No survey planned.	No survey conducted.
2022	No survey planned.	

Site Management Plan: DBMU-7		
Cover type	Pole conifer forest	
Acres	4.3	
SGD Management Goal	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSIs	Black-capped chickadee: 0.43 Pileated woodpecker: 0.18 Elk: 0.43 in Unit S-1	
Analysis Species	Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Primarily Douglas-fir and western hemlock	
Site Constraints	Steep slopes, possible wet soils.	
Access	FR 90 to 7901 Rd.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage snags/LWD to meet target densities as trees mature. Monitor and manage invasive plants, public access, and erosion along 7901 Rd.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Survey conducted on May 13. No access concerns identified.
2009	Monitor and manage invasive plant species in conjunction with public access surveys.	No invasive plant species observed during survey along 7901 Rd. Low priority for additional survey.
2010	Monitor and manage public access.	Survey conducted on May 28. No access concerns identified. Low priority for additional survey.
2011	Monitor and manage public access.	Survey conducted on June 8. Kelly humps have been repaired, small diameter trees removed from road margin, and unauthorized access is possible via 4-wheel drive.
2011	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on June 8. Scattered Scotch broom along both road margins near Kelly hump repair site.
2012	Monitor effectiveness of gate or barricade planned for installation in spring of 2012.	Survey conducted on May 17, 2012. Unauthorized access, dispersed camping, and littering continue to occur. Barricade completed in July, 2012.
2012	Monitor and manage invasive plant species in conjunction with public access surveys.	No survey done. Barricade completed in July, 2012.

Site Management Plan: DBMU-7		
2013	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on June 28, 2013. Barricade and road closure signs in good repair; no evidence of attempts to bypass the barricade.
2013	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on June 28, 2013. A few Scotch broom plants both north and south of the barricade.
2014	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on June 30, 2014, Barrier in 7901 Rd intact and working well. No evidence of attempts to drive over or around it.
2014	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on June 30, 2014. No Scotch broom observed, but a few bull thistles at the barrier, and a few tansy ragwort, oxeye daisy, St. John's wort individuals and scattered common cats'-ear above the barrier.
2015	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on June 24, 2015. Barrier in 7901 Rd intact and working well. No evidence of attempts to drive over or around it.
2015	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on June 24, 2015. No tansy or St John's wort observed above the barrier. Cut the single bull thistle above the barrier.
2016	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on May 25, 2016. Barrier in 7901 Rd intact and working well. No evidence of attempts to drive over or around it.
2016	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on May 25, 2016. No invasive species observed.
2017	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on May 30, 2017. Barrier in 7901 Rd intact and working well. Truck tire tracks present before barrier and slope failure blowdown. One campfire present near barrier.
2017	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on May 30, 2017. No invasive species observed.
2018	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on May 30, 2018. Barrier in 7901 Rd intact and working well. Slope failure blowdown downhill of barricade has been cut and wood has been removed, so road is no longer blocked. New blowdown across road uphill of barricade. Two new campfires present before barrier.
2018	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on May 30, 2018. One foxglove rosette hand pulled during survey.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.

Site Management Plan: DBMU-7		
2021	No monitoring of public access or invasive plants due to budget constraints.	Not applicable.
2022	Monitor and manage public access, including evaluation of barricade effectiveness.	
2022	Monitor and manage invasive plant species in conjunction with public access surveys.	

Site Management Plan: DBMU-8		
Cover type	Mid-successional conifer forest	
Acres	8.6	
SGD Management Goal	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSIs	Black-capped chickadee: 0.85 Pileated woodpecker: 0.47 Elk: 0.43 in Unit S-1	
Analysis Species	Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Primarily Douglas-fir and western hemlock, 8 to 18” dbh.	
Site Constraints	Possible wet soils.	
Access	FR 90 to 7901 Rd. 7901 Rd. does not pass through site.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage snags/LWD to meet target densities as trees mature. Monitor and manage invasive plants and public access.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Surveys conducted on May 13. No access concerns identified.
2009	Conduct invasive plant survey at 7901 Rd. in May and control invasive plants as needed.	7901 Rd. does not pass through DBMU-8, so invasive plant survey did not cover this site.
2010	Monitor and manage public access.	Survey conducted on May 28. No access concerns identified. Low priority for additional survey.
2011-2013	No survey planned	No survey conducted.
2014	Monitor and manage public access.	No survey conducted; 7901 Rd. does not pass through site. Barrier in 7901 Rd intact and working well. Access from FR 90 is difficult. Low priority for additional survey.
2015-2021	No survey planned.	No survey conducted.
2022	No survey planned.	

Site Management Plan: DBMU-9		
Cover type	Mid-successional conifer forest	
Acres	13.2	
Site Review Type	Vegetation cover typing, aerial photo review	
SGD Management Goal	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Forestland-b: Maintain or create at least 8 snags, green retention trees, or wildlife reserve trees per acre, if available; retain larger trees and snags, and retain or create 4 logs/acre if possible. Forestland-c: At the MU level, promote habitat diversity by increasing or maintaining minor native tree species composition.	
HEP Evaluation Species and Baseline HSIs	Black-capped chickadee: 0.85 Pileated woodpecker: 0.47 Elk: 0.43 in Unit S-1	
Analysis Species	Forestland: Northern flying squirrel, northern spotted owl	
Site Description	Primarily Douglas-fir and western hemlock, 8 to 18" dbh.	
Site Constraints	Possible wet soils.	
Access	Bordered by FR 90 on the south; 7901 Rd. and 01M Rd. pass through site.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage snags/LWD to meet target densities as trees mature. Monitor and manage invasive plants, public access, and erosion.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Survey conducted on May 13. No access concerns identified. Erosion in the road cut at intersection of 7901 Rd. and 01M roads, but no soil disturbance or loss of vegetation within the site itself. Erosion within 7901 Rd. roadbed between 01M Rd. and FR 90.
2009	Monitor and manage invasive plant species.	Survey conducted on May 13. No invasive plant species observed. Low priority for future surveys.
2010	Monitor and manage public access; monitor erosion.	Survey conducted on May 28. A few signs of unauthorized (motorized) access (dishwasher dumped over the side of the road, and some litter observed). No change in erosion, no soil disturbance or loss of vegetation within DBMU-9.
2011	Monitor and manage public access; monitor erosion.	Survey conducted on June 8. Kelly humps have been repaired, small diameter trees removed from road margin, and unauthorized access is possible via 4-wheel drive. No change in erosion noted at broken culvert upslope of the 7901 Rd. near the junction with

Site Management Plan: DBMU-9		
		the 01M Rd.; no soil disturbance or loss of vegetation within DBMU-9.
2011	Monitor and manage invasive plant species in conjunction with public access surveys.	No invasive plant species observed inside WMA boundary. Scotch broom along both road margins near Kelly hump repair site.
2012	Monitor effectiveness of gate or barricade planned for installation in spring of 2012. Continue to monitor erosion.	Survey conducted on May 17, 2012. Unauthorized access, dispersed camping and littering continue to occur. Barricade completed in July, 2012.
2012	Monitor and manage invasive plant species in conjunction with public access surveys.	No survey done. Barricade completed in July, 2012.
2013	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on June 28, 2013. Barricade and road closure signs in good repair; no evidence of attempts to bypass the barricade.
2013	Monitor and manage invasive plant species in conjunction with public access surveys.	Survey conducted on June 28, 2013. A few Scotch broom plants both north and south of the barricade.
2014	Monitor and manage public access, including evaluation of barricade effectiveness.	Survey conducted on June 30, 2014. Barrier in 7901 Rd intact and working well, no evidence of attempts to drive over or around it. No evidence of human activity on 01M Rd.
2014	Monitor and manage invasive plant species.	Survey conducted on June 30, 2014; no invasives noted in DBMU-9.
2015	Monitor and manage invasive species and public access	Survey conducted on June 24, 2015; no invasives noted. One road closed sign needs repair.
2016	Monitor and manage invasive species and public access.	Survey conducted on May 25, 2016. No invasive species observed. Vehicle tracks visible in a couple spots.
2017	Monitor and manage invasive species and public access. Replace one "Road Closed" sign and re-install one sign.	Survey conducted May 30, 2017. No invasive species observed. Tracks on road and campfires indicate motorized and non-motorized access. Signs installed.
2018	Monitor and manage invasive species and public access. Check leaning "Road Closed" sign and re-install if needed.	Survey conducted May 30, 2018. No invasive species observed. Tracks on road and campfires indicate motorized and non-motorized access. Sign is still in place.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2021	No monitoring of public access or invasive plants due to budget constraints.	Not applicable.
2022	Monitor and manage invasive species and public access.	

