



European Hawkweed, an infrequent invasive in the forest, blooms on the 2700280 Road

Olympic Peninsula Cooperative Noxious Weed Control 2016 Project Report

A Title II Participating Agreement between
USFS Olympic National Forest
and
Clallam County Noxious Weed Control Board

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**An unabridged copy of this report will be posted to our
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http://www.clallam.net/weedcontrol/html/forest_service.htm

-see 2016 Report.

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EXECUTIVE SUMMARY

Project Goal:

The goal of this project is to protect the natural resources of Clallam and Jefferson Counties from the negative impacts of invasive non-native plants. This goal is implemented by reducing existing weed populations and preventing the establishment of new ones across both counties. Coordinating and standardizing weed control across jurisdictional boundaries maximizes the efficiency of these efforts and minimizes the negative impacts of noxious weeds on natural resource productivity, watershed function, wildlife habitat, human and animal health, and recreational activities.

Project Overview:

This project has been a comprehensive program for noxious weed control on Forest Service (FS) lands across the North Olympic Peninsula. It includes surveying, identifying, and controlling noxious weeds through a work plan coordinated between the Forest Service and local weed control boards. This project compliments the efforts of local weed board programs, which includes public education, survey and monitoring of noxious weed infestations, and seeking landowner compliance with RCW 17.10 on non-federal lands. Title II of the Secure Rural Schools Act (SRS), which was designed in part to promote cooperation and collaboration between federal and local governments, funds most of the project. Additional dollars from specific FS funds have sometimes augmented additional tasks added to the work plan. Depending on funding levels in any given year, work has been accomplished by crews of varying size and expertise.

2016 Project Goals:

1. Control weeds on areas scheduled for road decommissioning or forest management.
2. Control weeds in quarries and other rock sources.
3. Control weeds in Botanical Areas and other special "critical area" sites.
4. Control weeds in campgrounds, trailheads and other heavily-used sites
5. Revisit previously controlled sites and perform necessary follow-up control work.
6. Identify and treat new populations.

2016 Resources: (All crews)

- Supervisor (20 hours/week, 3.5 months)
- 2-3 Project Specialists (less than 3 months each)
- Washington Conservation Corps (8 days)

2016 Accomplishments: (All crews)

- Examined **342** acres for invasive species, treated **302** weed-infested acres, and monitored **158** treated acres.
- Inspected and treated high priority weeds in **20** FS rock sources; inspected and identified corrective measures for **9** private, **5** state and **9** county rock sources in regard to their potential to spread invasive weeds,
- Distributed native grass seed to **18** sites.
- Compiled data and completed annual Project Report.

Observations and Recommendations:

Weed infestations negatively impact resources both within the Olympic National Forest and on adjacent lands. Restoring diversity and achieving habitat requirements and goals while improving forest productivity and overall ecosystem functioning is the underlying purpose of this invasive plant project. Weed infestation size and density are much reduced where treatments have occurred. Long-range goals, detailed planning, and consistency have been the keys to progress to date. Treatment success has led to crews now over-seed previously infested sites with native blue wild rye provided by the Forest Service. This preventative practice can reduce the probability of weed reinfestation and will likely be expanded to include additional native species as more plant material becomes available, and as long as weed populations continue to be reduced and rehabilitation opportunities develop.

The Secure Rural Schools Act (SRS) has not been renewed. There is a small amount of funding for projects in 2017. Hard decisions on how to best prioritize activities in the upcoming season will have to be made.

Weed board staff have extensive knowledge ranging from project history and infestation locations to weed identification and best treatment practices. The county weed boards provide an efficient, locally based work force with county-wide jurisdiction and long term focus. The expertise and flexibility of locally based weed boards make us best suited to identify and control new or small weed infestations and to act upon re-seeding projects as they arise.

We appreciate the opportunity to provide input on weed control strategy and to help coordinate the Forest Service's weed management plan. Intra agency invasive species control coordination has not only become increasingly important, but also is more likely to occur. There is a significant opportunity on the horizon for a cooperative native plant consortium between the National Forest, Olympic National Park, Clallam County, and other partners that further long term goals to increase watershed scale native plantings and, by extension, native pollinators. Large scale multi-jurisdictional projects such as projects occurring within many northern Peninsula watersheds demonstrate how critical cooperation is to enduring success and also demonstrate the capacity we have forged through this program to work together. This is a direct legacy of the working relationships created on the Olympic Peninsula because of the Secure Rural School Act.

PROJECT SUMMARY

Project Goal:

The goal of this project is to protect the natural resources of Clallam and Jefferson Counties from the negative impacts of invasive non-native plants. This goal is implemented by reducing existing weed populations and preventing the establishment of new ones across both counties. Coordinating and standardizing weed control efforts across jurisdictional boundaries maximizes the efficiency of these efforts and minimizes the negative impacts of noxious weeds on watershed function, wildlife habitat, human and animal health, and recreational activities.

Project Overview:

Title II of the Secure Rural Schools Act (SRS), was designed in part to promote cooperation and collaboration between federal and local governments. This project has been a comprehensive program for noxious weed control on the North Olympic Peninsula, including surveying, identifying, and controlling noxious weeds, coordinating action and communication between local, state and federal jurisdictions, and raising public awareness of the impacts of noxious weeds. Additional dollars from specific Forest Service (FS) funds have sometimes augmented additional tasks added to the FS directed work plan for weed board partners. In previous years, this project has also supported the Jefferson County Noxious Weed Control Board, specifically their local education, survey, and treatment efforts. SRS was reauthorized in 2008, but the funding, as scheduled, diminished each year. A small amount of funding is left for field activities in 2017; but as of the writing of this report, the act itself has not been reauthorized.

The project operates on Forest Service lands under a strategy of early detection and rapid response to prevent the establishment of new infestations wherever possible. Initial work focused on surveys to identify weed baselines while performing manual control. After adopting Olympic National Forest's 2006 Environmental Impact Statement, *Beyond Prevention: Site-specific Invasive Plant Treatment*, the focus shifted to treatment using manual and herbicide methods. Emphasis has been placed on controlling high priority noxious weeds in areas with high potential to spread, such as rock sources or campgrounds, or in particularly sensitive environments including Biological Areas. As the awareness of invasive species has increased throughout the agency, additional tasks have been added such as treating weeds prior to road decommissioning and timber management activities, conducting private rock source inspections to meet contract standards and seeding previously treated sites with native grass.

On lands adjacent to Olympic National Forest, emphasis has been on areas where uncontrolled noxious weed populations on other federal, state, county, and private land were spreading and hindering coordinated control activities. The Clallam and Jefferson County Weed Boards provide the vital link to private and public landowners whose weeds threaten federal lands. Program goals include public education, surveying for new noxious weed infestations, seeking landowner compliance with RCW 17.10 and WAC 16-750, and assisting other public agencies with their efforts to control noxious weeds.

Work in the National Forest has typically been accomplished by crews of varying size and expertise to match the need on the ground with available funding. Over the years, this has included a two to four person crew, a weed specialist crew hired by the Clallam County Noxious Weed Control Board (CCNWCB), a larger six person Washington Conservation Corps (WCC) crew, and briefly, an Olympic Correction Center (OCC) inmate crew working in the west end of Jefferson and Clallam Counties. Although the Forest Service has hired contractors for certain, large scale projects, there have been no outside contractor projects for a number of years. Occasionally, other crews are made available through outside entities that have a special interest in a particular watershed.

2016 Project Description:

This year's work focused on sites designated as high priority by the Forest Service, including infrequent high priority species and known herb Robert infestations. Weather conditions this year were conducive to site rehabilitation with native grass over-seeding, but insufficient staffing limited our capacity to capitalize on the opportunity as we would have wished. The Forest Activity Tracking Sheet (FACTS) form was used to document manual and chemical treatment. Treatment reporting was based on a unique "Reference Number", arbitrarily assigned within 6th field watersheds. The FS requested that Weed Boards monitor at least 50% of treated areas. Crew often followed monitoring with re-treatments or over-seeding as conditions dictated.

Two seasonal crew members were hired in June. Both crew members obtained an applicator's license. The coordinator and/or another licensed applicator assisted a couple of days each week, enlarging crew capacity and using the coordinators' greater expertise to find a wider variety of non-native plant species. Both funding and suitable applicants limited crew size.

In 2016, treatments on Forest Service lands were prioritized as follows:

1. Control weeds on areas scheduled for road decommissioning or harvest management
2. Control weeds in specific quarries and other rock sources.
3. Control weeds in Botanical Areas and other special "critical area" sites.
4. Control weeds in campgrounds, trailheads and other heavily-used sites
5. Revisit previously controlled sites and perform necessary follow-up control work.
6. Identify and treat new populations, especially when seen en route to known sites.

2016 Project Resources and Roles:

The number of staff, the amount of time devoted to this project, and tasks completed were:

- **CCNWCB**

- **Coordinator: 20 hours/week, for 3.5 months, licensed aquatic applicator**

- Supervised and administered the project
 - Provided technical information and support, crew training, and field treatments
 - Planned and coordinated WCC
 - Participated in planning meetings with Forest Service staff
 - Reviewed crew FACTS, Monitor, and Inventory forms, submitted to the FS
 - Compiled data, prepared end-of-season report and planned for 2017 field season

- **Field team: 2-3 project specialists, (licensed, aquatic applicators), up to 3 months each,**

- Treated **296** acres; retreated **6.4** acres; completed **126** FACTS forms for all treated sites
 - Examined **342** acres, surveyed **94.5** miles of roads,
 - Inspected, treated, and documented the status of **20** FS, and inspected **5** state, **9** county, and **9** private rock sources
 - Monitored **158** acres, and completed **45** Monitor forms

- **Washington Conservation Corps (WCC)-8 days**

- Assisted with the treatment of 36 acres

- **Clallam County Sheriff's Chain Gang**

- (No treatments were reported for the Title II FS funded Gang)

2016 Project Accomplishments:

Through the efforts of the Clallam County NWCB and the WCC, crews treated **296** acres of noxious weeds and surveyed **95.5** miles of roads. Weed Board re-treatments (**6.4** acres) are not included in this total.

The table on the following page provides some perspective on 2016 accomplishments by summarizing yearly crew activities since 2002. Yearly comparisons are complex and inconsistent because of changes in focus, crew resources and FS reporting protocols from 2002-2013. From 2002 to 2006, herbicides use was limited or disallowed. Manual treatments for those 5 years have been consolidated and acres treated estimated. When herbicide treatments were allowed, the CCNWCB was able to cover at least triple the amount of acres. Notice how annual focus on surveys corresponds to number of new discoveries. This increased capacity to cover ground has been instrumental in getting ahead of, and reducing the spread and impacts of invasive plant species. For more detail, please see the end of Appendix C for a brief history of FS policies, program focus and available resources which shaped overall program direction and accomplishments in different years. Appendix A provides detailed information about treatments at each site in the 2016 project list.

2002-2016 ACCOMPLISHMENT SUMMARY TABLES											
Acres Treated by Crew-rounded to the nearest whole number											
CREW ^A	2002-2006 ¹ manual/baselines	2007- 2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
NWCB manual	8.61	55	27	21	33	33	7	10	30	51	
NWCB chemical		131	195	316	286	338	360	248	259	245	
NWCB total	8.61 ¹	246 ²	222 ²	337 ²	319	371	367	258	289	296	2,714
OCC-manual	None	412 ²	78 ²	None	None	None		None	None	None	489²
WCC ⁵ manual chemical	58.83	22	54	None	38	2	7				
WCC total	58.83 ¹	22 ²	54 ²		38 ²	28 ²	15	15	23	0 ⁶	195
PSC manual chemical	N/A	N/A	N/A	N/A	N/A	N/A	4				
PSC total							80	N/A	N/A		
Chain Gang	38.68 ¹	9 ¹	7 ¹	0.16 ¹	6 ²	25 ¹	5	None	None	None	90.84
TOTAL Acres Treated	106.12¹	689²	361	337	338	372	418	273	312	296	3,502

^ACrew acronyms: **NWCB**=Noxious Weed Control Board, **OCC**=Olympic Correctional Crew, **WCC**=Washington Conservation Corps, **PSC**=Puget Sound Corps

Number of New/Existing Sites Reported Each Year by NWCB Crews																
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
New Sites/Total	122	497/619	147/766	74/840	147/986	12/998	1/999	3/1002	29/1031	56/1,060	22/1082	63/1145	12/1157	25/1182	52/1287	1287

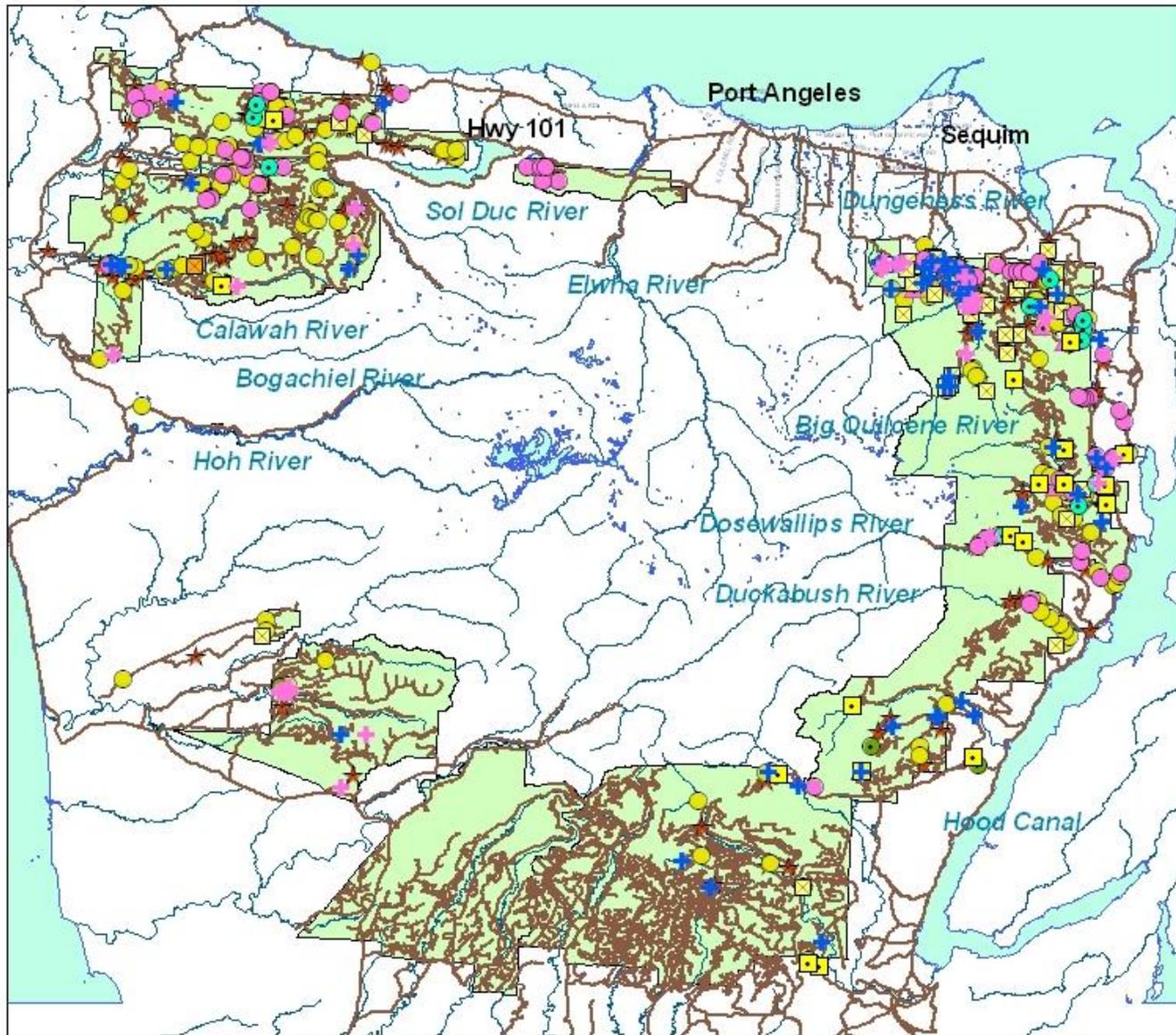
Road Miles and Acres Surveyed and/or Treated by NWCB Crews																
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Miles of Roads Surveyed/Treated	192	702	265	113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,272
Acres Surveyed/Treated	233 ³	851 ³	321 ³	137 ³	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,542⁴
Miles of Roads Surveyed	N/A	N/A	N/A	N/A	391	369	423	299	222	237	309	149	359	125	95	2,978
Acres Surveyed^b	N/A	N/A	N/A	N/A	947 ⁴	894 ⁴	1,025 ⁴	724 ⁴	626 ⁵	575 ⁵	613 ⁵	776 ⁵	483 ⁵	438 ⁵	342	7,443

1. Only manual treatments were allowed during 2002-2006. Acreage was estimated based on reported number of plants pulled; 1000=one/tenth acre. NWCB directive was to locate and document as many infestations as possible. For the Chain Gang reporting inconsistencies were difficult to reconcile with FS protocols.
2. "Acres Treated" include chemical and manual treatment and are taken from the FACTS forms filled out by crew. *The figure of **337 acres** reported for the **OCC** crew in 2007 is **considerably inflated**, due to a change, and subsequent misunderstanding of newly instituted FS reporting protocols. It is shown here as reported.
3. Derived from miles surveyed/treated, but not used in the estimate of acres in the top table.
4. Derived from miles surveyed-Recorded as a separate value from 2006 to 2009. Previously combined in miles treated/surveyed and acres treated/surveyed
5. Taken from FACTS sheets—"Area Examined for Weeds"-from 2010-2106. This addition to the sheet gives perspective to infestation density and area covered.
6. In 2016, WCC worked alongside the NWCB. These acres have been accounted for in the "Acres Treated" section for NWCB

MAPS

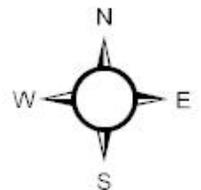
- Four maps are shown—an Overview of the Olympic National Forest, two covering activities in the Hood Canal District from north to south and one showing activities in the Pacific North district.
- The Overview Map shows baseline weed sites, documented from 2002- 2005.
- Roads where Weed Board crews worked in 2016 are shown in yellow. The Roads Surveyed 2016 layer was based on GPS track logs. Orange lines show surveys from 2015 that crews did not revisit this year.
- The 2016 activity maps show weed sites newly documented in 2016; they are not necessarily all newly discovered sites. The new weed layers are based on points taken by the field crew, using a Garmin 78. Office staff converted the points to shape files, using the Minnesota DNR public domain software DNR GPS version 6.0.0.15, which were then overlaid on all previous species shape files to ascertain which infestations were new.

Olympic National Forest Overview, with Baseline Weed Sites

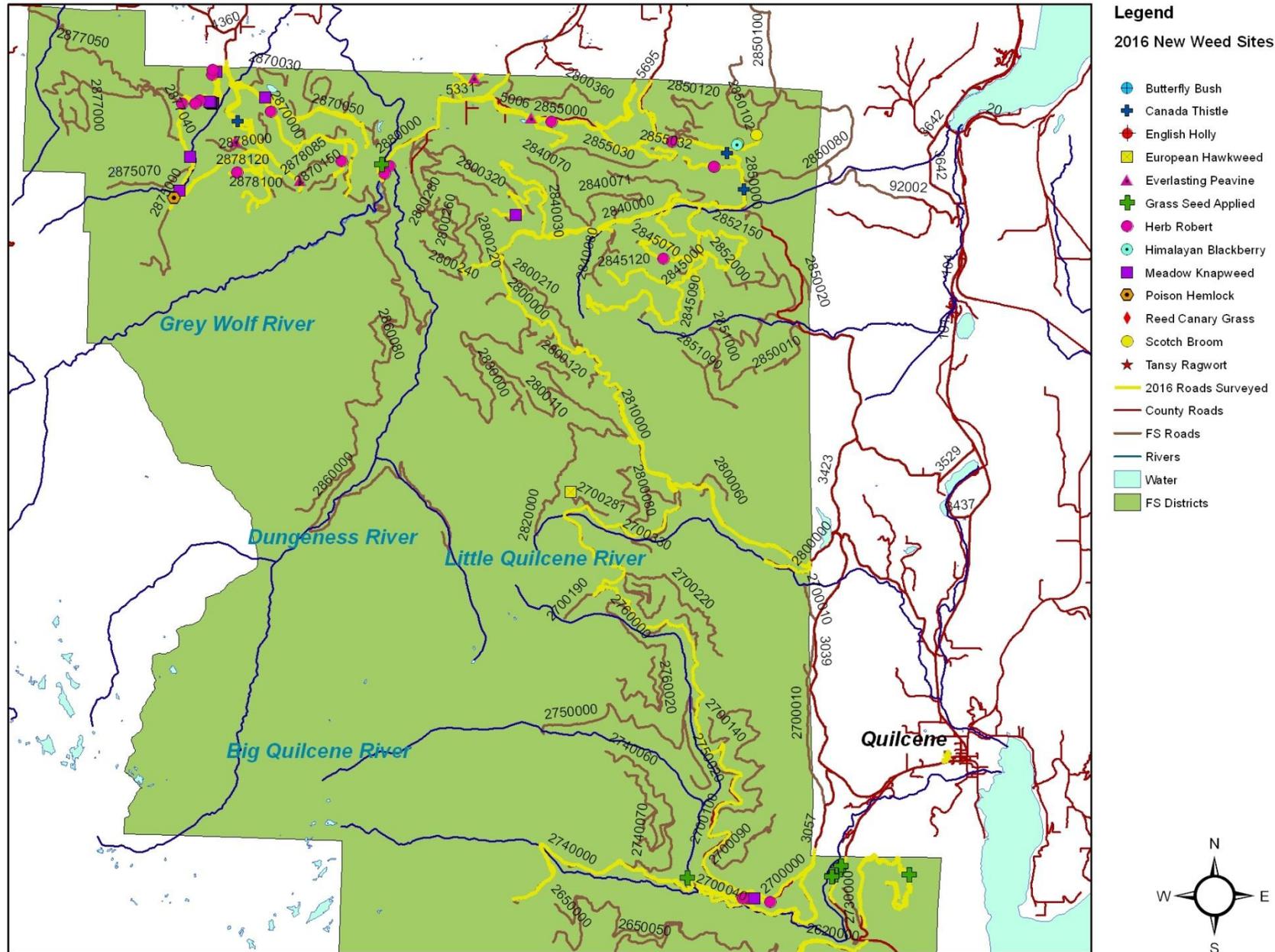


Legend

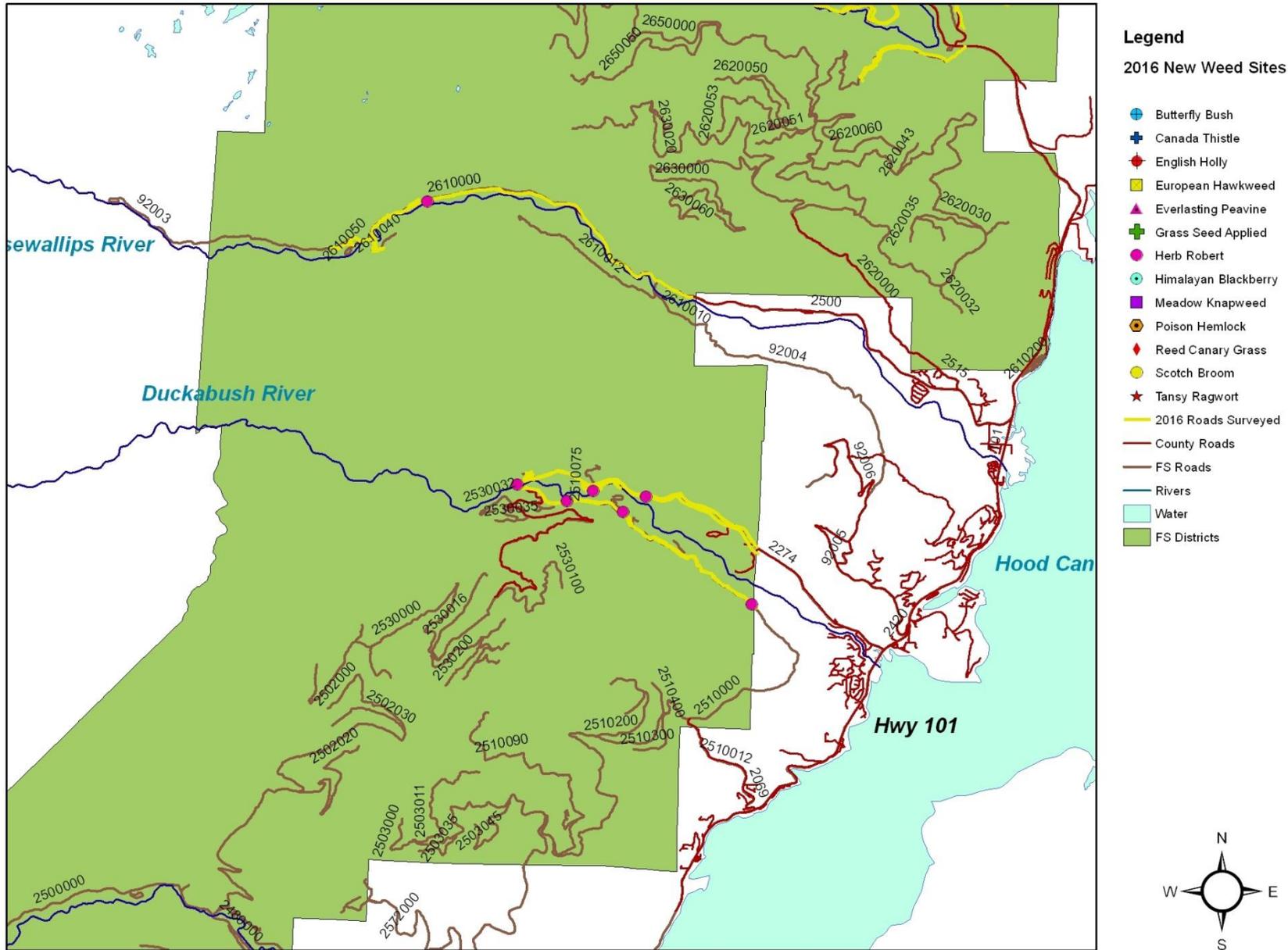
- ✦ bull thistle
- ✦ Canada thistle
- ☐ common tansy
- evergreen blackberry
- herb Robert
- himalayan blackberry
- ☐ meadow knapweed
- ☐ orange hawkweed
- ▲ peavine
- scotch broom
- ★ tansy ragwort
- FS Roads
- Rivers
- Water
- FS Districts



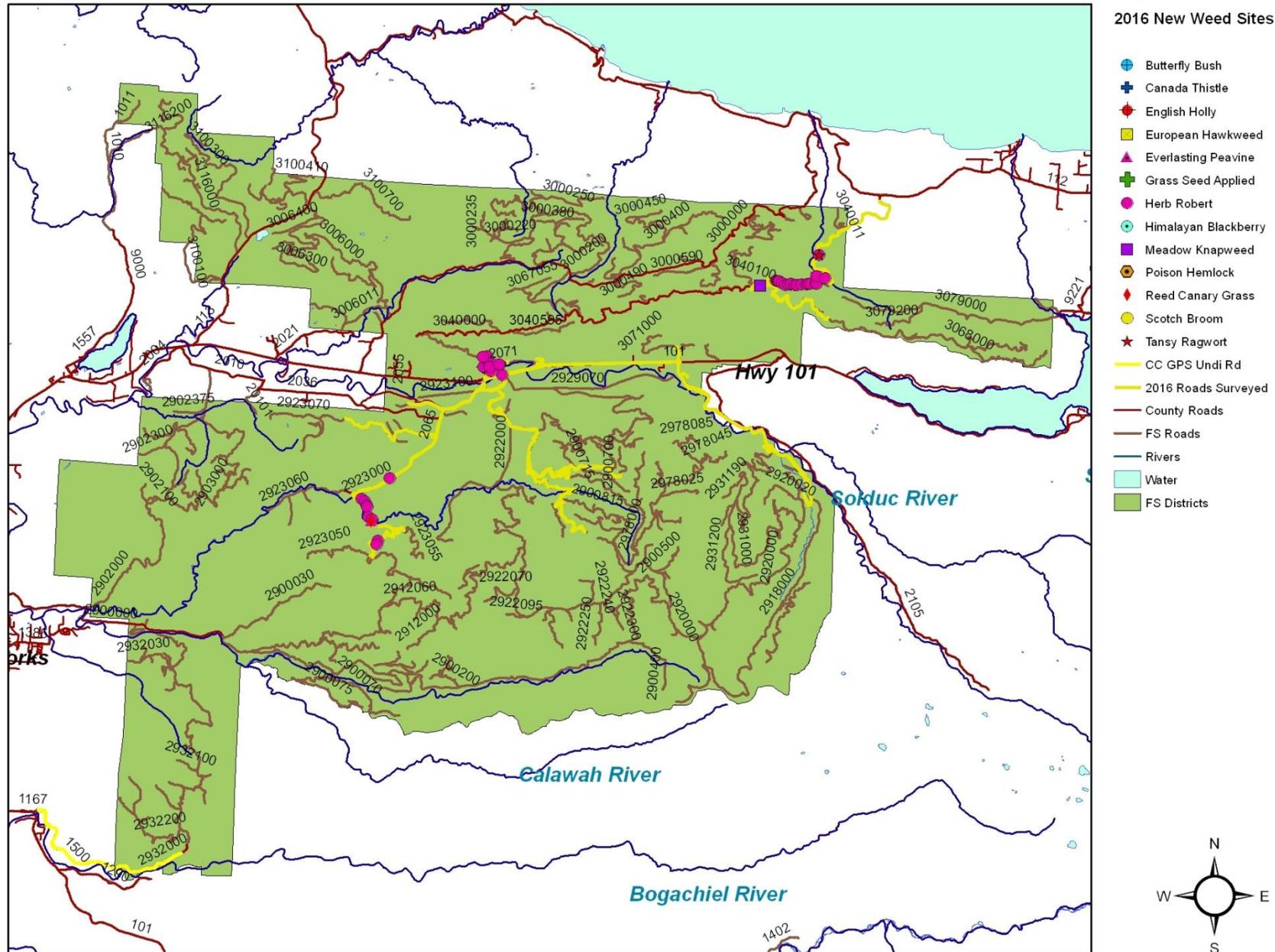
Hood Canal North - Roads Surveyed and New Weed Sites, 2016



Hood Canal South - Roads Surveyed and New Weed Sites, 2016



Pacific North - Roads Surveyed and New Weed Sites, 2016



Project Spotlight: Pits, Partnerships, and Progress- an Uncertain Future

Pits

Gravel from contaminated rock sources is one of the main vectors for noxious weed introduction in Olympic National Forest and adjacent lands. Gravel is harvested from pits and quarries then used for construction projects such as road building and repair or culvert projects. Gravel taken from sites containing noxious weeds bring seeds and root fragments to new areas, causing new infestations. One example is on the 2923 road where herb Robert is confined mostly to construction areas and other disturbed sites around culverts and bridges. Contaminated straw spread the infestation.