Site Management Plan: DBMU-10		
Cover type	Riparian Deciduous Forest	
Acres	3.1	
Site Review Type	Vegetation cover typing, aerial photo review, visual walk-through 9/1/05 and 6/14/06	
SGD Management Goal	Riparian: Protect, maintain, and/or enhance riparian areas to include a diversity of native plant species and vegetation structures to benefit wildlife species that use riparian habitats.	
SGD Management Objectives	Riparian-a: Identify and establish buffers. Riparian d: Protect existing large snags. Riparian-e: As part of implementation of WHMP, identify riparian sites damaged by anthropogenic processes and prepare restoration plans within 5 years, if feasible.	
HEP Evaluation Species and Baseline HSI	Black-capped chickadee: 0.19 Pileated woodpecker: 0.32 Yellow warbler. 0.65 Elk: 0.43 in Unit S-1	
Analysis Species	Cascade torrent salamander, papillose tail-dropper	
Site Description	Red alder overstory, sparse mid-story shrub and understory forb component, bisected by an unnamed stream. Western Hemlock/Coolwort Foamflower PA, with several old, large diameter hemlock stumps, but no snags and little LWD.	
Site Constraints	Seasonal flooding, wet soils, stream buffer.	
Access	Bordered by FR 90 on the south; 7901 on the east.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage invasive plants, public access and erosion along 7901/01M Rd.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Survey conducted May 13, 2009. No access concerns identified. Erosion within 7901 Rd. roadbed between intersection with 01M Rd. and FR 90.
2009	Conduct invasive plant survey at 7901 Rd. in May and control invasive plants as needed.	Survey conducted May 13, 2009. Invasive plant species documented at intersection of 7901 Rd. and FR 90.
2010	Monitor and manage public access; monitor erosion.	Survey conducted May 28. A few signs of unauthorized (motorized) access (dishwasher dumped over the side of the road, and some litter observed). No change in erosion, no soil disturbance or loss of vegetation within DBMU-10.
2010	Treat invasive plant species, as needed.	Weeds growing at the intersection of the 7901 Rd. and FR 90 are within the FR 90 right-of-way. Weeds at this site appear to have been sprayed in 2009.

Site Management Plan: DBMU-10		
2011	Monitor and manage public access.	Survey conducted on June 8. Kelly humps have been repaired, small diameter trees removed from road margin, and unauthorized access is possible via 4-wheel drive. No change in roadbed erosion near junction with FR 90.
2011	Monitor invasive plants adjacent to project boundary.	No invasive plant species observed inside WMA boundary. Scotch broom along both road margins near Kelly hump repair site, outside WMA boundary.
2012	Monitor effectiveness of gate or barricade planned for installation in spring of 2012. Continue to monitor erosion.	Survey conducted on May 17, 2012. Unauthorized access, dispersed camping and littering continue to occur. Barricade completed in July, 2012. An increase in public access and littering south of the barricade was observed during fall 2012 site visits.
2012	Monitor and manage invasive plant species in conjunction with public access surveys.	No survey done. Barricade completed in July, 2012.
2013	Monitor and public access, including evaluation of barricade effectiveness.	Survey conducted on June 28, 2013. Barricade and road closure signs in good repair; no evidence of attempts to bypass the barricade.
2013	Monitor and manage invasive plant species.	Survey conducted on June 28, 2013. A few Scotch broom plants both north and south of the barricade.
2014	Monitor and manage public access.	Survey conducted on June 30, 2014. Barrier in 7901 Rd intact and working well, no evidence of attempts to drive over or around it.
2014	Monitor and manage invasive plant species.	Survey conducted on June 30, 2014; no invasives noted
2014	Evaluate habitat conditions, including riparian habitat and conifer regeneration within alder-dominated stand, and wildlife use.	Signs of elk use; no evidence of other disturbance. Conifer regeneration scattered, with numerous saplings but few seedlings observed.
2015	Monitor and manage public access.	Survey conducted on June 24, 2015. Old erosion on 7901 Rd healing. One Road Closed sign missing, one needs repair.
2015	Monitor and manage invasive plant species.	Conducted Initial Invasive Species Survey on June 24, 2015. No invasive species observed, no vectors for spread, low priority for monitoring,
2016	Monitor and manage public access.	Survey conducted on May 25, 2016. Vehicle tracks visible in a couple spots.
2017	Monitor and manage public access. Replace one "Road Closed" sign and re-install one sign.	Survey conducted May 30, 2017. Tracks on road and campfires indicate motorized and non-motorized access. Signs installed.

Site Management Plan: DBMU-10		
2018	Monitor and manage public access. Check leaning "Road Closed" sign and re-install if needed.	Survey conducted May 30, 2018. Tracks on road and campfires indicate motorized and non-motorized access. Sign is still in place.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2021	No monitoring of public access or invasive plants due to budget constraints.	Not applicable.
2022	Monitor and manage public access.	
2022	Monitor and manage invasive plant species.	

Site Management Plan: DBMU-11		
Cover type	Palustrine Emergent Marsh/Meadow/Riparian Mixed Forest	
Acres	PEM 1.8 ac.; MD 1.0 ac.; RM 3.4 ac.	
Review Type	Vegetation cover typing, aerial photo review, walk-throughs 9/1/05, 6/14/06, 9/9/08, and 4/16/09	
SGD Management Goals	Wetland: Protect, maintain, and/or enhance wetlands to provide a diversity of habitat types for native amphibians, waterfowl, and other wildlife species. Meadow: Perpetuate and enhance to benefit elk and other species that use open habitats. Forestland: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage.	
SGD Management Objectives	Wetland-e: Identify and establish buffers to maintain and protect wetland habitat and functions. Meadow-c: Manage select meadows and old fields over the license periods to prevent shrub/tree encroachment, and maintain a diverse composition and structure of desirable grasses and forbs for birds and mammals. Forestland-c: At the MU level, promote forest habitat diversity for wildlife by increasing or maintaining minor native tree species composition where appropriate site conditions exist over the life of the licenses.	
HEP Evaluation Species and Baseline HSIs	Black-capped chickadee: 0.58 Pileated woodpecker: 0.46 Elk: 0.43 in Unit S-1 No suitable habitat for yellow warbler (wetland, riparian mixed forest) or Savannah sparrow (meadow)	
Analysis Species	Wetland: No suitable habitat for wetland associated analysis species (beaver, great blue heron (rookeries), wood duck). Meadow: elk (no suitable habitat for Savannah sparrow). Forestland: Northern flying squirrel, northern spotted owl.	
Site Description	Sedge and grass wetland/meadow with 100% herbaceous cover within narrow band of mixed riparian forest. Scattered snowberry and vine maple shrub in meadow shows signs of heavy browsing. Several small diameter standing snags and small diameter woody debris. Non-native invasive plants observed, that may provide elk forage (e.g., clovers), but Canada thistle also abundant in 2008.	
Site Constraints	Wetland buffer.	
Access	Good. FR 90 to 7902 (gated) to 7902A. Cowlitz PUD has easement on 7902 Rd.	
Management Strategies	Control conifer encroachment to maintain wetland/meadow characteristics over time. Thin forest edges to promote shrub development to improve elk forage. Monitor and manage invasive plants and public access. Consider establishing elk forage plot(s) near meadow.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Survey conducted on May 13. No access concerns identified.

Site Management Plan: DBMU-11		
2009	Flag wetland buffer boundary in May.	Weed treatment areas flagged; all were considered within wetland or riparian boundary, so wetland buffers not flagged.
2009	Conduct invasive plant survey in wetland and meadow in May and control invasive plants as needed.	Survey conducted on May 13. Weed treatments applied in July and September.
2010	Monitor and manage public access.	Survey conducted on May 28. No public access concerns identified.
2010	Conduct follow-up invasive plant survey of treated areas in May.	Survey conducted on May 28. Canada thistle abundance somewhat reduced.
2010	Mark the perimeter of the meadow.	Perimeter marked with 20 steel tent pegs, points GPS'd and mapped in GIS.
2011	Monitor and manage public access.	Survey conducted on June 8. No public access concerns identified.
2011	Re-treat Canada thistle and conduct follow-up survey.	Survey conducted on June 8. Canada thistle abundance similar to 2010. Herbicide applied on June 15.
2012	Monitor and manage public access.	Survey conducted on July 2, 2012. Vehicular access noted on the 7902 Road, likely related to the illegal squatter's cabin on BLM land at the south end of the 7902 Rd. No access concerns noted in DBMU-11.
2012	Conduct follow-up invasive plant survey in June; consider re-treatment in both summer and fall as budget allows.	No survey done due to safety issues. Solicited bids for weed control twice; first call resulted in 0 bidders, second call resulted in 1 bid that was deemed too costly. In August, Cowlitz PUD employees clipped seed heads off Canada thistle and tansy ragwort.
2013	Monitor and manage public access.	Survey conducted on June 28, 2013. No evidence of unauthorized access.
2013	Conduct follow-up invasive plant survey in June; consider re-treatment in both summer and fall as budget allows.	Survey conducted on June 28, 2013 indicated increasing cover of Canada thistle and tansy ragwort. Herbicide applications completed in July and September, 2013.
2014	Monitor and manage public access.	Survey conducted on June 30, 2014, No evidence of motorized access.
2014	Conduct follow-up invasive plant survey in June; evaluate success of 2013 treatments and continue to treat invasive plant species.	Survey conducted on June 30, 2014, Overall cover of Canada thistle and tansy ragwort was significantly less than observed in 2013. Site treated with Transline in June 2014.
2015	Monitor and manage public access.	Survey conducted on June 24, 2015. No evidence of motorized access.
2015	Conduct follow-up invasive plant survey in June; evaluate success of 2014 treatments and continue to treat invasive plant species.	Survey conducted on June 24, 2015. Canada thistle treatment appears effective. No tansy ragwort observed. Grasses and forbs look great.

Site Management Plan: DBMU-11		
2016	Monitor and manage public access.	Survey conducted on May 25, 2016. No evidence of motorized access.
2016	Conduct follow-up invasive plant survey in June; evaluate success of 2015 treatments, continue to treat invasive plant species.	Survey conducted on May 25, 2016. Thistle under good control – improvement from 2014 combined with 2015 treatment. Grasses and forbs look great. Foxglove and birdsfoot trefoil increasing.
2017	Monitor and manage public access.	Survey conducted on May 30, 2017. No evidence of motorized access.
2017	Conduct follow-up invasive plant survey in June; evaluate success of 2016 treatments, continue to treat invasive plant species.	Survey conducted on May 30, 2017. Thistle under good control. Foxglove much less than last year, under good control. Birdsfoot trefoil (good forage) increased from last year. One patch of hairy cat's-ear.
2018	Monitor and manage public access.	Survey conducted on May 30, 2018. No evidence of motorized access.
2018	Monitor and manage invasive plant species.	Survey conducted on May 30, 2018. Thistle and foxglove need treated again. Birdsfoot trefoil (good forage) is less than last year, likely due to browsing. Hairy cat's-ear patches are spreading, along with new patches.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2021	Treat invasive plant species. No monitoring of public access or invasive plants due to budget constraints.	Thistle, foxglove, scotch broom, and hairy cat's-ear treated.
2022	Monitor and manage public access.	
2022	Monitor and manage invasive plant species.	