A key priority for crews is surveying and treating pits and quarries throughout the National Forest. Most rock sources within the National Forest were listed as Priority 1 or Priority 1A and were treated and evaluated for potential to spread weeds. Each survey requires the evaluating crew to label which weeds are present and their locations, and weigh the potential for the source to spread weeds. This year, the crew surveyed, treated, and evaluated twenty pits and quarries on Forest Service lands.



Grindstone Pit, which has become an important rock source storage area on Forest Service land has been treated and is free of high priority weeds.



Weeds including invasive knotweed, herb Robert, and tansy ragwort were found growing in the Penny Creek Quarry south of Quilcene. Free inspections conducted by CCNWCB under Title II funding, encouraged the owners to seek treatment and a follow-up evaluation to work toward weed-free certification.

Pits and quarries within Olympic National Forest are not the only sources of gravel used in the National Forest or adjacent lands. Gravel is obtained from a number of other local sources. Our non-forest rock source surveys continue to grow each year. This year nine county pits, nine private pits, and five state pits were monitored and evaluated within Jefferson and Clallam Counties. Clean pits receive a weed-free certification that is valid for one year. Each evaluation includes recommendations to the pit owner about how to control any noxious weeds and work towards becoming certified weed-free. These certifications are a major and effective weed prevention method. These surveys also help the CCNWCB and ONF build partnerships with other local entities and spread weed awareness.

Progress

Considerable progress has been made in many areas. Nowhere is the progress more evident than at old administrative sites and sites such as the Caretakers Cabin in Quilcene where invasive, ornamental plant species were deliberately planted in past years. One example is the Snider Work Center, which has a rich and varied use history. It has been identified as an important representation of Civilian Conservation Corps (CCC) era, and later served as a base for a variety of Forest Service operations. This administrative site had significant infestations of multiple species that were introduced long ago. Thirteen species of weeds were found and treated at this site including five Priority 1 species. Building on progress made in previous years, Snider Work Center and the road above received treatment on eight days in August. A Washington Conservation Corps crew assisted in treatment on three of those days. The results seen while monitoring were incredible, although it was noted that fall rain had stimulated germination from the prolific and long-lived herb Robert seed bank.



Herb Robert blooms thickly in the field at the Snider Work Center prior to treatment



Herb Robert is completely absent after treatment, allowing native moss and grass species to thrive



Knotweed extends out from a blackberry thicket on the west side of Snider Work Center



Spiny canes are all that remain of the blackberries and knotweed one month after treatment



The crew treats a bad herb Robert infestation on the 3040 rd above Snider Work Center



Herb Robert is absent from the hillside one month after treatment. Grass seed was applied to this area.

Good progress has been made in iconic, botanical areas such as Cranberry Bog, where we've reduced reed canarygrass infestations and prevented herb Robert from encroaching on a unique habitat that includes sundew, native cranberries, and several rare sedge species.



As reed canary grass is controlled in Cranberry Bog, native plants including cattails, water lilies, and sedges can be seen growing in the wetland

Early detection and rapid response has been especially effective. For instance, poison hemlock was found for the first time on FS lands this year. European hawkweed is virtually nonexistent throughout most of the Olympic Peninsula. This year, hawkweed was found and treated as small outbreaks were beginning to spread from the 2700800 to the main 2700 road, a popular road that could serve as a vector for bringing this weed into other watersheds and greater Jefferson and Clallam counties. It is difficult to understate the vital importance of noxious weed control in maintaining FS lands, and to overstate the importance and efficiency of having crews dedicated strictly to this task.

As the program matures and our weed control efforts prove successful, there is more opportunity to transition to cultural weed control methods in addition to physical and chemical control. Seeding a South Olympia biotype of native blue wildrye grass (*Elymous glaucus*) has been the first implementation of cultural control measures. Distribution of native grass seed by our crews helps reduce erosion as well as herbicide usage by improving natural resilience to weed invasion.



Grass established from seed applied in 2014 and 2015 competes with herb Robert on Dosewallips Rd (FS 2610)

Partnerships

Title II of the Secure Rural Schools Act (SRS) was designed in part to promote cooperation and collaboration between federal and local governments. Mission accomplished! Over the years, a deep and productive relationship has taken root between the Forest Service and local weed boards and, by extension, Native American tribes, state agencies and NGOs. As these relationships mature, so do the types of projects on which we collaborate. For example, the prospect of a collaborative native plant consortium to supply multiple entities is on the horizon.

Uncertain Future

As of December, SRS has not been reauthorized and only a small amount of funding remains for projects in 2017. The timing could not be worse. Weeds including knapweed, bishop weed, and yellow archangel have been almost eradicated. Some of the largest infestations have finally begun to recede. In others, consistent treatments are wearing out the seed bank of especially persistent weeds like herb Robert, while encouraging results from recent studies hold promise for better suppression of herb Robert seed germination in the future. Should funding falter, weed control on FS lands may fall to groups with less time, knowledge, and experience such as volunteers and WCC crews. We will work hard to find ways to keep this partnership alive.

Post-Season Observations

Nature of the Problem:

Invasive plant infestations threaten the health and diversity of native plant communities both within Olympic National Forest and on adjacent lands. Aggressive, non-native plants can displace native species, interrupting important but sometimes subtle ecosystem functions. Some weeds are toxic to humans and wildlife, and some can adversely affect soil chemistry and/or cause erosion. Many die back in the winter and offer no food or habitat for native wildlife. Others persist or spread quickly, preventing native plant recruitment or forest growth after disturbance.



Cinnabar moth caterpillars eating tansy ragwort on the 2740 road

The Forest Service, in consultation with the local Weed Boards, creates an annual work plan identifying high priority sites based on known problems or anticipated needs. These include the potential for weed invasion during road decommissioning, thinning, or other forest health and maintenance projects. The NWCB crew treated **48** of 57 high priority, **36** additional lower priority, **2** Early Detection, and **9** survey projects for a total of **95** projects.

Early detection and rapid response have proven to be effective. Species such as ribbon grass, which was found and treated just as it was starting to invade the forest, has been practically eradicated. Infrequent high priority species such as orange and European hawkweed, sulfur cinquefoil, meadow knapweed and knotweed were specifically targeted. A single incidence of poison hemlock was discovered and treated this year.

As the significance of invasive plant impacts percolate through the Forest Service Agency, more prevention strategies are being built into the wide range of Forest Service projects and activities that have potential to act as vectors for weeds. These include forest management, road-to-trail conversions, and contract and material standards. These new policies are smart, cost-effective steps that are already beginning to bear fruit. More private quarry owners ask for inspections in order to qualify as rock sources. The NWCB treated **20** Forest owned rock sources, and also provided certification services free of cost for **9** of the privately owned rock pits that may provide material for Forest projects in the future. **9** county rock sources and **5** owned by the Department of Natural Resources were also inventoried. The results of these surveys are summarized in Appendix B.

Over the past fourteen years, weed infestation size, density, and diversity have declined significantly. For example, 67 meadow knapweed sites are on record but only 14 sites were identified this year. Most had only one to three plants. Of the 7 known orange hawkweed sites, the Caretakers Cabin is the only site with any remaining. There are many such examples of success. Long range goals, detailed planning and consistency have been the key to our progress to date.

Although we are making progress, herb Robert continues to be problematic. This aggressive weed has a seed bank that is persistent and easily stimulated; light disturbances from thinning and road maintenance activities are having monumental consequences as small infestations are quickly dispersed to harder to reach locations. Herb Robert-specific research conducted by Washington State University and funded by the Forest Service tested new products and lowest effective rates that provide both good control of herb Robert and minimal impact to desirable species. This research yielded some tantalizing prospects for obtaining better control of herb Robert because of better germination control, the biggest obstacle to long term control.

Invasive Weed Populations:

- The most commonly recorded invasive species continue to be herb Robert, everlasting peavine, tansy ragwort, Canada thistle, and bull thistle. The most infrequently recorded species are teasel, bishops weed, comfrey, sulfur cinquefoil, hawkweeds, knotweed, ribbon grass, poison hemlock, and sundry exotics found at unique sites such as the Caretaker's Cabin.
- The orange hawkweed infestation at the Caretakers Cabin was difficult to find this year. The yellow archangel, periwinkle, reed canarygrass, and comfrey are almost completely gone. The caretaker has been especially diligent and helpful.
- We continued to use clopyralid whenever possible for peavine, tansy, knapweed and thistle because of its demonstrated ability to provide excellent long lasting control with little off-target damage.
- Scotch broom abundance is minor where treatment has occurred for at least three years.
- Tansy abundance is down in areas where there has been consistent follow-up, especially in the Dungeness Watershed. Mt. Walker Rd has seen resurgence; little treatment has taken place there in many years. Tansy

sites where little work has yet occurred, particularly in Jefferson County in areas like roads connecting to Tunnel Creek, would benefit from attention.

- Small or single canes of knotweed remain in the forest itself in a few select locations like the Snider Work Center. Knotweed present in some FS constructed logjams on the Dosewallips were treated by a non-Forest funded WCC crew.
- The crew took waypoints of approximately **52** new sites this year but created 118 waypoints which are shown on the maps. It was hard to determine whether these were all new sites. Some projects predated our GPS units. The crew was diligent in creating points in old projects when there was no existing waypoint on their GPS unit.
- The number of herb Robert infestations remains a top concern. Herb Robert was present on roughly half of the projects we treated; we didn't reach all known sites. We treated small patches of herb Robert becoming established above the Dosewallips washout. Follow-up is extremely important.
- There were no contractor projects this year. The Forest Service's weed team was stretched thin, and not available to assist with large control projects, especially herb Robert.
- Imazapyr treatments at Cranberry Bog, which began in 2015, were seen to have good efficacy on both reed canary grass and herb Robert.
- On average, the condition of rock sources on FS land is improving.
- Small populations of purple loosestrife, yellow, common and European hawkweed, hoary alyssum, hairy willowherb, and common reed are all present on Jefferson and/or Clallam County roadsides. We consider control of all of these plants—as yet unrecorded on Forest Service land (excluding highways)—a high priority to prevent their spread.
- Clallam County needs to implement an integrated roadside weed management plan to prevent spread of weeds onto Forest Service lands.

Survey, Treatment, and Monitoring

- We hired fewer crew this year due to funding limitations.
- NWCB crews treated **54** priority 1A or 1 projects listed for Jefferson/Clallam in the 2016 work plan. An additional **29** priority 2 projects and **9** non-priority were treated, mainly because of proximity to high priority projects or because they were known herb Robert sites. **2** EDRR sites were either specific FS requests or found while en route to other project sites. We had time for **9** survey projects on rainy days and disbursed native grass seed to **18** locations. An additional 25 priority 1A or 1 projects were listed on the project sheet in our area to be completed by Forest Service crew. The Forest Service reported to us that they completed 6 priority 1A and 4 priority 2. It is possible that the Forest Service completed more, especially in far west Jefferson County.
- The Forest Service deliberately limited the number of 1A and 1 priority projects in the work plan which gave weed board considerable flexibility to adapt priorities.
- There were very few sites on the project list where hand-pulling alone was an effective use of time, but it is useful to identify hand-pulling Scotch broom projects for rainy days.
- The monitoring requirement yields multiple crew benefits; encouraging them to see the effect of their treatments themselves.
- FS-sponsored WCC assisted for eight days this year. The timing of this assistance was much better than in past years. WCC crew willingness and capacity to spray were significantly worse this year, negatively affecting the productivity of this crew.
- Cooperation between the Weed Boards, the Forest Service and the Port Townsend Municipal Watershed continued to be excellent. The new caretaker has helped with eradicating the invasives there.
- Cooperation between the Forest Service, the County Noxious Weed Control Boards and the East Jefferson WCC Riparian Crew again facilitated knotweed treatments adjacent to FS land along the Dosewallips River.
- There are new collaborative weed control opportunities between Washington State Parks and local weed boards in locations that border and impact Forest Service lands.

Data Collection/Mapping

- The pre-and post-season meetings between the FS and Weed Boards continue to be well organized and helpful.
- The Forest Service provided excellent pre-season planning documents and files. Shape files for previous year treatments were invaluable as was the layer for decommissioned roads. Thank you!
- In season reporting of FS control crew activities is extremely helpful. This year, the FS crew treated **11** sites in Clallam and Jefferson counties. **7** of these sites were priority 1A, and **4** sites were priority 2.

RECOMMENDATIONS



Heavy patches of tansy ragwort bloom on sections of Tunnel Creek (2740) left untreated last year. Considerable improvement were seen in areas treated in 2015

Future Direction of the Project

The Secure Rural Schools Act has provided the opportunity and impetus to develop a collaborative relationship between the Forest Service and local weed boards to address invasive plant issues. We have made remarkable progress both in controlling invasive, detrimental plant species and in creating cooperative relationships with a wide array of entities. To date SRSA has not been renewed. Little funding remains for control work in 2017. We will have to make hard choices when prioritizing projects next season.

We hope to focus on preventative surveys, early detection and rapid response, and rehabilitation activities, such as re-seeding with native species where it makes the most sense. Continued development of diverse native plant materials including a variety of forbs is the next logical step. Based on the results of a recent study, sulfometuron (Oust) may be a preferred tool for roadside control of herb Robert and should be included in next year's list of allowed products. Follow-up research and monitoring exploring this use is recommended.

The working relationship between Weed Board and Forest Service has enabled us to refine and improve many elements of this project over the years. However, we are facing a period of transition as funding becomes more precarious. The expertise, flexibility, and locally based weed boards are ideally suited to identify and control new or small infestations and other tasks as needed and directed by the Forest Service Botany program. Due to funding constraints, direct weed control efforts by Clallam County Weed Board may become very site specific or limited to special services such as private rock source surveys.

We appreciate the opportunity to provide input on weed control strategy and to help coordinate the Forest Service's weed management plan. Intra-agency invasive species control coordination has not only become increasingly important, but also is more likely to occur. This is a direct legacy of the working relationships created on the Olympic Peninsula during the tenure of the Secure Rural School Act. We hope the spirit of partnership endures well into the future.

Specific recommendations for next year are listed below.

Program Development

- Continued funding from the Forest Service will be vital to maintaining working relationships with the Weed Boards.
- Participate in pre-season planning with other land managers to identify needs, pool resources and formulate more cross boundary invasive plant control projects that protect FS resources.
- Apply information garnered from herb Robert research conducted by WSU weed scientists. Additional research on this issue would be helpful.
-

Survey and Treatment

- Continue to focus on infrequent, high priority invasives.
- Identify locations where ground disturbance is planned and bare ground is expected as a result.
- Secure a contractor or additional crew assistance for herb Robert treatments on long, heavily infested roads.
- Target specific peavine and Canada thistle sites in eastern Clallam and Jefferson Counties for clopyralid treatments.



WCC treating Herb Robert on the 2610

- Survey and treat areas missed in 2015 and 2016 including the upper 2610, Elkhorn CG, 2830, 2877, 2922, and the massive scotch broom infestation on the 3067
- Obtain key to gate that blocks access to the Louella LuLu Quarry so crews can survey and treat for the first time in several years.
- Jimmy-Come-Lately and Graywolf watersheds are likely to have untreated herb Robert sites that have not yet spread widely.
- Re-visit Bonidu Meadows and the Caraco Units. These sites had few weeds last year and were therefore not treated this year
- Continue to include a survey component in the work plan.
- Plan for re-seeding with native grasses. Possibly explore the use of native forb seeds in addition to grassy species. Ask crews to identify areas that would benefit from re-planting to reduce erosion and possible sediment pollution into streams.
- Re-inspect historic knotweed sites at least every other year because of their known ability to return after years of invisibility.
- Continue to report FS crew weed control activities during the treatment season.
- A list of potential survey sites that reflects these recommendations is given in Appendix D.



Pulling and bagging seeding herb Robert plants on the 3040000 N Road

Documentation

- Changes to the FACTS forms continue to be useful and constructive.
- Add a check box to FACTS form so crew can note when project would make a good candidate for reseeded. Include instructions on how to make that determination.
- Please continue to provide the excellent project disc provided at the beginning of the season.
- A post season meeting would have been helpful this year.



Hundreds of tiny frogs found in Cranberry Bog take advantage of habitat improvements



Careful reed canary grass treatments allowed previously planted sedges to survive.

2016 PROTOCOLS



The 2016 Crew

1. Team and Project Dates

This year's project continued to focus almost entirely on treatment but had time for limited surveys during a few rainy days. Rains beginning in late August allowed for grass seeding opportunities that had not occurred in previous seasons. The crew was asked to monitor at least 50% of treated acreage. Treatments were performed by a crew consisting in various combinations of Cathy Lucero (Clallam County Coordinator), and field technicians Rachel Bowen, Peter Butler, and Chandra Johnson. 2016 fieldwork began in June and continued through the end of September.

2. Invasive Species Recorded

Treatment and surveys focused on Class A and B-designate weeds on the Washington State Noxious Weed List (see Appendix H), and additional species that are of concern to the Forest Service. In most cases, Class B non-designate, Class C, and other low priority non-native weeds were only documented when an infestation was in a site of particular concern (e.g. a Botanical Area), when the infestation was of notable size, or when a new species was found. Exceptions were made for especially invasive species, such as herb Robert or knotweeds, which threaten undisturbed areas. See Appendix G for a complete listing of species recorded from 2002 to 2016. Treatment and surveys were not intended to target every non-native species.

3. Survey and Treatment (see Appendix A):

The project focus was on treatment of known infestations in specific project areas identified by the Forest Service, often including sites that had received treatment in the past. Survey and treatment of new infestations was also a priority, especially if new sites were seen en route to known sites.

- a. Many known sites are along roadsides, and are typically surveyed by vehicle. The distance surveyed was measured using a Garmin GPS unit and the area surveyed was calculated using the following formula. Crew made a road specific estimation of how many feet on each side of the road were to be included in the formula.

$$\frac{\text{miles surveyed} \times 5280 \text{ ft/mi} \times \text{ft/roadside width} \times 2 \text{ roadsides/survey}}{43560 \text{ ft}^2/\text{acre}}$$

- b. Trailheads, campground parking areas, and gravel pits were surveyed on foot and area surveyed or treated was estimated by using measurement functions on a Garmin GPS unit or by other predetermined figures.
- c. From 2007 through 2012 miles surveyed were estimated from treatment sites (recorded on FACTS forms) and roads taken to get to those treatment sites. Beginning in 2013, surveyed miles **only includes** a single trip on a road, even though it may have been traveled and surveyed many times during the season. Additionally, **only treated** roads documented on FACTS forms were included, **not** additional roads that were viewed on the way to a project.
- d. Small tap rooted weed infestations were often treated manually on rainy days. Seeded plants were dead-headed; heads were bagged and disposed of off-site, during late season treatments.
- e. Herbicide treatments were applied based on guidelines established in the 2008 EIS which allow the use of 10 different herbicides.
 - i. A legal notice listing all sites under consideration for herbicide treatment (see Appendix I) was published in the Peninsula Daily News. Herbicide applications were carried out between June 16th and October 6th.
 - ii. Backpack sprayers were calibrated prior to use on FS lands per federal NPDES standards. A sample calibration sheet and the calibration methodology can be seen in Appendix K.

- iii. Foliar herbicide applications were made using 1.5% Element 3A or Garlan (triclopyr) or Aqua Neat (glyphosate), 1% Vastlan (triclopyr), or 0.5% Transline (clopyralid), and 0.5% Competitor or Agradex (surfactant).
- iv. On-site notices (see Appendix H) were posted prior to treatments and left in place for at least 24 hours afterwards. Treatments in high-use areas such as campgrounds were avoided during busy times (near weekends or holidays), Forest Service recreational personnel were contacted prior to commencing treatment, and sites were posted a week before treatment.

4. Data Collection

The Forest Service identified 24 broad "Project Areas" that consolidated individual species sites reported in previous years. Each "Project Area" was subdivided, usually into road segments or spurs. Clearly defined areas such as campgrounds or pits became a subunit. Each subunit was given its own unique "Reference Number". Please see previous reports for each year's protocol.

Forest Activity Tracking Sheet (FACTS)

FACT sheets are used to record treatments in each Reference # site. This form has been modified several times since its introduction causing some confusion and making yearly comparisons difficult. A sample form is shown in Appendix J

Invasive Plant Inventory for Rock Sources

Rock Source Survey, introduced in 2009, is used to track the suitability of quarry material from both public and private sources to meet FS "weed free standards". FS protocols for filling out this form are included in Appendix J along with a sample form.

Invasive Plant Treatment Monitoring

The Forest Service is required to ensure monitoring of at least 50% of all treated acreage. Information about type, area, and cover class of each species is copied from the original FACTS form relating to treatments at each project. The percent efficacy of treatment is then recorded based on codes that range from 0-100. A sample form is shown in Appendix J.

Olympic NF Invasive Plant Inventory Data Collection Form NRIS

This form is used to record information about new weed sites. Data from this form is entered into **Rangeland PC Data** and submitted to the Forest Service for staff to upload into the **NRIS Terra Database**. For specifics of data collection and entry see previous reports. New sites that were found **and** treated this season were recorded on FACTS forms only.

5. Spatial Data Collection and Mapping:

Weed sites were previously mapped in ArcView GIS by county staff so that a real-time map could be available to the field crew. The shape files produced for that map were retained by the Clallam County Noxious Weed Control Board for use in future fieldwork as necessary. These files are not submitted to the Forest Service because a Forest Service GIS analyst must construct a GIS coverage that coincides with other Forest Service database materials and metadata. Weed Board Protocols for GPS mapping have not been consistent, but are improving. As follows:

- a. NWCB crew carries a Garmin 78 pre-loaded with Topo US 24K or a Montana Hunt chip, which identifies landowners. The automatic track log function is enabled.
- b. Meta data is set to NAD83 Harn, State Plane North 4601, statute feet. Newer Garmin units that don't allow for this projection are set to UTMs, statute feet.
- c. Crew is instructed to turn and leave on units, just prior to entering project area.
- d. Crew is directed to take waypoints for significant events or sites, such as beginning or end of treatments, new weed locations, or to document named locations such as quarries.
- e. Individual weed sites are plotted as points. If there is no existing waypoint, crew marks a location using a pre-designated symbol and then records the four letter plant code and size of infestation in feet in the comment field.

- f. New layers are produced post-season showing where treatment occurred. Waypoints and tracklogs were downloaded in the office and converted into shape files through the Minnesota DNR public domain software DNRGarmin version 6.0.0.15.

In previous years, crew documented the waypoint number, the nature of event or species, and road number in a log book. The waypoint may have also been noted on the relevant FACTS sheet. Unfortunately, since 2013, the crew has rarely kept the log book up to date.

6. Data Reporting

Office staff reviewed FACTS, Monitor, and Rock Source Survey forms and submitted copies of them to the Forest Service; generally biweekly, during the field season. The originals were retained in the Clallam County Weed Board office. More detailed data is included in the Appendices to this report, as described below.

- a. **Appendix A** is the Project Area list or “annual work plan” supplied by the Forest Service at the start of the season, with details of 2016 treatments by acreage, date and species. It is a comprehensive account of work accomplished in 2016.
- b. **Appendix B** is summary of this year’s rock source inspections and treatments.
- c. **Appendix C** is a master list of the roads surveyed and treated since the inception of our SRS, Title II projects. This list shows the amount of survey completed on each road, and totals for each year, as well as the number of weeds pulled manually for each year up to 2006. It also lists the area of treatment, by road, completed from 2007 through 2016, and weed species treated.
- d. **Appendix D** shows weed sites recommended for next season’s project area list.
- e. **Appendix E** is a brief summary of weed status and weed board work in Clallam County, that complements the work conducted on Forest Service land.
- f. **Appendix F** gives control recommendations for each invasive species identified during the course of this project.
- g. **Appendix G** is a list of all weed species reported and entered into the NRIS Terra database over the lifetime of this project.
- h. **Appendix H** shows the 2016 Washington State Noxious Weed List-, which is updated annually according to WAC Chapter 16-750. Under RCW Chapter 17.10 all non-federal landowners in the state are responsible for controlling or eradicating listed noxious weeds on their property. The control threshold is defined by RCW 17.10 and is determined by the class into which each weed is placed. This same law provides for the formation of the County Noxious Weed Control Boards. Federal agencies are required to work with local agencies to meet or match local weed control standards under the Federal Noxious Weed Act amended in 1994
- i. **Appendix I** shows examples of a legal notice regarding herbicide use and an on-site posting notice.
- j. **Appendix J** shows a sample of all forms used in the project and Forest Service established protocols for filling out each form.
- k. **Appendix K** shows a sample record of calibrations performed to comply with federal NPDES requirements. The calibration methodology is also provided,

APPENDIX A: 2016 PROJECT LIST ACTIONS-

This table is based on the Project List developed by the Forest Service, which served as the work plan for the Clallam Counties Noxious Weed Control Board (CCNWCB). The list was categorized into Priority 1A, 1, 2, S (survey need), or no priority. This table includes all Clallam and Jefferson Priority 1A and Priority 1 sites; Priority 2 sites are only shown when treated. Sites shown as Early Detection Rapid Response were originally listed as survey, no priority, or were not shown. There were no contractor treated sites this year.

The table is sorted by road number; smallest to largest. It shows the acreage treated each date the crew was on site, and whether the treatment was manual or chemical. (Re-treatments are identified with green shading and total 6.5 acres). **Re-treatments** are noted to account for the work, but **are not included** in the **Acres Treated** column; in order to be consistent with previous year protocols. All told, we treated **302** acres, manually or chemically.

87% of the Priority **1A and 1** sites listed in our work plan **were treated at least once**. Of the 11 untreated Priority 1A or 1 sites, 2 were deemed less critical due to time constraints, and 2 were on County right-of-way where chemical treatments are not allowed. These 11 will be called out for treatment in 2017, and are included in a separate table. ED/RR sites requested mid-season by FS staff or newly discovered and treated, are highlighted in red. The table summarizes each visit to a specific project this year.

Note the **Acres Monitored** column. USFS requests that we monitor at least 50% of our treatments. When weather allowed, the crew often re-treated monitored sites as needed. Despite the small crew size this year, we managed to monitor **158** acres this year, **34** acres above the 50% goal.

In the Species Treated column, we recorded only those species we found and treated on each site. High priority species have been **bolded** in this column. The Species Treated column does not necessarily list species noted by the crew or FS in prior years. Our Comments column notes high priority species not previously mentioned, or not found this year as well as areas that had poor access that limited the crew's ability to treat.

This year we focused on the sites with the least frequent high priority weeds such as orange hawkweed, yellow archangel, knotweed, and knapweeds in addition to as many Herb Robert sites as possible. A number of sites where meadow knapweeds had been noted in previous years had none.

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Priority for 2017?	Acres Examined	Acres Treated	Acres Retreated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Date	Species
309	1	Lower Duckabush River		2510000	Y	0.5	0.5		0.5	Herbicide; Vastlan	12	0	15-Sep	GERO, SEJA
309	1	Lower Duckabush River		2510000	Y	13.5	2			Herbicide; Vastlan	18	0	29-Sep	CASE, CYSC, GERO , HEHE, HYPE, LALA, SEJA
452	2	Lower Duckabush River		2510060	N	0.5	0			Survey Only	0		29-Sep	None seen
453	2	Lower Duckabush River		2510065	Y	2	2			Herbicide; Vastlan	20	0	29-Sep	CIAR, CIVU, GERO , HYPE
310	1A	Lower Duckabush River	Collins CG	2510070	Y	7	7		7	Herbicide; Vastlan	69	0	16-Sep	GERO
310	1A	Lower Duckabush River	Collins CG	2510070	Y	4.9	4.9		4.9	Herbicide; Vastlan	51	0	14-Sep	GERO
298	2	Lower Dosewallips River		2610000	Y	0.9	0.9			Manual and Herbicide; Element 3A	30	0.001	25-Jul	CIAR, GERO , HYPE, SEJA
298	2	Lower Dosewallips River		2610000	Y	0.75	0.75			Herbicide; Vastlan	28	0	15-Aug	GERO