Site Management Plan: DBMU-12		
Cover type	Riparian deciduous forest	
Acres	6.1	
Review Type	Vegetation cover typing, aerial photo review	
SGD Management Goals	Riparian: Protect, maintain, and/or enhance riparian areas to include a diversity of native plant species and vegetation structures to benefit wildlife species that use riparian habitats.	
SGD Management Objectives	Riparian-a: Identify and establish buffers. Riparian d: Protect existing large snags. Riparian-e: As part of implementation of WHMP, identify riparian sites damaged by anthropogenic processes and prepare restoration plans within 5 years, if feasible.	
HEP Evaluation Species and Baseline HSI	Black-capped chickadee: 0.19 Pileated woodpecker: 0.32 Yellow warbler. 0.65 Elk: 0.43 in Unit S-1	
Analysis Species	Cascade torrent salamander, papillose tail-dropper	
Site Description	Red alder overstory. Permanent stream/stream buffer in steep canyon.	
Site Constraints	Steep slopes, stream/stream buffer.	
Access	Bordered by FR 90 on the south; 7901 Rd. crosses north edge.	
Management Strategies	Maintain cover on steep slopes. Manage for species and habitat diversity. Monitor and manage public access, invasive plants, and erosion.	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access.	Survey conducted on May 13. No access concerns identified.
2010	Monitor and manage public access.	Survey conducted on May 28. No access concerns identified.
2011	Monitor and manage public access.	Survey conducted on June 8. Kelly humps have been repaired, small diameter trees removed from road margin, and unauthorized access is possible via 4-wheel drive.
2011	Monitor and manage invasive plant species in conjunction with public access surveys.	No invasive plant species observed inside WMA boundary. Scotch broom along both road margins near Kelly hump repair site.
2012	Monitor effectiveness of gate or barricade planned for installation in spring of 2012.	Survey conducted on May 17, 2012. Unauthorized access, dispersed camping and littering continue to occur. Barricade completed in July, 2012.
2012	Monitor and manage invasive plant species in conjunction with public access surveys.	No survey done. Barricade completed in July, 2012.
2013	Monitor and manage invasive plant species in conjunction with public access surveys, including evaluation of barrier effectiveness.	Survey conducted on June 28, 2013. Barricade and road closure signs in good repair; no evidence of unauthorized access. A few

Site Management Plan: DBMU-12		
		Scotch broom plants both north and south of the barricade.
2014	Monitor and manage invasive plant species in conjunction with public access surveys, including evaluation of barrier effectiveness	Survey conducted on June 30, 2014. Barrier in 7901 Rd intact and working well, no evidence of attempts to drive over or around it. A few bull thistle plants observed at barrier.
2015	Monitor and manage invasive plant species in conjunction with public access surveys, including evaluation of barrier effectiveness	Survey conducted on June 24, 2015. Barrier in 7901 Rd intact and working well, no evidence of attempts to drive over or around it. Well-established deer trails around barrier.
2016	Monitor and manage invasive plant species in conjunction with public access surveys, including evaluation of barrier effectiveness.	Survey conducted on May 25, 2016. Slope failure just south of barrier led to several trees falling across road and has exposed new soil. Elk/deer trails around the barrier also expose soil locally. No invasive plant species observed.
2017	Monitor and manage invasive plant species in conjunction with public access surveys, including evaluation of barrier effectiveness.	Survey conducted on May 30, 2017. Slope failure area contains exposed soil. Elk/deer trails around barrier are causing some soil erosion. Most of the road surface was not disturbed. No invasive plant species observed.
2018	Monitor and manage invasive plant species in conjunction with public access surveys, including evaluation of barrier effectiveness.	Survey conducted on May 30, 2018. Barrier on 7901 Rd intact and working well. Slope failure blowdown downhill of barricade has been cut and wood has been removed, so road is no longer blocked. New blowdown across road uphill of barricade. Two new campfires present before barrier. One foxglove rosette hand pulled during survey.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2021	No monitoring of public access or invasive plants due to budget constraints.	Not applicable.
2022	Monitor and manage invasive plant species in conjunction with public access surveys, including evaluation of barrier effectiveness.	

3.2 PROJECT WORKS MANAGEMENT UNIT

The following section provides an aerial photo of the Project Works MU (Figure 3.2-1), a cover type map of the Project Works MU (Figure 3.2-2), and Site Management Plans for four management classifications. These include areas that were revegetated following reconstruction of the canal in 2002 (PWMU-REV); a constructed wetland within the revegetated area (PWMU-PUB); forested areas that were not disturbed during reconstruction activities (PWMU-FOR); and the transmission line right-of-way (PWMU-ROW).



Figure 3.2-1. Project Works Management Unit (Google Earth, August, 2012).

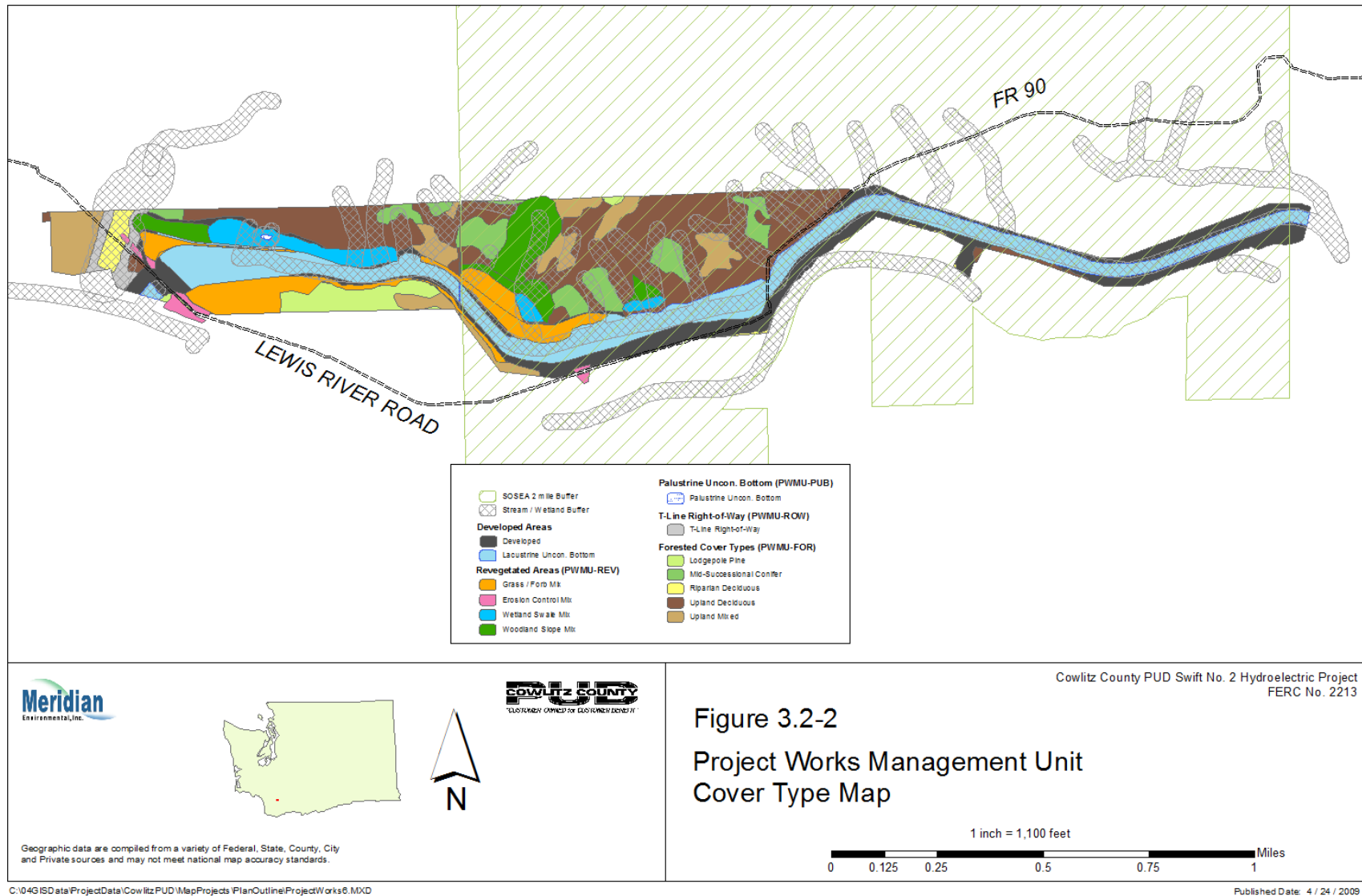


Figure 3.2-2. Project Works Management Unit cover type map.