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Priority for 2017?	Acres Examined	Acres Treated	Acres Retreated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Date	Species
298	2	Lower Dosewallips River		2610000	Y	0.9	0.5			Manual and Herbicide; Element 3A	30	0.001	25-Jul	CIAR, GERO , HYPE, SEJA
298	2	Lower Dosewallips River		2610000	Y	1	0.96			Herbicide; Element 3A	13	0	26-Jul	GERO , HYPE, RUAR, SEJA
300	2	Lower Dosewallips River		2610040	Y	2	2			Herbicide; Element 3A	114	0	25-Jul	GERO , HYPE, SEJA
300	2	Lower Dosewallips River		2610040	Y	1.5	1.5			Herbicide; Element 3A	105	0	26-Jul	GERO
295	2	Lower Big Quilcene River		2620000	Y	1.9	1.9			Herbicide; Element 3A and Transline	51	0	8-Jul	CIAR, CIVU, GERO , HYPE, ILAQ, PORE , RUAR, RULA, SEJA
295	2	Lower Big Quilcene River		2620000	Y	0.24	0.24			Manual and Herbicide; Element 3A and Transline	32	0.24	11-Jul	CIAR, GERO , HYPE, SEJA
289	1	Lower Big Quilcene River		2700000	Y	1.45	1.45			Herbicide; Transline and Vastlan	60	0	8-Aug	CIAR, CIVU, CYSC, GERO , HYPE, LALA, RUAR, SEJA
289	1	Lower Big Quilcene River		2700000	Y	1	1			Herbicide, Transline and Vastlan	42	0	9-Aug	CIAR, CYSC, DACA, GERO , HYPE, ILAQ, SEJA
462	1	Lower Big Quilcene River		2700040	Y	2.2	2.2			Herbicide; Element 3A	36	0	7-Jul	CIAR, CIVU, GERO , SEJA
462	1	Lower Big Quilcene River		2700040	Y	1.5	0	1.5		Herbicide; Transline	13	0	26-Sep	ARMI , GERO , SEJA
590	1	Lower Big Quilcene River	PT Muni WS caretakers cabin	2700040	Y	0.75	0.25			Herbicide; Transline and Vastlan	5.9	0	26-Sep	CIAR, GERO , HIAR , LAGA , PHAR , SYOG , VIMI
767	1	Lower Big Quilcene River	Lower Big Quilcene Trail	2700080	Y	1.8	1.8		1.8	Herbicide; Transline and Vastlan	10	0	8-Aug	GERO
201	1	Little Quilcene River		2700280	Y	0.5	0.5			Herbicide; Transline	10	0	9-Aug	CEDE , CIAR, HYPE, HISA
201	1	Little Quilcene River		2700280	Y	0.5	0.5			Herbicide; Transline	3	0	8-Aug	CIAR, CIVU, LALA, HISA , SEJA
202		Little Quilcene River		2700281	Y		0.5			Herbicide; Transline	1.5	0	10-Aug	CIAR, HISA , LALA
297		Lower Big Quilcene River		2730000	Y	1.8	1.55		1.55	Manual and Herbicide; Transline and Element 3A	8.5	1.35	5-Jul	CIAR, CIVU, LALA, RULA, SEJA
297		Lower Big Quilcene River		2730000	Y	3.75	3.75		3.75	Manual and Herbicide; Transline and Element 3A	6	0.1	7-Jul	CIAR, CIVU, GERO , SEJA
EDRR		Lower Big Quilcene River		2730020	N	0.1	0.01		0.01	Manual	0	0.01	5-Jul	SEJA
292	1	Lower Big Quilcene River	Falls View CG	2730200	Y	2	2		2	Manual and Herbicide; Element 3A	24	0.001	12-Jul	CIVU, GERO , HEHE, ILAQ, SEJA
292	1	Lower Big Quilcene River	Falls View CG	2730200	Y	2.2	2.2		2.2	Manual and Herbicide; Transline and Element 3A	54	0.01	12-Jul	GERO , HYPE, ILAQ, RUAR, SEJA
285	1	Lower Big Quilcene River	Quilcene office compound	2730300	Y	0.5	0.5		0.5	Manual	0	0.5	12-Jul	CIAR, CIVU, CYSC, DACA, HYPE
285	1	Lower Big Quilcene River	Quilcene office compound	2730300	Y	5.5	5.5		5.5	Manual and Herbicide; Element 3A and Transline	142	0.1	14-Jul	CEDE , CIAR, CIVU, CYSC, DACA, GERO , HEHE, HYPE, ILAQ, LALA, PORE , RUAR, RULA, SEJA
291	2	Lower Big Quilcene River		2740000	Y	3.5	3.5		3.5	Herbicide; Vastlan	56	0	24-Aug	GERO

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Priority for 2017?	Acres Examined	Acres Treated	Acres Retreated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Date	Species
291	2	Lower Big Quilcene River		2740000	Y	3.6	3.6		3.6	Herbicide; Garlon 3A and Transline	106.5	0	28-Jul	GERO, LALA, SEJA
291	2	Lower Big Quilcene River		2740000	Y	2.1	1.5			Manual and Herbicide; Element 3A and Transline	132.9	0.7	27-Jul	CEDE, CIAR, CYSC, DACA, GERO, HYPE, ILAQ, LALA, RULA, SEJA
454		Upper Big Quilcene River		2740000	Y	2.2	2.2		2.2	Herbicide; Element 3A and Transline	38	0	10-Aug	CIAR, CIVU, GERO, HYPE, SEJA
454		Upper Big Quilcene River		2740000	Y	5.57	5.57		5.57	Herbicide; Transline and Vastlan	60	0	16-Aug	CIAR, CIVU, CYSC, GERO, HYPE, LALA, SEJA
766	1	Upper Big Quilcene River	Sink Lake	2760000	Y	3.5	2.5			Herbicide; Polaris	3.5	0	10-Aug	CIAR, PHAR
194	1A	Little Quilcene River	Bon Jon Quarry	2800000	N	1.2	0.5			Manual and Herbicide; Transline	0.6	0.1	6-Jul	CIVU, LALA, SEJA
195	1	Little Quilcene River		2800010	Y	4.8	4.8			Herbicide; Element 3A and Aqua Neat	72.3	0	6-Jul	CIAR, CIVU, GERO, ILAQ, RUAR, RULA, SEJA
101	1A	Middle Dungeness River	Lost Pit (aka Canine Pit)	2800130	Y	2	0.5			Herbicide; Element 3A and Transline	5.3	0	6-Jul	CIAR, CIVU, GERO, LALA, SEJA
75	1	Jimmy-come-lately Creek	Louella Work Center	2800350	Y	0.33	0.33			Herbicide; Transline	0.1	0	28-Jun	CEDE, CIVU
58	1A	Jimmy-come-lately Creek	Louella Rock pit	2800351	Y	0.5	0.5			Herbicide; Transline	1	0	28-Jun	CEDE, CIVU, LALA
65	1	Jimmy-come-lately Creek		2800351	Y	2.4	2.4			Herbicide; Transline	0.66	0	28-Jun	CEDE, CIVU
78	2	Jimmy-come-lately Creek		2840000	N	1.2	0		1.2	Manual	0	1.2	9-Sep	CIVU, SEJA
80	1	Jimmy-come-lately Creek		2840034	Y	3.4	3.4			Herbicide; Element 3A and Transline	21.6	0	30-Jun	CIAR, CIVU, GERO
EDRR		Jimmy-come-lately Creek		2840037	Y	2.2	2.2			Herbicide; Element 3A and Transline	8	0	30-Jun	CEDE, CIAR, CIVU, RUAR, SEJA
57	1A	Jimmy-come-lately Creek	Coho Pit	2840080	Y	1.9	0.8			Herbicide; Element 3A and Transline	2.6	0	6-Jul	CIAR, CIVU, SEJA
62	1A	Jimmy-come-lately Creek	Wolf Quarry 2	2840120	N	0.6	0.1			Herbicide; Element 3A and Transline	5.3	0	30-Jun	GERO, RUAR, SEJA
843	S	Jimmy-come-lately Creek		2840130	N	1.21								None seen
845	S	Snow Creek/Salmon River		2845000	N	6.7			6.7	Survey Only	0	0	11-Jul	CIAR, CIVU, GERO, SEJA
845	S	Snow Creek/Salmon River		2845000	Y	1.5	0.1			Manual and Herbicide; Transline and Vastlan	0.5	1.5	9-Sep	CIAR, CIVU, SEJA
850	S	Snow Creek/Salmon River		2845040	Y	0.4				Survey Only	0	0	11-Jul	GERO
147	2	Snow Creek/Salmon River		2845070	Y	1.2	1.2			Manual	0	1.2	19-Sep	CEDE, CIAR, CIVU, CYSC, GERO, SEJA
61	1	Jimmy-come-lately Creek	2845073 spur pit	2845073	Y	1	1		1	Herbicide; Vastlan	4	0	9-Sep	CEDE, CYSC, SEJA
148	2	Snow Creek/Salmon River		2845073	Y	1.6	1		1	Manual and Herbicide; Vastlan and Transline	4.6	0.6	9-Sep	CIVU, CYSC, GERO, SEJA

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Priority for 2017?	Acres Examined	Acres Treated	Acres Retreated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Date	Species
148	2	Snow Creek/Salmon River		2845073	Y	0.3	0.3			Manual	0	0.3	19-Sep	CIVU, SEJA
848	S	Snow Creek/Salmon River		2845090	Y	0.6				Survey Only	0	0	11-Jul	CIVU, GERO, SEJA
847	S	Snow Creek/Salmon River		2845120	Y	1.9				Survey Only	0	0	11-Jul	CIAR, CIVU, GERO, HYPE, SEJA
846	S	Snow Creek/Salmon River		2845150	N	0.12				Survey Only	0	0	11-Jul	CYSC, LALA, SEJA
844	S	Jimmy-come-lately Creek		2845200	N	0.25				Survey Only	0	0	11-Jul	CIAR, SEJA
84		Jimmy-come-lately Creek		2850000	Y	1.7	1.7			Manual	0	1.7	19-Sep	CIVU, CYSC, GERO, SEJA
528	1	Jimmy-come-lately Creek		2850090	Y	2.4	0.7		0.7	Herbicide; Element 3A and Transline	12.6	0	30-Jun	CIAR, CIVU, GERO
528	1	Jimmy-come-lately Creek		2850090	Y	1.5		0.75		Manual and Herbicide; Vastlan	2.66	0.35	9-Sep	CIVU, GERO, SEJA
849	S	Snow Creek/Salmon River		2852150	Y	1.6				Survey Only	0	0	11-Jul	CIVU, CYSC, GERO, RUAR, SEJA
63	1	Jimmy-come-lately Creek		2855000	Y	1.1	1.1		1.1	Herbicide; Element 3A	60	0	28-Jun	CIAR, CIVU, GERO, PORE, SEJA
63	1	Jimmy-come-lately Creek		2855000	Y	4.3	4.2		4.2	Herbicide; Element 3A and Transline	40.5	0	29-Jun	CIAR, CIVU, GERO, SEJA
74	2	Jimmy-come-lately Creek		2855032	N	1.6	1.6			Manual	0	1.6	29-Jun	CIVU, SEJA
60	1A	Jimmy-come-lately Creek	Raccoon Pit	2855070	N	1.5	0.3		0.3	Herbicide; Element 3A	4	0	29-Jun	CIAR, CIVU, CYSC, GERO, LALA, SEJA
64	1	Jimmy-come-lately Creek		2855070	Y	2.9	2.9		2.9	Herbicide; Element 3A and Transline	35.5	0	29-Jun	CIAR, CYSC, GERO, LALA, RUAR, SEJA
66	2	Jimmy-come-lately Creek		2855100	Y	1.1	0.1		0.1	Herbicide; Element 3A and Transline	5.5	0	29-Jun	CIVU, GERO, SEJA
19	1	Canyon Creek /Pats Creek	Lower Caraco Quarry	2870000	Y	0.5	0.5			Herbicide; Element 3A and Transline	15.2	0	27-Jun	CIAR, CIVU, CYSC, GERO
21	1	Canyon Creek /Pats Creek	Upper Caraco Quarry	2870000	N	1.5	1.5			Herbicide, Transline and Vastlan	0.2	0	9-Aug	CIAR, GERO
24	1	Canyon Creek /Pats Creek		2870000	Y	0.1	0.1			Herbicide, Transline and Vastlan	6	0	11-Aug	GERO
32	1A	Canyon Creek /Pats Creek	unnamed gravel pit	2870000	Y	2	2		2	Herbicide, Transline and Vastlan	21	0	11-Aug	CEDE, CIAR, CIVU, CYSC, DIFU, GERO, HYPE, LALA, PORE, RUAR, RULA, SEJA
19	1	Canyon Creek /Pats Creek	Lower Caraco Quarry	2870000		0.5		0.05	0.5	Herbicide; Transline	0.1	0	29-Aug	CEJA, CIAR, CIVU
11	2	Canyon Creek /Pats Creek		2870050	Y	5.6	1.9		1.9	Herbicide; Element 3A and Transline	14.5	0	27-Jun	CIAR, CIVU, GERO, LALA
11	2	Canyon Creek /Pats Creek		2870050	Y	5.6	0	0.1		Manual and Herbicide; Transline and Vastlan	0.5	5.6	29-Aug	CIAR, CIVU
17	2	Canyon Creek /Pats Creek		2870058	Y	0.8	0.8			Herbicide; Transline and Vastlan	3.2	0	29-Aug	GERO, CIVU, CIAR
10	1	Canyon Creek /Pats Creek	Cranberry Bog	2870059	Y	2	2			Herbicide; Polaris and Vastlan	52	0	29-Aug	CIAR, CIVU, GERO, PHAR

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Priority for 2017?	Acres Examined	Acres Treated	Acres Retreated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Date	Species
18	2	Canyon Creek /Pats Creek		2870059	Y	1.3	1.3			Herbicide; Transline and Vastlan	4.6	0	29-Aug	CIAR, CIVU, CYSC, GERO
36		Lower Gray Wolf River		2870150	Y	0.5	0.5		0.5	Herbicide; Transline	4	0	11-Aug	CIAR, CIVU, LALA, SEJA
586	1A	Lower Gray Wolf River	Armpit quarry	2870150	N	0.6	0.6		0.6	Herbicide; Transline and Vastlan	24	0	11-Aug	CIVU, LALA
5	1A	Canyon Creek /Pats Creek	Canyon Pit	2875000	Y	3.8	3.8		3.8	Herbicide; Polaris and Transline	6.3	0	20-Jun	CEDE , CIAR
5	1A	Canyon Creek /Pats Creek	Canyon Pit	2875000	Y	3.8		3.8		Herbicide; Polaris and Transline	3.6	0	1-Sep	CEDE
25	2	Canyon Creek /Pats Creek		2875000	Y	0.6	0.6		0.6	Manual	0	0.6	21-Jun	CIVU, CEDE
25	2	Canyon Creek /Pats Creek		2875000	N	3.7	3.7		3.7	Manual and Herbicide; Transline	0	3.7	20-Jun	CEDE , CIAR, CIVU, CYSC, DIFU , GERO , ILAQ, LALA
93		Lower Gray Wolf River		2875000	N	1		0.1		Manual and Herbicide; Transline	1	1	1-Sep	CEDE , CIVU, SEJA
93		Lower Gray Wolf River		2875000	N	0.3	0.3	0		Manual	0	0.3	21-Jun	CIVU
26	2	Canyon Creek /Pats Creek		2878000	N	0.25	0.25		0.25	Herbicide; Transline and Vastlan	10	0	11-Aug	CIAR, CIVU, LALA
840	1	Canyon Creek /Pats Creek	Slab Camp / Deer Ridge TH	2878000	Y	3	3		3	Manual	0	3	21-Jun	CIVU, COMA
615	1	Canyon Creek /Pats Creek		2878050	N	0.5	0.5		0.5	Manual	0	0.5	22-Jun	CIVU
39	2	Canyon Creek /Pats Creek		2878080	N	0.75	0.75		0.75	Manual	0	0.75	22-Jun	CIVU, CYSC, LALA
29	1	Canyon Creek /Pats Creek		2878100	N	1.6	1.6		1.6	Herbicide; Transline	12	0	21-Jun	CIAR, CIVU, LALA, SEJA
29	1	Canyon Creek /Pats Creek		2878100	N	3	3			Herbicide; Transline	6	0	22-Jun	CIAR, CIVU, LALA, SEJA
607	2	Canyon Creek /Pats Creek		2878101	N	0.33	0.33			Manual and Herbicide; Polaris and Transline	1.1	0.001	21-Jun	CIVU, LALA
603	2	Canyon Creek /Pats Creek		2878102	N	0.66	0.66			Manual and Herbicide; Transline	0.7	0.01	21-Jun	CIVU, LALA
604	2	Canyon Creek /Pats Creek		2878108	N	1	1		1	Herbicide; Transline	0.7	0	21-Jun	LALA
605	2	Canyon Creek /Pats Creek		2878109	N	0.5	0.5		0.5	Manual and Herbicide; Transline	2	0.01	21-Jun	CIVU, LALA
42	2	Canyon Creek /Pats Creek		2878120	N	2.5	1.25		1.25	Manual and Herbicide; Transline	2.3	1.25	22-Jun	CIVU, CYSC, GERO , LALA
20	1A	Canyon Creek /Pats Creek	Ned Hill Quarry	2878123	Y	2.5	2.5		2.5	Herbicide; Element 3A and Transline	12.3	0	22-Jun	CIVU, CYSC, LALA
602	2	Canyon Creek /Pats Creek		2878123	N	0.17	0.17			Herbicide; Transline	0.33	0	21-Jun	CIAR, CIVU, CYSC, LALA
94	1	Lower Gray Wolf River	Dungeness Forks CG	2880050	Y	7.5	7.5		7.5	Herbicide; Polaris and Vastlan	118	0	30-Aug	GERO
94	1	Lower Gray Wolf River	Dungeness Forks CG	2880050	Y	7	5.8			Herbicide; Vastlan	55	0	28-Sep	GERO
165	1A	Upper Sol Duc River	Bonidu Pit	2900000	Y	5.5	0.5			Herbicide; Element 3A	6	0	20-Jul	GERO , LALA
165	1A	Upper Sol Duc River	Bonidu Pit	2900000	Y	5.5	5.5			Herbicide; Element 3A and Transline	57.4	0	19-Jul	CIVU, CYSC, GERO , HYPE, RUAR, SEJA

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Priority for 2017?	Acres Examined	Acres Treated	Acres Retreated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Date	Species
165	1A	Upper Sol Duc River	Bonidu Pit	2900000	Y	4.5	4.5			Herbicide; Transline and Vastlan	18.7	0	2-Aug	CIVU, CYSC, GERO , HYPE
174	2	Upper Sol Duc River		2900000	N	0.67	0.67			Manual and Herbicide; Transline and Vastlan	16	0.01	2-Aug	HYPE, GERO , SEJA
811	1A	North Fork Calawah River		2900800	Y	7.7	7.7			Herbicide; Vastlan and Transline	9.6	0	22-Aug	CIVU, CYSC, HYPE, LALA, RUAR, RULA, SEJA
166	1	Upper Sol Duc River	Klahowya CG	2900990	Y	5	2		2	Manual	0	2	13-Jun	GERO
140	1A	North Fork Calawah River		2923000	Y	5	2.5		H	Herbicide; Transline, Polaris, and Vastlan	27.3	0	22-Sep	CYSC, GERO , HYPE, LALA, PHAR, SEJA
140	1A	North Fork Calawah River		2923000	Y	2.9	0.71			Herbicide; Vastlan and Transline	20	0	21-Sep	CYSC, GERO , LALA
133	1A	North Fork Calawah River	Grindstone Pit	2923070	Y	2.5	2.5		2..5	Herbicide; Polaris	0.3	0	17-Aug	CYSC, HYPE, LALA
142	1A	North Fork Calawah River		2923070	Y	4.1	4.1			Manual and Herbicide; Polaris and Vastlan	18.3	4.1	17-Aug	CIVU, CYSC, SEJA
637	2	Middle Sol Duc River		2923070	N	1.43	0.01			Manual and Herbicide; Polaris and Vastlan	0.7	1.43	17-Aug	CIVU, CYSC
127	1A	Middle Sol Duc River		2923090	N	2.3	0			Survey Only	0	0	18-Aug	None seen
121	1A	Middle Sol Duc River		2923100	N	1	0.25			Manual	0	0.25	22-Sep	CYSC
168	1A	Upper Sol Duc River	Tom Creek Pit	2931000	N	5	5			Herbicide; Vastlan and Transline	0.5	0	18-Aug	CIVU, HYPE, TAVU
49	2	East Twin River		3040000	Y	7.55	7.55		7.55	Herbicide; Garlon 3A and Vastlan	108	0	23-Aug	CIVU, CYSC, GERO , SEJA
49	2	East Twin River		3040000	Y	12	12		12	Manual	0	0.12	23-Jun	CIAR, CIVU, CYSC, GERO , SEJA
119	2	Middle Sol Duc River		3040000	Y	2.6	2.6		2.6	Herbicide; Vastlan	73	0	23-Aug	GERO
119	2	Middle Sol Duc River		3040000	Y	7	7		7	Herbicide; Element 3A and Vastlan	173	0	24-Aug	CIAR, CIVU, CYSC, GERO , LALA, SEJA
119	2	Middle Sol Duc River		3040000	N	14.5	10		10	Manual	73	10	25-Aug	CYSC
119	2	Middle Sol Duc River		3040000	N	14.5	0	0.1		Manual	0	0.1	20-Sep	CIVU, CYSC
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	0.5	0.5		0.5	Herbicide; Vastlan	4	0	1-Aug	GERO
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	0.75	0.75		0.75	Herbicide; Polaris	5.3	0	26-Jul	GERO , POBO
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	1	1		1	Herbicide; Polaris	3.5	0	4-Aug	GERO , POBO
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	1	1		1	Herbicide; Vastlan	4	0	28-Jul	GERO
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	1	1		1	Herbicide; Vastlan	29	0	2-Aug	GERO
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	1	1		1	Herbicide; Polaris	3.5	0	4-Aug	GERO , POBO
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	1	1		1	Herbicide; Polaris and Vastlan	16.3	0	24-Aug	AEOP , GERO , VIMA
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	4	4		4	Manual and Herbicide; Transline and Vastlan	25.3	0.01	18-Aug	CIVU, GERO , LALA, POBO
118	1	Middle Sol Duc River	Snider Work Center	3040800	Y	7	7		7	Manual and Herbicide; Garlon 3A, Transline, and Vastlan	170.3	1	25-Aug	AEOP , CIAR, CIVU, COAR, CYSC, GERO , HYPE, ILAQ, LALA, POBO , RUAR, SEJA

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Priority for 2017?	Acres Examined	Acres Treated	Acres Retreated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Date	Species
50	2	East Twin River		3068000	N	3.2	3.2		3.2	Manual	0	3.2	23-Jun	CEDE, CIVU
173	1A	Upper Sol Duc River	Littleton Horse Camp gravel pit	3071000	N	2.5	0.02			Herbicide; Vastlan	0.4	0	22-Sep	LALA, RUAR, RULA
181	2	Upper Sol Duc River		3071000	Y	1	0.5			Manual and Herbicide; Vastlan	0.6	0.25	22-Sep	CYSC, GERO, LALA, RUAR
612	1A	Upper Sol Duc River	Mt. Muller TH gravel pile	3071000	N	0.75	0.75			Manual and Herbicide; Transline	0.5	0	21-Jul	CIVU, HYPE, LALA, RUAR
TOTALS:						342.03	244.68	6.4	157.83		2914.25	50.754		

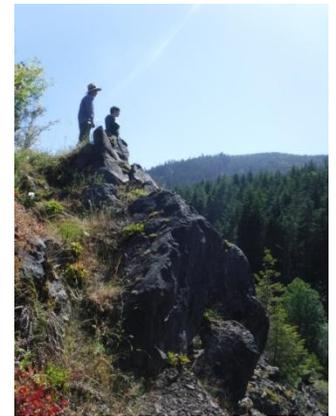
Untreated Priority Sites				
14	1	Canyon Creek /Pats Creek		2870053
82	1	Jimmy-come-lately Creek		2840036
99	1	McDonald Creek/Siebert Creek	Pat's Prairie	2877000
675	1	Middle Dungeness River		2800250
697	1	Canyon Creek /Pats Creek	Juniper Meadow	2875070
768	1	Lower Dosewallips River	Lower Dosewallips River Riparian Area	2610000
120	1A	Middle Sol Duc River		2065-This is a non-Forest Service site
137	1A	North Fork Calawah River		2922000
169	1A	Upper Sol Duc River		2065-this is a non-Forest Service site
613	1A	Upper Sol Duc River		2929000
893	1A	South Fork Calawah	Mystery Pit	2900200

APPENDIX B: ROCK SOURCE SURVEYS AND TREATMENT

20 FS rock sources were inspected and treated. One that was identified as a priority by 2014 crew could not be found this year; we will locate the documentation to assist us in finding it next year. In general, sites that have been treated for several years are in very good condition. A rock source inventory provided by the FS in 2008 indicates there are over 90 rock sources in the Olympic within Jefferson and Clallam counties; many appear to no longer exist. As the Forest Service prepares for future harvest and road building additional surveys to locate rock sources and confirm status will allow us to prepare these sources for use when needed. Dates, treated species, and suitability are given here. Rock Source Index numbers and codes, when available, have been added because they are helpful when locating sites.

We made a concerted effort to survey most prominent private quarries in Clallam County (8) as well as one in Jefferson County. These are shown after the FS-owned sources. We are now getting new and repeat requests to perform this service. We have also stepped up Clallam County owned rock source surveys (9) and found most inadequate, which we hope to begin to rectify in 2017. Importantly, we have a good relationship with state owned rock sources (5 surveyed this year), which were treated successfully to meet FS standards. We hope to have current surveys of most quarries that might be requested for use by contractors for Forest Service road projects.

Some color coding has been added to indicate at a glance, Forest Service rock source standard, and thus suitability, each rock source achieved this year. **Green** shading indicates currently suitable, **yellow** indicates some caution should be used, **red** indicates currently not suitable. **Grey** indicates rock source indicated on the work list but slated for inspection by a non-weed board crew. Orange indicates unknown.



The crew surveys for weeds in Raccoon Pit

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
Armpit Quarry		28701500	2870150	586	2	CIVU, LALA	9/7/16	Chemical meets standard B; treat LALA along road.	1
Bockman Pit	76	29020009	2902	588	1	CYSC, SEJA	8/30/16	Chemical meets standard B	0.5
Bonidu Pit	8	290000037	2900	165	1A	CIVU, CYSC, GERO , HYPE, RUAR, SEJA	7/19/16 7/20/16 8/2/16	Chemical meets standard C- GERO diminished, not in main body.	5.5
Bon Jon Quarry		260000004	2600	194	1A	CIVU, LALA, SEJA	7/6/16	Chemical Very clean	0.6
Calawah Pit	133	290001500	2900	152	1A	CYSC, SEJA	7/18/16 9/2/16	Chemical-FS crew-results not available	8
Canyon Pit	139	287500001.4	2875	5	2	CEDE , CIAR	6/20/16 9/1/16	Chemical not suitable	3.8
Coho Pit			2840080	57	1A	CIAR, CIVU, SEJA	7/6/16	Chemical Meets standard B; two thick patches of thistles, otherwise clean	0.8
Grindstone Pit	122	292307000.1	2923070	133	1A	CYSC, HYPE, LALA, PHAR	8/17/16	Chemical Looks very good	2.5
Littleton Horsecamp stockpile		307100000.0	3017000.3	173	1A	CYSC, HYPE, LALA	9/10/16	Chemical meets standard A; minimal GERO and LALA along road	0.5
Loop Quarry		284507300.9	2845073	61	1A	CEDE , CYSC, SEJA	9/19/16	Chemical	1

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
aka-spur (unnamed) Pit								CEDE and SEJA are almost gone but some CYSC still present, significant SEJA still on road.	
Louella Rock Pit		280036000.4	2800351	58	1A	CEDE , CIVU, LALA	6/28/16	Chemical CEDE is back but sparse	0.5
Lost Pit (aka Canine Pit)			2800130.6	101	1A	CIAR, CIVU, GERO , LALA, SEJA	7/6/16	Chemical Meets requirements- still some GERO in back corner in woods	0.5
Lower Caraco Quarry	144	287000001.0	2870000	19	1A	CEDE , CIAR, CIVU, CYSC, GERO	6/27/16 8/28/16	Chemical not suitable largely because of GERO and CEDE	.5
Mt Mueller TH Gravel Pile		307100000.3	3071000.3	612	1A	CIVU, HYPE, LALA, RUAR	7/21/16	Chemical meets standard A; trace amounts of weeds only	0.75
Mystery Pit		2900200.?			1A	POBO		Searched for but could not find. Will locate previous documentation	
Ned Hill Quarry (aka Sandstone Quarry)	138	287812500.5	2878125	20	1A	CIVU, CYSC, LALA	6/22/16	Chemical meets standard B Few weeds present	2.5
Raccoon Pit		285507001.3	2855070	60	1A	CIAR, CIVU, CYSC, GERO , LALA, SEJA	6/29/16	Chemical not suitable; GERO is still present, CEDE not seen, some CEST on road	0.3
Tom Creek Pit	51	293100000.2	2931	168	1A	CIVU, HYPE, TAVU	8/18/16	Chemical meets requirements-no CEDE or PHAR found	5
Unnamed Gravel Pit			Junction 2878 X 2870	32	1A	CEDE , CIAR, CIVU, CYSC, DIFU , GERO , HYPE, LALA, PORE , RUAR, RULA, SEJA	8/11/16	Chemical Not suitable-improving. Almost there.	.75
Upper Caraco Pit			2870000	21	1A	CIAR, GERO	8/9/16	Chemical-trace amounts of weeds only	1.5
Wolf Quarry 2		28401200.3	2840120	62	1A	GERO , RUAR, SEJA	6/30/16	Chemical Meets requirements-GERO down bank and not in pit	.1
Private Quarries									
Haller Quarry			2 m south on River Rd, on gate on left			BUDA , DIFU , RUAR	9/20/16	Overall, quarry is very clean and in great shape. Most weeds that are found are around perimeter. Teasel was treated and far less than 2015	20
Hecklesville Quarry		Private	44 Heckle Rd			CASE, CYSC, DIPU, LALA	9/13/16	Widespread, low density LALA, scattered CYSC. Treated, but not re-inspected yet.	1

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
Hillcar-Fletcher Quarry		Private	US 110			CIVU, CYSC, HYPE, RUAR	5/9/16	Excellent condition- have checked this quarry for yrs- owner very co-operative	10
Lakeside Place Rd Quarry			Place Rd, on right			CIVU, CYSC, DIPU, HYPE, LALA, SEJA ,	9/20/16	Chemical-might be able to isolate from considerable broom in back of pit	2
Mystery Quillayute Pit		Private, possibly WSDOT	Quillayute Rd			CYSC, PHAR, SEJA	9/13/16	Floor of pit is pretty clean. Edges have scattered SEJA ; CYSC is widespread around perimeter of pit. Isolated patches of PHAR	
Moriarity Rd Pit		Private; unknown	Moriarity Rd			CYSC, HYPE, PHAR, RUAR, RULA	9/13/16	RUAR, RULA, CYSC are all widespread throughout pit. HYPE is scattered, with a few isolated patches of PHAR	
Penny Creek Pit			Penny Creek			BUDA , CYSC, GERO , IRPS LALA, POBO ,RUAR,PHAR SEJA , TAVU ,		Chemical Owner hired contractor to spray. Site was rechecked and looked much improved.	10
Rayonier Pit			Bogachiel Way			CYSC, RUAR, RULA	9/13/16	Meets minimum requirements. CYSC is widespread around rim of pit and scattered on pit floor. RUAR/RULA scattered intermittently around edges.	
Snider Quarry		Private	252 E Snider Rd.			CYSC	6/16/16	Sprayed by owner; excellent condition	10
County Quarries									
Blynn Pit			Woods Rd			BUDA , CIAR, CIVU, COAR, CYSC, HYPE, LALA, PHAR POBO , SEJA	9/20/16	Not suitable	
Herrick Pit			Herrick Rd.			CEJA , CYSC, GERO ,	7/20/14	Infested with priority 1 and 2 weeds. Not suitable	