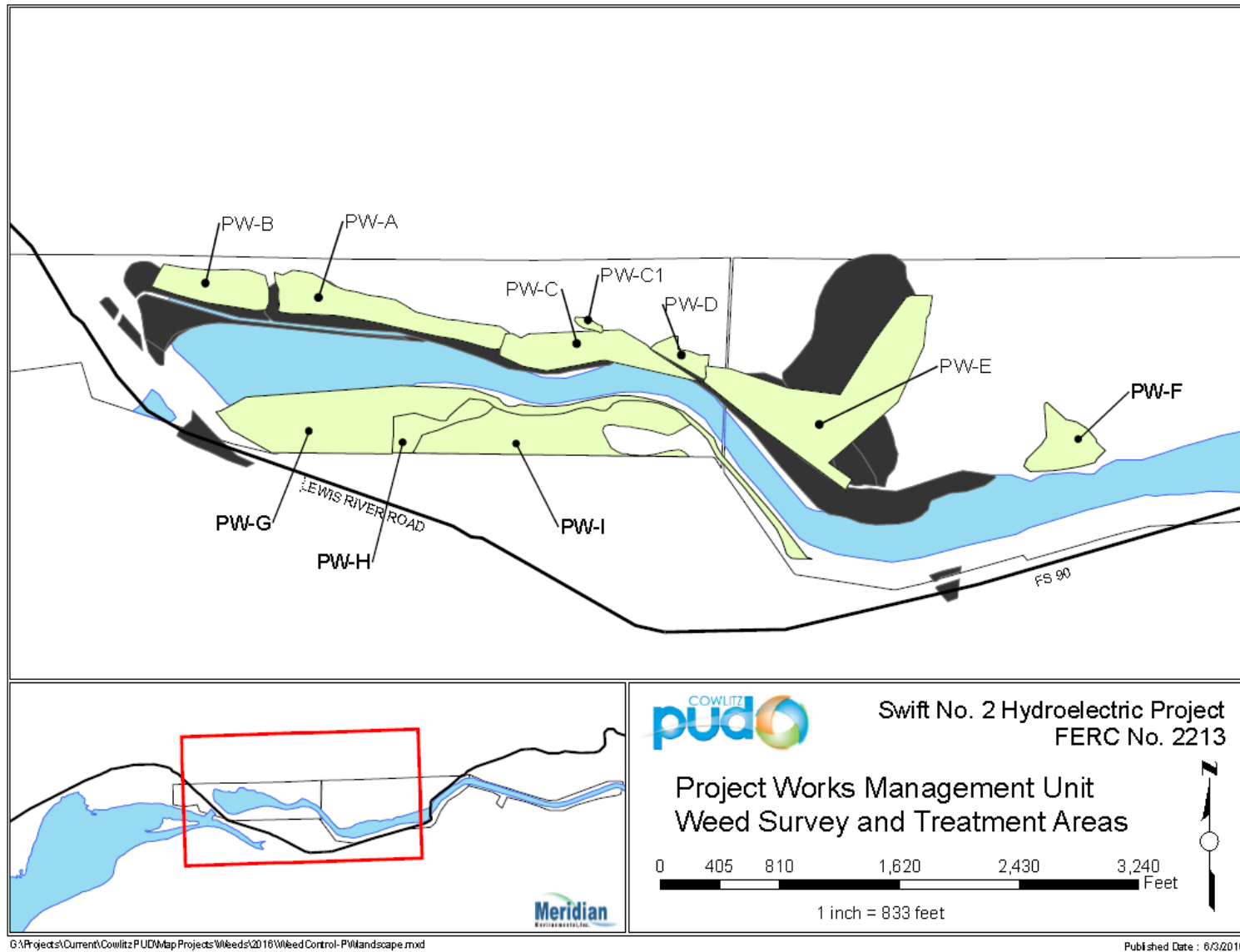


Figure 3.2-3. Project Works Management Unit Weed Survey and Treatment Areas.

Site Management Plan: PWMU-REV		
Cover type	Revegetated: wetland swale, woodland, forage, roadside areas	
Acres	61.82 (seeded with following mixes:14.65 wetland; 10.54 woodland; 33.34 forage; 3.29 roadside)	
SGD Management Goals	NA	
SGD Management Objectives	NA	
HEP Evaluation Species and Baseline HSIs	NA	
Analysis Species	NA	
Site Description	Areas cleared or exposed during Swift No. 2 reconstruction, revegetated and stabilized. Areas around the wetland (PWMU-PUB) were covered with soil and large woody debris from natural slides on January 8, 2009. As a result, Cowlitz PUD reconfigured site drainage (ditches and culverts) during the summer of 2009 to minimize the risk that future landslides would interfere with project operation.	
Site Constraints	Some accessible flat areas, some very steep inaccessible areas with unstable slopes.	
Access	Good: Gated project maintenance roads.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage invasive plants. <i>Note: public access is not allowed.</i>	
Implementation		
Year	Management Activity Planned	Management Activity Implemented/Documentation
2009	Flag wetland and riparian buffer boundaries in May.	Weed treatment areas flagged; all were considered within wetland or riparian boundary, so buffers not flagged.
2009	Conduct invasive plant survey in May and control invasive plants as needed.	Survey conducted May 13. Some Scotch broom hand-cut in June. Weed treatment applied (herbicides and hand-pulling) in August and September.
2009	Seed exposed soils with pasture mix in April; evaluate management needs and opportunities in May.	Exposed soils seeded in April.
2010		Planted 370 Douglas fir seedlings randomly between the transmission line and the west debris basin. Low survival due to frost damage to the seedlings in the nursery prior to planting.
2010	In May, conduct follow-up invasive plant survey of treated areas and high priority areas not yet surveyed. Control invasive plants as needed.	Follow-up survey on May 28 indicated effective Scotch broom treatment with 2009 herbicide applications. Mixed results where hand tools used for removal in February 2010; these areas re-treated by hand-pulling and digging in November, 2010. Three new areas surveyed.

Site Management Plan: PWMU-REV		
		mapped and treated by hand-pulling and digging Himalayan blackberry, Scotch broom, and a few Canada thistle plants in November 2010.
2011	Conduct initial invasive plant survey of borrow areas and follow-up invasive plant survey of treated areas in May, and control invasive plants as needed.	Survey on June 8 indicated varying levels of success in the five Weed Treatment Areas mapped and surveyed to date, i.e., good control of Scotch broom in PW-A and PW-B; incomplete treatment of Himalayan blackberry in PW-C, with new invasive species appearing; incomplete treatment of Scotch broom in PW-D, and scattered Canada thistle remaining in PW-E. Herbicide applied to Himalayan blackberry and Scotch broom on June 14.
2012	Conduct follow-up invasive plant surveys of all treated areas in June. Re-evaluate treatment approach to manage Himalayan blackberry in PW-C; re-treat Scotch broom in PW-D; use hand tools to remove Canada thistle in PW-E.	Survey not done.
2013	Conduct follow-up invasive plant surveys of all treated areas in June. Re-evaluate treatment approach to manage Himalayan blackberry in PW-C; re-treat Scotch broom in PW-D; use hand tools to remove Canada thistle in PW-E.	Herbicides were applied to weeds in PW-A, PW-B, PW-C, PW-D, and the lower section of PW-E on June 11 and 12, 2013. Weed survey conducted on June 27, 2013. Mix of natives and non-natives, including tansy ragwort and Canada thistle, growing in PW-C where Himalayan blackberry cover has been reduced, and no change observed in broom cover in PW-D.
2014	Conduct follow-up invasive plant surveys of all treated areas in June. In late fall, plant Douglas fir seedlings where Himalayan blackberry cover has been reduced in PW-C. Re-treat Scotch broom in PW-A, PW-B, and PW-D. Use hand tools or spot-spray to control weeds (primarily Canada thistle and tansy ragwort) in PW-E and PW-F.	Survey conducted on June 30, 2014. Re-growth of Scotch broom in northwest portion of PW-B, along with new observations of tansy ragwort. Occurrences of Himalayan blackberry and a few bull thistle, Canada thistle, and tansy ragwort individuals present in PW-C. Survey area of PW-C expanded, and infestation of Robert's geranium documented. A few Scotch broom in PW-D remain after fairly successful treatment in 2011. No Douglas fir seedlings planted, TCC agreed to discontinue this project. Some areas treated with herbicides in 2014, but daily pesticide application reports did not distinguish between Areas A through F and herbicide spraying for project maintenance.
2014	Install four bluebird boxes.	No bluebird boxes installed. TCC agreed to discontinue this project

Site Management Plan: PWMU-REV		
2015	Conduct follow-up invasive plant surveys of all treated areas in June. Apply herbicides as appropriate.	Survey conducted on June 24, 2015. Scotch broom increasing in 2 patches on the northern side of PW-A. Areas previously treated in PW-B responded well, but high densities of Scotch broom along the forest edge above the upper maintenance road could serve as a seed source for re-infestation. Scotch broom increasing in PW-D. Applied herbicide to PW-A, B,C, C-1, D, E and F.
2016	Conduct follow-up invasive plant surveys of all treated areas in June. Apply herbicides as appropriate, particularly north of the upper maintenance road.	Survey conducted on May 25, 2016. Good control of Scotch broom in PW-A, only three live plants observed scattered within alder north of pond. Good control of Scotch broom throughout PW-B, including NW corner surveyed in 2015. Robert's geranium increasing in PW-C. Scotch broom still scattered throughout PW-D, some plants are partially treated and some growing within other shrub species. Applied herbicide to PW-A, B,C, C-1, D, E and F.
2017	Conduct follow-up invasive plant surveys of all treated areas in June. Apply herbicides as appropriate, particularly north of the upper maintenance road.	Survey conducted on May 30, 2017. Good control of Scotch broom in PW-A, but Himalayan blackberry establishing around wetland and north of dirt road. Good control of Scotch broom and Himalayan blackberry throughout PW-B. In PW-C, Robert's geranium is reduced but growing back throughout the site, and Himalayan blackberry is reduced but recovering in places. Common cat's-ear and Tansy ragwort have sprouted along the access road. Scotch broom control has been successful in PW-D, but Common cat's-ear is increasing throughout the site. Applied herbicide to PW-A, B,C, C-1, D, E and F.
2018	Conduct follow-up invasive plant surveys of all treated areas in June. Apply herbicides as appropriate.	Survey conducted on May 30, 2018. Himalayan blackberry in PW-A was treated but is regenerating and also expanding around the pond. Common cat's-ear is expanding densely around the pond. PW-B was not surveyed in 2018. In PW-C, Robert's geranium has again been reduced but growing back throughout the site, and Himalayan blackberry is reduced but regenerating within treated clumps. No Tansy ragwort found and Common cat's-ear individuals remain along roadside. Foxglove and Bracken fern increasing in PW-D, but Common cat's-ear appears stable throughout the site.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.

Site Management Plan: PWMU-REV		
2021	Treat invasive plant species. No monitoring of invasive plants due to budget constraints.	Applied herbicide to PW-A, B,C, C-1, D, and E.
2022	Conduct follow-up invasive plant surveys of all treated areas in May or June. Apply herbicides as appropriate.	



Hoof prints in PWMU-REV, January 2022.

Site Management Plan: PWMU-PUB		
Cover type	Palustrine unconsolidated bottom (may develop PEM and/or PSS characteristics)	
Acres	0.1 (may be expanding)	
SGD Management Goals	NA	
SGD Management Objectives	NA	
HEP Evaluation Species and Baseline HSIs	NA. In the future, pond breeding amphibians, yellow warbler, and black-capped chickadee may apply.	
Analysis Species	NA	
Site Description	New open-water wetland developing in regraded, revegetated soils on the north side of the canal. Hydrology supplied by upslope surface flows and subsurface drainage. Wetland was partially covered with soil and large woody debris from slides that occurred following a severe rainstorm on January 8, 2009. As a result, Cowlitz PUD re-configured site drainage (ditches and culverts) during the summer of 2009 to minimize the risk that any future landslides would interfere with project operation.	
Site Constraints	None	
Access	Good: Lewis River Rd., gated project maintenance roads.	
Management Strategies	Manage for species and habitat diversity. Monitor and manage and invasive plants. <i>Note: Public access is not allowed.</i>	
Implementation		
Year	Management Activity Planned	Management Activity Implemented/Documentation
2009	Conduct invasive plant survey in May and control invasive plants as needed.	Survey conducted on May 13. Some Scotch broom removed by hand-cutting in June. Herbicide applied in August and September.
2009	Evaluate enhancement opportunities in May.	TCC developed site design in June. Berm constructed in September, soils re-seeded using a wetland mix and willow stakes planted around the margin of the pond.
2010		Site Inspection in April evaluated survival of willow stakes and effectiveness of Scotch broom removal.
2010	Conduct follow-up survey of weed treatment areas. Control invasive plants as needed.	Survey conducted on May 28 to evaluate the results of Scotch broom removal using hand tools in February 2010. Results were mixed, and WCC crews re-treated Scotch broom around the wetland in November 2010, again by hand-pulling or digging.
2010	Plant approximately 200 shrubs or cuttings.	WCC crews planted 450 shrubs (mix of cuttings and rooted stock of willow, Nootka rose,

Site Management Plan: PWMU-PUB		
		snowberry, ninebark and dogwood) around the wetland in November.
2011	Conduct invasive plant survey in May.	Survey conducted on June 8. Good control of Scotch broom.
2011	Concurrent with invasive plant survey, evaluate survival of shrubs planted in 2010.	Survey conducted on June 8. Results are described in the Annual Report. Overall survival was about 56 percent, but surviving shrubs appeared healthy, with little browse damage.
2012	Evaluate shrub status in conjunction with invasive plant survey.	No survey conducted.
2013	Evaluate shrub status in conjunction with invasive plant survey.	Survey conducted on June 27, 2013. Several live willows observed. Scattered occurrences of invasive plants and one small pocket of Scotch broom remaining.
2014	Conduct invasive plant survey in June and treat weed occurrences in July and September.	Survey conducted on June 30, 2014. No live Scotch broom observed. Some areas treated with herbicides in 2014 but daily pesticide application reports did not distinguish between Areas A through F and herbicide spraying for project maintenance.
2014	Plant shrubs in wetland/upland transition areas in late October/November (See Appendix C).	No shrubs planted. TCC agreed to discontinue this project.
2015	Conduct invasive plant survey in June and treat weed occurrences in July and September.	Survey conducted on June 24, 2015. Herbicides applied as necessary to surrounding area in August 2015. Open water decreasing as soft rush increases.
2016	Conduct invasive plant survey in June and treat as necessary.	Survey conducted on May 25, 2016. Open water continues to decrease. No invasive plant species observed.
2017	Conduct invasive plant survey in June and treat as necessary.	Survey conducted on May 30, 2017. Open water continues to decrease. Himalayan blackberry is beginning to establish northwest and west of pond.
2018	Conduct invasive plant survey in June and treat as necessary.	Survey on May 30, 2018. Pond is regenerating very well with native vegetation. Himalayan blackberry was treated but is regenerating and also expanding around the pond. Common cat's-ear is expanding densely around the pond.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.

Site Management Plan: PWMU-PUB		
2021	Treat invasive plant species. No monitoring of invasive plants due to budget constraints.	Himalayan blackberry was treated but is regenerating and also expanding around the pond.
2022	Conduct invasive plant survey in May or June and treat as necessary.	



Open water continues to decrease at PW-PUB wetland, May 2018.

Site Management Plan: PWMU-FOR																										
Cover types	Mid-successional conifer (MS), lodgepole pine (LP), riparian deciduous (RD), upland deciduous (UD) , upland mixed (UM)																									
Acres	177.7 (MS 24.5; LP 11.9; RD 4.0; UD105.0; UM 32.3)																									
SGD Management Goals	Forestlands: Promote forestland species composition and structures that benefit wildlife and provide an appropriate mosaic of big game hiding cover and forage. Unique Habitats/Areas: Protect unique habitats, including lava flow, and areas of culturally sensitive plant species identified as important to the Tribes.																									
SGD Management Objectives	Forestland-a: At the MU level, provide a range of alternatives for developing and maintaining a mix of forage and hiding cover for elk. Forestland-c: At the MU level, promote forest habitat diversity for wildlife by increasing or maintaining minor native tree species composition where appropriate site conditions exist over the life of the licenses. Unique Habitat-d: Identify and implement appropriate measures to protect and maintain important areas of ethnobotanically significant plants, as identified by the Tribes, over the life of the licenses.																									
HEP Evaluation Species and Baseline HSI	<table><thead><tr><th></th><th><u>MS</u></th><th><u>LP</u></th><th><u>RD</u></th><th><u>UD</u></th><th><u>UM</u></th></tr></thead><tbody><tr><td>Black-capped chickadee:</td><td>0.60</td><td>0.92</td><td>0.68</td><td>0.27</td><td>0.89</td></tr><tr><td>Pileated woodpecker:</td><td>0.62</td><td>0.00</td><td>0.29</td><td>0.27</td><td>0.71</td></tr><tr><td>Elk:</td><td colspan="5">0.43 in Unit S-1.</td></tr></tbody></table>			<u>MS</u>	<u>LP</u>	<u>RD</u>	<u>UD</u>	<u>UM</u>	Black-capped chickadee:	0.60	0.92	0.68	0.27	0.89	Pileated woodpecker:	0.62	0.00	0.29	0.27	0.71	Elk:	0.43 in Unit S-1.				
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Pileated woodpecker:	0.62	0.00	0.29	0.27	0.71																					
Elk:	0.43 in Unit S-1.																									
Analysis Species	Forestlands: Northern flying squirrel, northern spotted owl Lodgepole: Pacific western big-eared bat, Larch Mountain salamander, Van Dyke's salamander. Riparian: Cascade torrent salamander, papillose tail-dropper																									
Site Description	Very steep with potentially unstable slopes north of the canal; flat between canal and Lewis River Rd.																									
Site Constraints	Proximity to project facilities																									
Access	Good: Lewis River Rd.; gated project roads. <i>No public access allowed.</i>																									
Management Strategies	Manage for species and habitat diversity. Monitor and manage invasive plants.																									
Implementation																										
Year	Planned Management Activity	Implemented Management Activity/Documentation																								
2009	Monitor and manage invasive plants.	Low-priority (no public access, good ground cover without soil disturbance); not included in invasive plant survey area.																								
2010	Monitor and manage invasive plants as budget allows.	No survey conducted.																								
2011	Monitor and manage invasive plants as budget allows.	No survey conducted.																								
2012	Monitor and manage invasive plants as budget allows.	No survey conducted.																								
2013	Monitor and manage invasive plants as budget allows.	No survey conducted.																								

Site Management Plan: PWMU-FOR		
2014	Monitor and manage invasive plants as budget allows.	No survey conducted.
2015	Monitor and manage invasive plants as budget allows.	No survey conducted.
2016	No surveys planned.	Initial invasive plant survey for PW-G, PW-H, and PW-I conducted on May 25, 2016. Only common cat's-ear observed in PW-G. This area is maintained as project maintenance so there is no need to monitor. Scotch broom has invaded the upland mixed forest (PW-H) and is beginning to enter the lodgepole pine (PW-I).
2017	Conduct follow-up invasive plant survey for PW-H & PW-I. Evaluate potential spread into lodgepole/talus area before determining whether to treat.	Survey conducted on May 30, 2017 and it was decided to treat invasives. Applied herbicide to Scotch broom in PW-H and PW-I.
2018	Conduct follow-up invasive plant surveys of all treated areas in June. Apply herbicides as appropriate.	Survey conducted on May 30, 2018. Flowering Scotch broom appears eradicated as no regeneration seen on treated plants. A few isolated sprouts present. Himalayan blackberry and Evergreen blackberry treated along road, but there is regeneration. Applied herbicide to Scotch broom and blackberry in PW-H and PW-I.
2019-2020	No monitoring of public access or invasive plants, to put all resources towards DBMU-2 Patch Cut.	Not applicable.
2021	Treat invasive plant species. No monitoring of public access or invasive plants due to budget constraints.	Applied herbicide to Scotch broom and blackberry in PW-H and PW-I.
2022	Conduct follow-up invasive plant surveys of all treated areas in May or June. Apply herbicides as appropriate.	