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
Hogback Pit			Off Cays Rd on Hogback			CIVU, CYSC	9/20/16	Meets requirements. Small pit with few weeds.	
Kirner Pit			Kirner Rd			CEST, COMA, CYSC, DIFU, POBO, RUAR	9/20/16	Not suitable	
McInnes Pit			Vistas Dr. north of Sequim			CIAR, CIVU, CEDE, CEST, COMA, PHAR	9/20/16	Pit is terribly infested with many priority 1 and 2 weeds. Needs significant treatment.	
Mt Pleasant Pit			Mt Pleasant Rd.	2016		COMA, CYSC, LUAR POBO, RUAR,	9/20/16	Infested with several priority 1 and 2 species. May be able to separate from main body.	
Place Rd Pit			Place Rd			CYSC, DIFU, SOPH,	9/20/16	Teasel is highest concern. Mainly used for spoils.	
Ranger Pit			Place Rd			CEJA, CYSC, DIFU LALA, PHAR, POBO	9/20/16	Infested with several priority 1 and 2 species. Not suitable at this time.	
Whitcomb-Dimmel Pit			Whitcomb-Dimmel Rd			CIAR, CIVU, CYSC, POBO, RUAR, SEJA	9/13/16	Not suitable	
State Quarry									
Alpaca Quarry			Follow FS Rd 2850, at fork, take left instead of following to FS 2855			BUDA, CIAR, CYSC, GERO, RUAR	5/9/16	Meets requirements; rock prepared and stockpiled is free of weeds. Weeds are present on roads leading to this pit	
Fitzgerald Pit			Norris Rd			CIAR, CYSC, GERO, HIAR	5/9/16	Quarry looks fine, but the roads leading to it are infested	
Jimmy-Come-Lately Pit		DNR	On FS Rd 2850, at fork, take left instead of following to FS 2855			BUDA, CIAR, CYSC, GERO, RUAR	5/9/16	Meets requirements; weeds indicated are just outside of pit	
Loop Pit		DNR	Hwy 101 between Forks and Beaver			CYSC, RUAR, SEJA	9/13/16	Not suitable: widespread weeds	
Place Pit		DNR	Place Rd			CYSC	5/9/16	Not suitable: CYSC is too difficult to isolate	

APPENDIX C: ROADS SURVEYED OR TREATED

The following table shows where survey and treatment work occurred and what species were reported since the initiation of the project in 2002. To make room for new data while preserving this important program history, accomplishments on each road have been subsequently grouped and condensed into blocks, based on data consistency or similar focus, (i.e., survey, vs., control, herbicide allowed or not). Individual year activity can be found in prior reports.

ROAD	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2071								1	5	GERO LALA POCU RUDI									
2760											0.5	0.6	CIAR CYSC SEJA						
2100000	8	50		SEJA															
2190000	14				10														
2190170	2																		
2190200	4		0	POCU COTO POCU	38	1.7	CIVU CYSC DIPU POBO SEJA												
2190220		251							11.7	GERO HYPE SEJA									
2500000	4				19	3.75	CIAR CYSC GERO POBO SEJA		10.8	CIAR CIVU CYSC GERO HYPE LALA SEJA	2.5	1.6	CIAR CIVU CYSC GERO HYPE POBO SEJA						
2503000								3.7											
2510000	40	53	1	CEDE CYSC SEJA	41	19.5	CIAR CIVU GERO HYPE RUDI RULA SEJA	42			32.1	14.4	CIAR CIVU DACA DIPU GERO HYPE RULA PHAR SEJA	6.6	9.3	CIAR CIVU GERO HYPE SEJA	5.75	13.5	GERO SEJA
2510012	1							1.7	0.5	GERO HYPE, SEJA									
2510060									29.5	CIVU GERO	0.2	0.21	HYPE SEJA				0.1	0	
2510065	1							1			0.4	4.3	CIAR CIVU GERO HYPE				0.2	1.5	CIAR CIVU GERO HYPE
2510070	1	1600	1	GERO	1	6.5	GERO	1.3	1	GERO SEJA	0	19.3	GERO HYPE RUAR SEJA		8.2	CIAR GERO SEJA			
2527000	1.2								59.6	CIAR CIVU CYSC GERO HYPE LALA POSA SEJA									
2530000	5.7							4.4			20.2	4.83	CIVU CYSC GERO HYPE SEJA						

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2610000	20	6570	0	CEDE CIAR CIVU CYSC GERO RULA SEJA	32	17.5	CIAR CYSC GERO POBO SEJA	8.4	0.42	CYSC	42.1 5	77.7 9	CIVU CIAR GERO HYPE POBO SEJA	6.4	31. 08	CIVU CYSC GERO LALA POBO SEJA	1.6	2.55	CIAR GERO HYPE RUAR SEJA
2610010								4		GERO	1.8	43.6 7	GERO HYPE ILAQ SEJA	1.5	0.7 5	COAR GERO SEJA			
2610012	0.85	397	0	GERO				0.5											
2610040	1	3000		SEJA	1	2	CIAR CYSC GERO SEJA	1	4.1	CIVU CYSC GERO HYPE LALA SEJA				1	3	CIAR GERO SEJA	0.4	3.5	GERO HYPE SEJA
2610050					1	1	CIAR CYSC GERO SEJA			CIAR CIVU CYSC GERO HYPE SEJA									
2610200	11	3676	0	CYSC GERO HEHE RUDI SEJA	4	5	CYSC SEJA	1.2			0	1.75	GERO SEJA			CYSC GERO HEHE HYPE LALA RUAR SEJA			
2620000	35	3946 4		CIVU CYSC GERO RULA SEJA	12			8.6	2.6	CIAR CIVU CYSC GERO HYPE SEJA	11.6	4.2	CIAR CIVU CYSC DIPU GERO HYPE SEJA	10.7	15. 6	CIAR CIVU CYSC GERO HYPE RUAR SEJA	1.7	1.9	CIAR CIVU GERO HYPE ILAQ PORE RUAR RULA SEJA
2620030	9.7								1	CIAR CIVU CYSC HYPE SEJA									
2620035								1.2											
2620036								0.6	3.8	CIAR CIVU HYPE SEJA									
2620043	0.7								0.3	HYPE SEJA									
2620050	2.8							4						2.2	3.2	CIAR CYSC HYPE SEJA			
2620051	0.89							1.6	1	CIVU HYPE SEJA									
2620053	1.3								3.1	CIAR CIVU CYSC HYPE SEJA									
2620056	0.76	24		CEDE				1.6	6.61	CIAR CIVU HYPE SEJA	0.8	1	SEJA	2.8	1.2	CEDE CIAR CYSC HYPE SEJA			
2620060								2.8											
2650000	15	2		ARMI				2.7			7.5	0	CIAR HYPE SEJA				1.2	2.14	CIAR CIVU GERO HYPE ILAQ PORE RUAR RULA SEJA

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2650050	0.9								39.2	CEDE CIAR CIVU CYSC GERO HYPE LALA POSA SEJA									
2650090	1.68								46.6	AEPO CASE CIAR CIVU CYSC DACA GERO HIAU HYPE ILAQ LAGA LALA SEJA SYOF VIMI	1.7	0	SEJA						
2700000	37	4201		SEJA TAVU	21	15.1	CEDE CIAR CIVU CYSC GERO LALA SEJA	26.9	0.73	GERO HYPE LALA SEJA		11.9	CIAR CIVU CYSCGERO HYPE PHAR POBO SEJA	2.6	6.3	CIAR CYSC GERO HYPE LALA SEJA VIMI	1.6	1.45	CIAR CIVU CYSCGERO HYPE LALA RUAR SEJA
2700040					4	11.2	BORA, CIVU CYSC GERO HEHE HIAU ILAQ LALA LAGA PHAR PRLA SEJA	15.1			6.4	30.7	AEPO CASE CIAR CIVU GERO HIAU HYPE ILAQ LALA LALA PHAR SEJA SYOF VIMI	6.1	19.6	ARMI AEPO CIAR CIVU CYSC GERO HEHE HYPE LALA PRLA SEJA	0.4	2.2	CIAR CIVU GERO SEJA
2700080					1	2	CIAR CIVU CYSCGERO LALA SEJA	1.6			0.6	2.8	CIAR GERO HYPE LALA SEJA	0.3	1.4	CIVU GERO HYPE SEJA			
2700090	1.99																		
2700100	4.6								0.3	SEJA									
2700140	1.2																		
2700280																	0.6	1	CEDE CIAR CIVU HISA HYPE LALA SEJA
2700281																	0.4	0.5	CIAR HISA LALA
2700330	1							1	4	GERO HYPE ILAQ SEJA									
2730000	15	1464 00		CYSC SEJA TAVU															
2730011	1	51		GERO				1.9	0.1	CIVU SEJA									
2730020	1								11.2	CIVU GERO HYPE									
2730100	0.4	35		SEJA				0.1	8.73	CYSC GERO HEHE HYPE LALA PORE RULA SEJA									

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2730200	5	1962 1		CIVU GERO SEJA	2	4	GERO	1.6	8	CEDE CIAR CIVU DIPU GERO HYPE LALA SEJA	0	5.5	CIVU CIAR GERO HYPE ILAQ SEJA				0.1	0.01	SEJA
2730300	1	934		CYSC	2	8.3	CIAR CYSC GERO LALA PORE RUDI SEJA	1.2			0	27.5	CIAR CIVU CYSCGERO PORE RUAR SEJA				2.6	5.55	CIAR CIVU GERO LALA RULA SEJA
2740000	21				25	3.6	CEBI CEDE CIAR CIVU CYSC SEJA	2.4						2.7	15.6	CIAR GERO HYPE LALA SEJA	4.8	17.97	CEDE CIAR CIVU CYSC DACAGERO HYPE ILAQ LALA RULA SEJA
2740060	9	33	0	CYSC	9	1	CEDE CIAR CIVU CYSC SEJA												
2740070	4				3	1	CEDE CIAR CIVU CYSC SEJA												
2740072	1	200	0	CEBI	1	1	CEDE CIAR CIVU CYSC SEJA												
2740075	0.5				0.5	1	CEDE CIAR CIVU CYSC SEJA		18	CIAR CIVU HYPE LALA SEJA									
2740110					1.5	1	CEDE CIAR CIVU CYSC SEJA												
2750000	5				5	8	CIAR CIVU CYSC LALA SEJA	5											
2750020	1.5								4	CIAR CIVU CYSC DIPU HYPE LALA PHAR SEJA									
2760000									24.8	CIAR CIVU GERO HYPE SEJA	0	2	PHAR						
2800000	89	7032 1	1	CEDE CIAR CIVU CYSC GERO SEJA	87	88.8	CEBI CEDE CIAR CIVU CYSC DIPU GERO ILAQ LALA SEJA	31.6			30.4	5.2	CEDE GERO HYPE LALA SEJA TAVU	0.5	1	CIAR GERO HYPE LALA SEJA			
2800010	1	10	0		3	6	CIAR CIVU GERO ILAQ LALA	2.5			1	8.2	CIVU CIAR GERO SEJA	1	3.2 5	GERO HYPE SEJA	0.5	4.8	CIAR CIVU GERO ILAQ RUAR RULA SEJA

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2800010	1	10	0		3	6	CIAR CIVU GERO ILAQ LALA	2.5			1	8.2	CIVU CIAR GERO SEJA	1	3.2 5	GERO HYPE SEJA	0.5	4.8	CIAR CIVU GERO ILAQ RUAR RULA SEJA
2800060	1																		
2800130					2	1.3	CEBI SEJA				0.7	3.97	CEDE CIAR CIVU CYSC GERO HYPE LALA SEJA	0.8	2.1	CEDE CEST CIAR CIVU			
2800132	1	463	0	CEBI CEDE	1						0.6	0.6	CIAR CIVU SEJA						
2800145	0.3																		
2800210	0.4																		
2800220	1.2																		
2800240	0.8																		
2800250	5	92	0	SEJA							1.1	0.04	SEJA	1.1	1	CIAR CIVU GERO SEJA			
2800260	1.2																		
2800262	0.6																		
2800270	1	310		CYSC SEJA															
2800290	1	2		CYSC SEJA				1.51		CEDE CIAR CIVU HYPE SEJA									
2800310	1	4655	0	CYSC				3.22		CEDE CIAR CIVU GERO HYPE SEJA									
2800350					3	4	CEDE CIAR CIVU	0.3			1	2	CEDE CIAR GERO LALA SEJA						
2800351					4.5	3	CEDE CYSC	2.4			1.15	4.43	CEDE CIAR CIVU HYPE	0.8	2	CEDE CIAR CIVU	0.8	2.4	CEDE CIVU
2810000	8	1019 0		CYSC SEJA				17		CEDE CIAR CIVU GERO HYPE LALA SEJA									
2810070	0.61																		
2820000	4	2274	0	SEJA	8	2	CEDE CIAR SEJA	6.25						2.5	6	CEDE CIAR CIVU GERO HYPE LALA SEJA			
2830000	10	1250		CEBI	11	0.2	SEJA												
2830030	2																		
2830032	1							5.5		CIAR CYSC GERO HYPE LEVU SEJA SYOF									

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2830032	1							5.5		CIAR CYSC GERO HYPE LEVU SEJA SYOF									
2830034	0.33							7.5		CEDE CIAR CIVU HYPE SEJA									
2840000	11	1001 0		CIAR CYSC SEJA	10			1.8	2.5	CEDE CIAR CIVU GERO SEJA	4.8			0.1	0.2 5	CIVU CYSC GERO SEJA			
2840030	3							3	0.6	CIAR, CIVU, HYPE									
2840034	2							2	1	CEDE CIAR SEJA	1.4	1	CIAR CIVU GERO				1.4	3.4	CIAR CIVU GERO
2840035								1											
2840036								3.5	7.5	CIAR CIVU CYSC GERO HYPE LALA PHAR SYOF									
2840037																	1	2.2	CEDE CIAR CIVU RUAR SEJA
2840070	4	5753		CYSC SEJA					1	CIAR CIVU LALA SEJA				1.5	5	CIAR CIVU GERO SEJA	0.6	1.2	CIVU SEJA
2840071	2	36		BOOF SEJA				3.2											
2840080	0.89	1		RULA				0.3	1.05	CIVU GERO HYPE SEJA				1.4	2	CIVU SEJA			
2840084	0.25																		
2840120	1.27							1.8			1.6	0.1	CIVU GERO SEJA						
2840130	1													1.1	0.1	CYSC	1.1	0	
2840150	1	1		SEJA															
2845000	5	1237 8	1	SEJA	10			5.4	0.9	CIAR CIVU HYPE SEJA	5.4						5.4	1.2	CIAR CIVU GERO SEJA
2845040	0.3	160		SEJA					4.19	CEDE CIAR CIVU CYSC DACA DIPU HYPE SEJA							0.3	0	GERO
2845070	6	1860		CYSC	6	4		4.6		CEDE CIAR CIVU CYSC SEJA	1.5						1.5	2.2	CEDE CIAR CIVU CYSC GERO SEJA
2845070	6	1860		CYSC	6	4		4.6		CEDE CIAR CIVU CYSC SEJA	1.5						1.5	2.2	CEDE CIAR CIVU CYSC GERO SEJA
2845073	1				1.5	2		2.8		CYSC	0.9		CIAR CIVU CYSC LALA SEJA				0.9	1.9	CIVU CYSC GERO SEJA