Site Management Plan: PWMU-ROW		
Cover type	Transmission line right-of-way	
Acres	3.6	
SGD Management Goals	While allowing for safe and reliable transmission, promote establishment and maintenance of desirable vegetation to provide habitat for wintering deer and elk and a diverse mix of shrub and other early-successional vegetation.	
SGD Management Objectives	ROW-c: Identify and provide screening cover for deer and elk, where needed, where public roads cross ROW.	
HEP Evaluation Species and Baseline HSIs	Elk: 0.43 in Unit S-1. No suitable habitat for Savannah sparrow.	
Analysis Species	None identified.	
Site Description	Tall, dense shrub cover.	
Site Constraints	Proximity to traffic on Lewis River Rd. and project facilities	
Access	Good: Lewis River Rd. <i>Note: Public access not allowed.</i>	
Management Strategies	Monitor and manage invasive plants; evaluate need for visual screening. <i>Public access not allowed</i>	
Implementation		
Year	Planned Management Activity	Implemented Management Activity/Documentation
2009	Monitor and manage public access; evaluate need for visual screening.	Public access not allowed. Visual screening at Lewis River Rd. assessed; no concerns identified.
2010	Monitor invasive plant species.	Monitoring deferred to higher priority sites.
2011-2015	Monitor invasive plant species as budget allows.	No survey conducted.
2016-2021	No surveys planned.	No survey conducted.
2022	No surveys planned.	

Appendix A

2022 Cowlitz and 2021 Skamania County Weed Lists

Noxious Weeds are non-native plants introduced to Washington State that can be highly destructive, competitive, and difficult to control once established. These plants invade our croplands, rangeland, forests, parks, landscapes, roadsides, rivers, lakes, wetlands, and estuaries causing both ecological and economical damage that impact us all. Noxious weeds can:

- Lower crop yields
- Reduce forage quality
- Destroy plant and animal habitat
- Displace native plants
- Reduce recreational opportunities (fishing, hunting, swimming and hiking)
- Clog waterways
- Decrease land values
- Increase erosion and wildfire risk
- Be toxic to humans and livestock

RCW 17.10, Washington State’s Noxious Weed Law, establishes all property owners’ responsibility to prevent and control the spread of noxious weeds. Since plants grow without regard to property lines or political jurisdictions, everyone’s cooperation is needed - private citizens, businesses, government agencies, and all other landowners have a role to play. Washington’s noxious weed laws spell out these responsibilities and create the government infrastructure needed to educate citizens and ensure that the laws are respected. In accordance with RCW 17.10 Cowlitz County activated our Noxious Weed Control Board in 1974.



Our Mission

“To protect lands within Cowlitz County from the degrading impacts of invasive and noxious weed species by educating residents, landowners, land managers, county departments, city governments, and state and federal agencies to be responsible stewards.”



Noxious Weed Classification

The Washington State Noxious Weed Control Board adopts a State Noxious Weed List each year (WAC 16-750) to help protect our local resources and economy. This list classifies noxious weed species into three major classes based on the extent of invasion and the significance of the threat they pose to Washington State. This classification system:

- Prevents small infestations from expanding by eradicating them at first detection;
- Restricts established weed populations to regions of the state where they occur and prevents their spread to new areas;
- Allows flexibility in weed control at the local level for widespread weeds.

Class A Weeds

Non-native, invasive species with limited distribution. The statewide goal is to prevent them from advancing in Washington.

Landowners are required to completely eradicate all Class A weeds.

Class B Weeds

Non-native, invasive species presently limited to portions of the state. The statewide goal is to “draw the line” around and contain infested regions, to keep these noxious weeds from spreading into new areas. Species are **designated** for control in regions where they are not yet widespread. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal.

Landowners are required to control Class B weeds based on state and local priorities.

Class C Weeds

Noxious weeds that are typically widespread in Washington State, or are of special interest to the state’s agricultural industry. The Class C status allows counties to require control if locally desired. Other counties may choose to provide education or technical consultation.

Landowners are required to control some Class C weeds based on local priorities.

Contact us to report noxious weeds or to learn more about controlling noxious weeds in Cowlitz County:

Cowlitz County Noxious Weed Control Board

207 Fourth Avenue N.
Admin Annex Bldg, 1st Floor
Kelso, WA 98626
360-577-3117

Email: noxiousweeds@co.cowlitz.wa.us
Website: co.cowlitz.wa.us/noxiousweeds



For information at the state level, contact:

Washington State Noxious Weed Control Board

P.O. Box 42560
Olympia, WA 98504-2560
360-725-5764

Email: noxiousweeds@agr.wa.gov
Website: nwcb.wa.gov

or:

Washington State Department of Agriculture

P.O. Box 42560
Olympia, WA 98504-2560
360-902-1800

Website: agr.wa.gov



2022

Cowlitz County

Noxious Weed List

List arranged alphabetically by:
Common Name



Class A Noxious Weeds (Eradication required)

Common Crupina	<i>Crupina vulgaris</i>
Cordgrass, Common	<i>Spartina anglica</i>
Cordgrass, Dense-Flowered	<i>Spartina densiflora</i>
Cordgrass, Saltmeadow	<i>Spartina patens</i>
Cordgrass, Smooth	<i>Spartina alterniflora</i>
Dyer’s Woad	<i>Isatis tinctoria</i>
Eggleaf Spurge	<i>Euphorbia oblongata</i>
*False Brome	<i>Brachypodium sylvaticum</i>
Floating Primrose-Willow	<i>Ludwigia peploides</i>
Flowering Rush	<i>Butomus umbellatus</i>
French Broom	<i>Genista monspessulana</i>
*Garlic Mustard	<i>Alliaria petiolata</i>
Giant Hogweed	<i>Heracleum mantegazzianum</i>
Goatsrue	<i>Galega officinalis</i>
Hydrilla	<i>Hydrilla verticillata</i>
Johnsongrass	<i>Sorghum halepense</i>
*Knapweed, Bighead	<i>Centaurea macrocephala</i>
Knapweed, Vochin	<i>Centaurea nigrescens</i>
Kudzu	<i>Pueraria montana</i> var. <i>lobata</i>
Meadow Clary	<i>Salvia pratensis</i>
Oriental Clematis	<i>Clematis orientalis</i>
Purple Starthistle	<i>Centaurea calcitrapa</i>
Reed Sweetgrass	<i>Glyceria maxima</i>
Ricefield Bulrush	<i>Schoenoplectus mucronatus</i>
Sage, Clary	<i>Salvia sclarea</i>
Sage, Mediterranean	<i>Salvia aethiopis</i>
Silverleaf Nightshade	<i>Solanum elaeagnifolium</i>
Small-Flowered Jewelweed	<i>Impatiens parviflora</i>
South American Spongeplant	<i>Limnobium laevigatum</i>
Spanish Broom	<i>Spartium junceum</i>
Syrian Bean-Caper	<i>Zygophyllum fabago</i>
Texas Blueweed	<i>Helianthus ciliaris</i>
Thistle, Italian	<i>Carduus pycnocephalus</i>
*Thistle, Milk	<i>Silybum marianum</i>
*Thistle, Slenderflower	<i>Carduus tenuiflorus</i>
Thistle, Turkish	<i>Carduus cinereus</i>
Variable-Leaf Milfoil	<i>Myriophyllum heterophyllum</i>
Wild Four O’Clock	<i>Mirabilis nyctaginea</i>

Bold = Required for control * = Documented in Cowlitz

- ▶ = Containment required. Control along property lines.
- = Control required, esp. right-of-ways, posing fire danger near structures, and threatening Agricultural land

Class B Noxious Weeds

Blueweed	<i>Echium vulgare</i>
*Brazilian Elodea	<i>Egeria densa</i>
Bugloss, Annual	<i>Lycopsis arvensis</i>
*Bugloss, Common	<i>Anchusa officinalis</i>
*Butterfly Bush	<i>Buddleja davidii</i>
Camelthorn	<i>Alhagi maurorum</i>
*Common Fennel ¹	<i>Foeniculum vulgare</i> ¹
*Common Reed ²	<i>Phragmites australis</i> ²
*Common Tansy	<i>Tanacetum vulgare</i>
*Dalmatian Toadflax	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>
*Eurasian Watermilfoil	<i>Myriophyllum spicatum</i>
*European Coltsfoot	<i>Tussilago farfara</i>
*Fanwort	<i>Cabomba caroliniana</i>
*Gorse	<i>Ulex europaeus</i>
Grass-Leaved Arrowhead	<i>Sagittaria graminea</i>
Hairy Willow-Herb	<i>Epilobium hirsutum</i>
Hanging Sedge ³	<i>Carex pendula</i> ³
Hawkweed Oxtongue	<i>Picris hieracioides</i>
*Hawkweed, Orange	<i>Hieracium aurantiacum</i>
*Hawkweeds ⁴	<i>Hieracium</i> ⁴
*Herb-Robert	<i>Geranium robertianum</i>
Hoary Alyssum	<i>Berteroa incana</i>
Houndstongue	<i>Cynoglossum officinale</i>
*Indigobush	<i>Amorpha fruticosa</i>
Knapweed, Black	<i>Centaurea nigra</i>
Knapweed, Brown	<i>Centaurea jacea</i>
*Knapweed, Diffuse	<i>Centaurea diffusa</i>
*Knapweed, Meadow	<i>Centaurea x gerstlaueri</i>
Knapweed, Russian	<i>Rhaponticum repens</i>
*Knapweed, Spotted	<i>Centaurea stoebe</i>
*Knotweed, Bohemian	<i>Fallopia x bohemica</i>
*Knotweed, Giant	<i>Fallopia sachalinensis</i>
*Knotweed, Himalayan	<i>Persicaria wallichii</i>
*Knotweed, Japanese	<i>Fallopia japonica</i>
Kochia	<i>Bassia scoparia</i>
*Lesser Celandine	<i>Ficaria verna</i>
Loosestrife, Garden	<i>Lysimachia vulgaris</i>
*Loosestrife, Purple	<i>Lythrum salicaria</i>
Loosestrife, Wand	<i>Lythrum virgatum</i>
Malta Starthistle	<i>Centaurea melitensis</i>
*Parrotfeather	<i>Myriophyllum aquaticum</i>

*Perennial Pepperweed	<i>Lepidium latifolium</i>
*Poison Hemlock	<i>Conium maculatum</i>
*Policeman’s Helmet	<i>Impatiens glandulifera</i>
*Puncturevine	<i>Tribulus terrestris</i>
*Ravenna Grass	<i>Tripidium ravennae</i>
Rough Chervil	<i>Chaerophyllum temulum</i>
*Rush Skeletonweed	<i>Chondrilla juncea</i>
*Saltcedar	<i>Tamarix ramosissima</i>
■ *Scotch Broom	<i>Cytisus scoparius</i>
*Shiny Geranium	<i>Geranium lucidum</i>
Spurge Flax	<i>Thymelaea passerina</i>
*Spurge Laurel	<i>Daphne laureola</i>
Spurge, Leafy	<i>Euphorbia virgata</i>
Spurge, Myrtle	<i>Euphorbia myrsinites</i>
Sulfur Cinquefoil	<i>Potentilla recta</i>
*Tansy Ragwort	<i>Jacobaea vulgaris</i>
Thistle, Musk	<i>Carduus nutans</i>
Thistle, Plumeless	<i>Carduus acanthoides</i>
Thistle, Scotch	<i>Onopordum acanthium</i>
Velvetleaf	<i>Abutilon theophrasti</i>
*Water Primrose	<i>Ludwigia hexapetala</i>
*White Bryony	<i>Bryonia alba</i>
Wild Basil	<i>Clinopodium vulgare</i>
*Wild Chervil	<i>Anthriscus sylvestris</i>
*Yellow Archangel	<i>Lamiastrum galeobdolon</i>
*Yellow Floatingheart	<i>Nymphoides peltata</i>
*Yellow Nutsedge	<i>Cyperus esculentus</i>
Yellow Starthistle	<i>Centaurea solstitialis</i>

Class C Noxious Weeds

Absinth Wormwood	<i>Artemisia absinthium</i>
Austrian Fieldcress	<i>Rorippa austriaca</i>
Baby’s Breath	<i>Gypsophila paniculata</i>
Black Henbane	<i>Hyoscyamus niger</i>
Blackgrass	<i>Alopecurus myosuroides</i>
*Buffalobur	<i>Solanum rostratum</i>
Cereal Rye	<i>Secale cereale</i>
Common Barberry	<i>Berberis vulgaris</i>
*Common Catsear	<i>Hypochaeris radicata</i>
*Common Groundsel	<i>Senecio vulgaris</i>
*Common St. Johnswort	<i>Hypericum perforatum</i>
*Common Teasel	<i>Dipsacus fullonum</i>
*Curlyleaf Pondweed	<i>Potamogeton crispus</i>

*English Hawthorn	<i>Crataegus monogyna</i>
*English Ivy ⁵	<i>Hedera helix</i> ⁵
*Eurasian Watermilfoil Hybrid	<i>Myriophyllum spicatum</i> x <i>M. sibiricum</i>
*Evergreen Blackberry	<i>Rubus laciniatus</i>
*Field Bindweed	<i>Convolvulus arvensis</i>
*Fragrant Waterlily	<i>Nymphaea odorata</i>
*Green Alkanet	<i>Pentaglottis sempervirens</i>
Hairy Whitetop	<i>Lepidium appelianum</i>
▶ *Himalayan Blackberry	<i>Rubus armeniacus</i>
Hoary Cress	<i>Lepidium draba</i>
*Italian Arum	<i>Arum italicum</i>
Japanese Eelgrass	<i>Nanozostera japonica</i>
Jointed Goatgrass	<i>Aegilops cylindrica</i>
*Jubata Grass	<i>Cortaderia jubata</i>
Lawnweed	<i>Soliva sessilis</i>
Longspine Sandbur	<i>Cenchrus longispinus</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
*Non-native Cattail Species ⁶	<i>Typha</i> spp. ⁶
*Old Man’s Beard	<i>Clematis vitalba</i>
*Oxeye Daisy	<i>Leucanthemum vulgare</i>
*Pampas Grass	<i>Cortaderia selloana</i>
*Perennial Sowthistle	<i>Sonchus arvensis</i> ssp. <i>arvensis</i>
*Reed Canarygrass	<i>Phalaris arundinacea</i>
Russian Olive	<i>Elaeagnus angustifolia</i>
*Scentless Mayweed	<i>Tripleurospermum inodorum</i>
Smoothseed Alfalfa Dodder	<i>Cuscuta approximata</i>
Spikeweed	<i>Centromadia pungens</i>
*Spiny Cocklebur	<i>Xanthium spinosum</i>
*Spotted Jewelweed	<i>Impatiens capensis</i>
Swainsonpea	<i>Sphaerophysa salsula</i>
*Thistle, Bull	<i>Cirsium vulgare</i>
*Thistle, Canada	<i>Cirsium arvense</i>
*Tree-of-Heaven	<i>Ailanthus altissima</i>
Ventenata	<i>Ventenata dubia</i>
*White Cockle	<i>Silene latifolia</i>
*Wild Carrot ⁷	<i>Daucus carota</i> ⁷
*Yellow Flag Iris	<i>Iris pseudacorus</i>
*Yellow Toadflax	<i>Linaria vulgaris</i>

1.Except bulbing fennel, *F. vulgare* var. *azoricum*. 2.Non-native genotypes only. 3.*Carex pendula* subsp. *pendula* and *Carex pendula* subsp. *Agastachys*. 4.Non-native species and hybrids of the Meadow and Wall subgenus, *Hieracium*, subgenus *Pilosella* and *Hieracium*. 5.Four cultivars: *Hedera helix* 'Baltica', 'Pittsburgh', and 'Star'; *H. hibernica* 'Hibernica'. 6.Non-native species & hybrids. 7.Exclude *Daucus carota* subsp. *sativus*

Class C Weeds

absinth wormwood	<i>Artemisia absinthium</i>
Austrian fieldcress	<i>Rorippa austriaca</i>
babysbreath	<i>Gypsophila paniculata</i>
black henbane	<i>Hyoscyamus niger</i>
blackgrass	<i>Alopecurus myosuroides</i>
buffalobur	<i>Solanum rostratum</i>
cereal rye	<i>Secale cereale</i>
common barberry	<i>Berberis vulgaris</i>
common catsear	<i>Hypochaeris radicata</i>
common groundsel	<i>Senecio vulgaris</i>
common St. Johnswort	<i>Hypericum perforatum</i>
common tansy	<i>Tanacetum vulgare</i>
common teasel	<i>Dipsacus fullonum</i>
curlyleaf pondweed	<i>Potamogeton crispus</i>
English hawthorn	<i>Crataegus monogyna</i>
English ivy - four cultivars only	<i>Hedera helix</i> 'Baltica', 'Pittsburgh', and 'Star', and <i>H. hibernica</i> 'Hibernica'
Eurasian watermilfoil hybrid	<i>Myriophyllum spicatum</i> x <i>Myriophyllum sibiricum</i>
evergreen blackberry	<i>Rubus laciniatus</i>
field bindweed	<i>Convolvulus arvensis</i>
fragrant waterlily	<i>Nymphaea odorata</i>
hairy whitetop	<i>Lepidium appelianum</i>
Himalayan blackberry	<i>Rubus bifrons</i> (<i>Rubus armeniacus</i>)
hoary cress	<i>Lepidium draba</i>
Italian arum	<i>Arum italicum</i>
Japanese eelgrass	<i>Nanozostera japonica</i>
jubata grass	<i>Cortaderia jubata</i>
jointed goatgrass	<i>Aegilops cylindrica</i>
lawnweed	<i>Soliva sessilis</i>
longspine sandbur	<i>Cenchrus longispinus</i>
medusahead	<i>Taeniatherum caput-medusae</i>
nonnative cattail species and hybrids (reminder, does not include the native common cattail, <i>Typha latifolia</i>)	<i>Typha</i> species
old man's beard	<i>Clematis vitalba</i>
oxeye daisy	<i>Leucanthemum vulgare</i>
Pampas grass	<i>Cortaderia selloana</i>
perennial sowthistle	<i>Sonchus arvensis</i>
reed canarygrass	<i>Phalaris arundinacea</i>

Class C Weeds continued

Russian olive	<i>Elaeagnus angustifolia</i>
scentless mayweed	<i>Tripleurospermum inodorum</i>
smoothseed alfalfa dodder	<i>Cuscuta approximata</i>
spikeweed	<i>Centromadia pungens</i>
spiny cocklebur	<i>Xanthium spinosum</i>
spotted jewelweed	<i>Impatiens capensis</i>
Swainsonpea	<i>Sphaerophysa salsula</i>
thistle, bull	<i>Cirsium vulgare</i>
thistle, Canada	<i>Cirsium arvense</i>
tree-of-heaven	<i>Ailanthus altissima</i>
ventenata	<i>Ventenata dubia</i>
white cockle	<i>Silene latifolia</i>
wild carrot (except where commercially grown)	<i>Daucus carota</i>
yellow flag iris	<i>Iris pseudacorus</i>
yellow toadflax	<i>Linaria vulgaris</i>

To learn more about noxious weeds and noxious weed control in Washington State, please contact:

WA State Noxious Weed Control Board

P.O. Box 42560
Olympia, WA 98504-2560
(360) 725-5764

Email: noxiousweeds@agr.wa.gov
Website: <http://www.nwcb.wa.gov>

Or

WA State Department of Agriculture
(509) 249-6973

Or

Your County Noxious Weed Control Board

Please help protect Washington's economy and environment from noxious weeds!

Cover photo of Turkish thistle by Mark Porter, Oregon
Department of Agriculture

2021

Washington State Noxious Weed List



Turkish thistle, *Carduus cinereus*, is a new Class A noxious weed for 2021. This annual thistle is found close to Washington in northeastern Oregon and the adjacent area in Idaho. Eradication is required of Turkish thistle when found in Washington.

**List arranged alphabetically by:
COMMON NAME**



Class A Weeds: Non-native species whose distribution in Washington is still limited. Preventing new infestations and eradicating existing infestations are the highest priority.
Eradication of all Class A plants is required by law.

Class B Weeds: Non-native species presently limited to portions of the State. Species are **designated** for required control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal. Please contact your County Noxious Weed Control Board to learn which species are designated for control in your area.

Class C Weeds: Noxious weeds that are typically widespread in WA or are of special interest to the state's agricultural industry. The Class C status allows county weed boards to require control if locally desired, or they may choose to provide education or technical consultation.

Class A Weeds Eradication is required

common crupina	<i>Crupina vulgaris</i>
cordgrass, common	<i>Spartina anglica</i>
cordgrass, dense-flowered	<i>Spartina densiflora</i>
cordgrass, saltmeadow	<i>Spartina patens</i>
cordgrass, smooth	<i>Spartina alterniflora</i>
dyer's woad	<i>Isatis tinctoria</i>
eggleaf spurge	<i>Euphorbia oblongata</i>
false brome	<i>Brachypodium sylvaticum</i>
floating primrose-willow	<i>Ludwigia peploides</i>
flowering rush	<i>Butomus umbellatus</i>
French broom	<i>Genista monspessulana</i>
garlic mustard	<i>Alliaria petiolata</i>
giant hogweed	<i>Heracleum mantegazzianum</i>
goatsrue	<i>Galega officinalis</i>
hydrilla	<i>Hydrilla verticillata</i>
Johnsongrass	<i>Sorghum halepense</i>
knapweed, bighead	<i>Centaurea macrocephala</i>
knapweed, Vochin	<i>Centaurea nigrescens</i>
kudzu	<i>Pueraria montana</i> var. <i>lobata</i>
meadow clary	<i>Salvia pratensis</i>
oriental clematis	<i>Clematis orientalis</i>
purple starthistle	<i>Centaurea calcitrapa</i>
reed sweetgrass	<i>Glyceria maxima</i>

ricefield bulrush	<i>Schoenoplectus mucronatus</i>
sage, clary	<i>Salvia sclarea</i>
sage, Mediterranean	<i>Salvia aethiopis</i>
silverleaf nightshade	<i>Solanum elaeagnifolium</i>
small-flowered jewelweed	<i>Impatiens parviflora</i>
South American spongeplant	<i>Limnobium laevigatum</i>
Spanish broom	<i>Spartium junceum</i>
Syrian beancaper	<i>Zygophyllum fabago</i>
Texas blueweed	<i>Helianthus ciliaris</i>
thistle, Italian	<i>Carduus pycnocephalus</i>
thistle, milk	<i>Silybum marianum</i>
thistle, slenderflower	<i>Carduus tenuiflorus</i>
thistle, Turkish	<i>Carduus cinereus</i>
variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>
wild four-o'clock	<i>Mirabilis nyctaginea</i>

Class B Weeds

blueweed	<i>Echium vulgare</i>
Brazilian elodea	<i>Egeria densa</i>
bugloss, annual	<i>Lycopsis arvensis</i>
bugloss, common	<i>Anchusa officinalis</i>
butterfly bush	<i>Buddleja davidii</i>
camelthorn	<i>Alhagi maurorum</i>
common fennel, (except bulbing fennel)	<i>Foeniculum vulgare</i> except <i>F. vulgare</i> var. <i>azoricum</i>)
common reed (nonnative genotypes only)	<i>Phragmites australis</i>
Dalmatian toadflax	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
European coltsfoot	<i>Tussilago farfara</i>
fanwort	<i>Cabomba caroliniana</i>
gorse	<i>Ulex europaeus</i>
grass-leaved arrowhead	<i>Sagittaria graminea</i>
hairy willowherb	<i>Epilobium hirsutum</i>
hawkweed oxtongue	<i>Picris hieracioides</i>
hawkweed, orange	<i>Hieracium aurantiacum</i>
hawkweeds: All nonnative species and hybrids of the meadow subgenus	<i>Hieracium</i> , subgenus <i>Pilosella</i>
hawkweeds: All nonnative species and hybrids of the wall subgenus	<i>Hieracium</i> , subgenus <i>Hieracium</i>
herb-Robert	<i>Geranium robertianum</i>

hoary alyssum	<i>Berteroa incana</i>
houndstongue	<i>Cynoglossum officinale</i>
indigobush	<i>Amorpha fruticosa</i>
knapweed, black	<i>Centaurea nigra</i>
knapweed, brown	<i>Centaurea jacea</i>
knapweed, diffuse	<i>Centaurea diffusa</i>
knapweed, meadow	<i>Centaurea × gerstlaueri</i>
knapweed, Russian	<i>Rhaponticum repens</i>
knapweed, spotted	<i>Centaurea stoebe</i>
knotweed, Bohemian	<i>Fallopia × bohemica</i>
knotweed, giant	<i>Fallopia sachalinensis</i>
knotweed, Himalayan	<i>Persicaria wallichii</i>
knotweed, Japanese	<i>Fallopia japonica</i>
kochia	<i>Bassia scoparia</i>
lesser celandine	<i>Ficaria verna</i>
loosestrife, garden	<i>Lysimachia vulgaris</i>
loosestrife, purple	<i>Lythrum salicaria</i>
loosestrife, wand	<i>Lythrum virgatum</i>
Malta starthistle	<i>Centaurea melitensis</i>
parrotfeather	<i>Myriophyllum aquaticum</i>
perennial pepperweed	<i>Lepidium latifolium</i>
poison hemlock	<i>Conium maculatum</i>
policeman's helmet	<i>Impatiens glandulifera</i>
puncturevine	<i>Tribulus terrestris</i>
Ravenna grass	<i>Tripsidium ravennae</i>
rush skeletonweed	<i>Chondrilla juncea</i>
saltcedar	<i>Tamarix ramosissima</i>
Scotch broom	<i>Cytisus scoparius</i>
shiny geranium	<i>Geranium lucidum</i>
spurge flax	<i>Thymelaea passerina</i>
spurge laurel	<i>Daphne laureola</i>
spurge, leafy	<i>Euphorbia virgata</i>
spurge, myrtle	<i>Euphorbia myrsinites</i>
sulfur cinquefoil	<i>Potentilla recta</i>
tansy ragwort	<i>Jacobaea vulgaris</i>
thistle, musk	<i>Carduus nutans</i>
thistle, plumeless	<i>Carduus acanthoides</i>
thistle, Scotch	<i>Onopordum acanthium</i>
velvetleaf	<i>Abutilon theophrasti</i>
water primrose	<i>Ludwigia hexapetala</i>
white bryony	<i>Bryonia alba</i>
wild chervil	<i>Anthriscus sylvestris</i>
yellow archangel	<i>Lamium galeobdolon</i>
yellow floating heart	<i>Nymphoides peltata</i>
yellow nutsedge	<i>Cyperus esculentus</i>
yellow starthistle	<i>Centaurea solstitialis</i>

Appendix B

Annual Plan Consultation Record

2022 ANNUAL PLAN CONSULTATION RECORD

As required by License Article 403, this section documents Cowlitz PUD's consultation with the TCC regarding the development of the Annual Plan for the Swift No. 2 Wildlife Management Area. The 30-day Review Draft of this Annual Plan was emailed to the TCC on February 7, 2022 and discussed at the February 9, 2022 TCC meeting. Comments were due on March 15, 2022 and comments were received from Washington Department of Fish & Wildlife. The table below summarizes the comment received and provides Cowlitz PUD's response.

Cowlitz PUD's Response to TCC Comments on the Draft 2022 WHMP Annual Plan

Comment Number	Comment	Cowlitz PUD Response
1	WDFW has reviewed the plan and does not have any comments. WDFW commends Cowlitz County PUD and Amanda for the great job you do promoting wildlife values within the Swift No. 2 wildlife management area. We appreciate that you deferred other activities following implementation of the patch cut and have achieved a positive funding balance. We support allocating some of the 2022 budget to address the invasive plants while still accruing funds for an additional forest management project in the future. WDFW looks forward to continued collaboration with Cowlitz County PUD and Amanda to implement the Settlement Agreement and the FERC Swift No. 2 Hydroelectric License to benefit wildlife.	Thank you for your review of the 2022 Annual Plan.