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2845090	1	12		CYSC SEJA													0.5	0	CIVU GERO SEJA
2845120	2	84		CYSC SEJA	2	1.9	CIVU CYSC SEJA										1.7	0	CIAR CIVU GERO HYPE SEJA
2845150	0.2							9.3	CIVU SEJA								0.2	0	CYSC LALA SEJA
2845200	0.28																0.3	0	CIAR SEJA
2850000	22	6733 4	1	CYSC GERO RULA SEJA				14.6			7.4	2.9	CIAR CIVU CYSC GERO ILAQ HYPE SEJA	0.1	3.2 5	CIVU GERO	3	1.7	CIVU CYSC GERO SEJA
2850010	3	5352	1	RULA SEJA							1.5	3.26	CIVU GERO SEJA						
2850090	1								3.2	CIVU CYSC GERO HYPE SEJA							1.1	0.7	CIAR CIVU GERO
2850093	0.1																		
2850120	3		0	CYSC				2.8											
2850124	0.2																		
2851000	8	1009 0	1	SEJA															
2851080	4	1660		CYSC SEJA TAVU					3.94	CEDE CIAR CIVU CYSC GERO HYPE SEJA									
2851090	1																		
2852000	5	4760 5	0	CEDE CIAR GERO RULA SEJA	2	1	CEDE	5.5											
2852090	10	3,362		CIAR CYSC GERO SEJA					3										
2852150	1.29	25		CYSC					3.2	CIAR CIVU CYSCGERO HYPE SEJA							1.3	0	CIVU CYSC GERO RUAR SEJA
2855000	10	5194 7	0	CEBI CEDE CIVU CYSC GERO SEJA	11	2.2	SEJA	1.3			2.8	1.7	CIAR CIVU GERO HYPE SEJA	2.6	4.9	CIAR CIVU GERO HYPE SEJA	4.6	5.4	CIAR CIVU GERO PORE SEJA
2855030	5.4	1920 0		SEJA				1.25	7.17	CEBI CIAR CIVU CYSC GERO HYPE LALA SEJA				0.4	0				
2855032	1.6	1		RULA					2	CEDE GERO HYPE SEJA				0.9	1.3	CIAR CIVU HYPE SEJA	0.9	1.6	CIVU SEJA

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2855070	5	5497	1	CEDE CIAR CYSC GERO RULA SEJA	3	5	CEBI CEDE CYSC SEJA	4.4			3	6.9	CEBI CEDE CIVA CIAR CIVU CYSC GERO HYPE LALA SEJA	1.5	1.8	CEST CIAR CIVU GERO HYPE LALA LYSC SEJA	1.5	2.9	CIAR CYSC GERO LALA RUAR SEJA
2855100	2.4							1.1						1.1	4.4	CIAR CIVU CYSCGERO HYPE SEJA	0.5	0.1	CIVU GERO SEJA
2860000	50	5400 0		CIVU GERO							3	0.1	GERO RUAR						
2860011	1	2708		GERO SEJA															
2860120	1.6																		
2870000	143	3853	3	CEDE CYSC SEJA	25 6	21.7	CEDE CIAR CIVU CYSC GERO HYPE LALA LEVU SEJA	52.3	14.9	CEDE CIAR CIVU CYSC DACA GERO HYPE LALA LEVU PHAR SEJA	16.2	15.5	CEDE CIAR CIVU DACA GERO LALA	9.15	21. 1	CEDE CIAR CIVU GERO HYPE LALA SEJA	0.1	0.1	GERO
2870030	5	78		CEDE CYSC SEJA	4	3.5	CEDE CIAR CYSC SEJA	5.6	0.3	CIAR CIVU HYPE									
2870050	16	110	1	CEDE CIAR CIVU CYSC GERO HYPE LALA SEJA	13	10.5	CIAR CIVU GERO LEVU PHAR RUDI SEJA	11.2	15.3	CEDE CIAR CIVU GERO HYPE LALA SEJA	5.6	7.2	CEDE CIAR CIVU GERO LALA PHAR SEJA	2.3	6.6	CEDE CIAR CIVU HYPE SEJA	2.6	1.9	CIAR CIVU GERO LALA
2870052								1.6	10.3	CEDE CIAR CIVU CYSC HYPE LEVU PHAR SEJA									
2870053					2	1.7	CEDE CIAR CIVU	4.7	4.75	CEDE CIAR CIVU DACA GERO HYPE LEVU SEJA TAVU	1.5	1.2	CEDE CIAR CIVU HYPE	1.5	2.2 5	CEDE CIAR CIVU CYSC			
2870053					2	1.7	CEDE CIAR CIVU	4.7	4.75	CEDE CIAR CIVU CYSC DACA GERO HYPE LEVU SEJA TAVU	1.5	1.2	CEDE CIAR CIVU HYPE	1.5	2.2 5	CEDE CIAR CIVU CYSC			
2870054					1.5	4	CEDE CIAR CIVU	2.5	3.1	CIAR CIVU CYSCGERO PHAR SEJA	0	0.7	CIAR CIVU						

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2870056	2	14	0	CEDE SEJA	3	8.9	CEDE CIAR CIVU CYSC SEJA	2.8	5.2	CIAR CIVU CYSC DACA GERO HYPE LEVU SEJA	1.2	3.635	CIAR CIVU CYSC GERO HYPE						
2870057					5	4	CIAR CIVU GERO HYPE PHAR	1.2	15.2	CIAR CIVU CYSC DACA GERO HYPE LEVU PHAR SEJA	0	1	CIAR CIVU CYSC						
2870058	3		3	CIAR GERO PHAR	8	6.5	CIAR CIVU GEROPHAR	5.55	0.1	CYSC				1	0.6	CIAR, CIVU	1	0.8	CIAR CIVU GERO
2870059	3	19529		CEDE CIAR CIVU CYSC GERO SEJA	1			1.2	0.1	CEDE SEJA	0.4	14.3	CIAR CIVU CYSC GERO HYPE PHAR	0.4	1	CIAR, CIVU CYSC GERO	0.4	1.3	CIAR CIVU CYSC GERO
2870110	0.5	729		CYSC				0.5	5.1	CIAR CIVU LALA									
2870130	1	1	0	CYSC				1											
2870150	0.5				1	3	LALA	0.7			0.5	0.2	CIVU LALA SEJA				0.1	0.5	CIAR CIVU LALA SEJA
2870230	4	38	0	CIAR CIVU HYPE SEJA	4	0.4	CIAR CIVU GERO							1.4	2.5	CIAR GERO HYPE			
2870250					1	1.5	CEBI CEDE		13	CEDE CIAR CIVU CYSC GERO HYPE LALA SEJA									
2870270	3.5		0	CIAR CIVU	3.5	3.2	CEDE CIVU HYPE SEJA		1.6	CEDE CIAR CIVU CYSC PHAR SEJA									
2875000	12	268	0	CEDE	23	10.8	CEBI CEDE CIAR CIVU LALA	17.7	0.91	CEDE CIAR GERO SEJA	13	13.11	CEDE CEJA CIAR CIVU CYSC GERO LALA RUAR SEJA	0.1	3.25	CIVU GERO	4	4.6	CEDE CIAR CIVU CYSC DIPU GERO ILAQ LALA
2875020	0.5	6		CYSC	1	0.5	CIAR CYSC POBO	1.6			1.2	0.12	CEDE CIAR CIVU POBO	0.6	1.5	CIVU CYSC GERO			
2875070	2.5				1	0.5	CIAR CYSC	3.6	15.8	CIAR CIVU CYSC HYPE LALA SEJA	1.8	0.51	CIAR CYSC SEJA						
2875090	0.1								1.8	CIAR CIVU CYSC GERO SEJA									
2877000	5				20	13.4	CEDE CIAR CIVU CYSC LALA SEJA	24.3			0	17.5	CIAR	4.2	5	CIAR CIVU GERO HYPE RUAR SEJA			
2877040	2.5				1	0.2	CEDE CIAR CIVU SEJA	2.1			2.2	2.20	CIAR CIVU CYSC GERO RUAR						

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2877050	2.65																		
2877052	0.29						1	12.6	CIAR CIVU GERO LALA SEJA										
2877100	0.5																		
2878000	4	2971	0	CYSC	20	13	CEDE CIAR CYSCGERO LALA SEJA	16	0.25	CIAR CYSC SEJA	8	24.7	AEPO CIAR GERO HYPE LALA SEJA	1.8	2.2	CIAR CIVU GERO LALA SEJA	0.1	0.25	CIAR CIVU LALA
2878050	0.6								0.25	CIAR CYSC SEJA	0.6	0.98	CEDE CIVU GEROLALA SEJA	0.6	1.5	CIAR CIVU, GERO HYPE LALA SEJA	0.6	0.5	CIVU LALA
2878060	0.5	127		CYSC	1	0.5	CIAR LALA	1	0.01	CIAR CIVU SEJA									
2878080	1.5				1	0.5	CIAR LALA	1	0.2	CIAR CIVU GEROLALA SEJA							0.75	0.75	CIVU CYSC LALA
2878085	1				1	1	CIAR CIVU GERO	1											
2878100	1.5				1	3	LALA	1.95			1.9	2.5	CIAR CIVU HYPE LALA	0.95	2.3	CIVU GERO LALA SEJA	0.5	1.6	CIAR CIVU LALA SEJA
2878101											0.1	0.36	CIVU LALA				0.1	0.33	CIVU LALA
2878102	0.4										0.4	1.45	CIVU LALA				0.4	0.66	CIVU LALA
2878104											0.2	0.02	GERO						
2878108	0.13								0.25	CEDE CIVU CYSC LALA CIVU CYSC LALA	0.1	0.20 1	CIVU CIAR CYSC LALA				0.1	1	LALA
2878109	0.27								0.25	CIVU CYSC LALA	0.25	1	LALA				0.25	0.5	CIVU LALA
2878110	1				1	1	LALA	1	2	CIAR CIVU CYSC LALA	0.9	2.9	CIVU LALA						
2878120	1	2170		CYSC	2	2	LALA	1.4	4.5	CIAR CIVU GEROHYPE LALA	2	2.4	CIVU GERO LALA	0.6	1.1	CIVU CYSC GERO LALA	1	1.25	CIVU CYSC GERO LALA
2878123	0.2				0.2			0.25	29.5	CIAR GERO LALA	0.2	1.01	CIVU CYSC LALA				0.2	0.17	CIAR CIVU CYSC LALA
2880000	17	9923	0	GERO SEJA	8	5.1	CEDE CIAR CYSC GERO SEJA	5.51	20.2	CIAR CIVU CYSC DIPU GEROHIAU HYPE HYRA LALA LEVU PHAR RULA SEJA	2.85	8.5	CIVU GERO HYPE CIAR						
2880050	0.5	2550 04	1	GERO	1.5	23	GERO	1.2	4.12	CIAR POSA RUDI RULA		31.9	CIVU GERO LALA PHAR	0	10	GERO			
2900000	72.2	6642 25	2	CIAR CYSC GERO HIAU POSA SEJA	25	8.1	CIVU CYSC GERO HIAU HYPE LALA RUDI SEJA	27			38.3	11.5	CIVU CYSC GERO HIAU HYPE PHAR SEJA TAVU				0.8	0.67	GERO HYPE SEJA

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2900015	0.1				0.7	4.5	CYSC GERO RUDI SEJA	0.1			0	0.8	CYSC GERO HYPE LALA PHAR SEJA						
2900030								3											
2900070	2.3																		
2900200	0.7	54		CYSC SEJA															
2900540	2																		
2900650	1.2							0.1	CIAR CYSC RULA										
2900700											2.8	1.8	CIVU CYSC						
2900800																	2	7.7	CIVU CYSC HYPE LALA RUAR RULA SEJA
2900810								2.6	3.1	CYSC GERO ILAQ									
2900960	0.1													0.2	1	GERO LALA SYOF			
2900990	2.4	5300		CYSC GERO	2	0.4	GERO	0.3				1.7	CIVU CYSC GERO ILAQ						
2900992					0.5	0.1	GERO												
2902000	2.91	4175	0	CYSC SEJA							9.2	1	CIAR CIVU CYSC SEJA						
2902300	0.6																		
2902375	0.8								1	CIAR CYSC GEROHYPE									
2903000	7	78		CYSC SEJA										0.4	0.5	CYSC GERO			
2912060	2.8	3		SEJA				7	20	CIAR CIVU CYSCGERO HYPE SEJA									
2918000	20	2315		CYSC SEJA	9	1.5	CYSC DIFU LEVU LALA	5.4			17.7	2.9	CIAR CIVU CYSC GERO HYPE PHAR	4.9	2.3 5	CIVU, CYSC GERO			
2918100	3				3	1	CYSC DIGI LEVU LALA	17	0.5	CIAR CIVU CYSCGERO									
2920000	6							8			6	3.5	CIVU GERO SEJA						
2920210	0.2								0.01	GERO									
2922000	13				20	4.2	GERO	2.86	4.3	CIVU CYSC HYPE LALA	2.16	1	GERO						
2922240									15.2	CIAR CIVU CYSC GEROHYPE RULA SEJA	1.1	0.50 4	CIVU LEVU SEJA						

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2922250								2.6	3	CIVU CYSC GEROSEJA	1.3	2.8	CEDE CIVU CYSC LALA SEJA						
2923000	41	1434	1	CIAR CYSC HIAR SEJA	27	4	CYSC GERO	18	0.73	CYSC SEJA							4.7	3.2	CYSCGERO HYPE LALA PHAR SEJA
2923015								2.4	1.2	CIAR CIVU CYSC GERO HYPE RULA SEJA									
2923020								1.2	1.06	CIVU CYSC PHAR									
2923060	1				3	0.15	CIAR CYSC GERO	4.6	0.02	CIAR CYSC HYPE									
2923070	5	2		SEJA	9	8.6	CIAR CIVU CYSC GERO HYPE RUDI SEJA	6			5.2	2.3	CIVU CYSC HYPE LALA PHAR				5.2	5.53	CIVU CYSC SEJA
2923072								0.8	0.01	CIVU									
2923073								0.8	0.1	CYSC HYPE SEJA									
2923074								0.8	1	CYSC HYPE TAVU SEJA									
2923077					16	2.15	CYSC SEJA	2.6	0.2	CYSC HYPE TAVU SEJA									
2923090								1.2											
2923095								0.2	13.4	CIAR CIVU CYSC DIPU GERO HYRA LALA LEVU PHAR							1.2	0	
2923100	0.2								6.12	GERO DIPU HYPE RUDI RULA							0.2	0.25	CYSC
2929000	10				13	1	CIVU CYSC GERO HIAU	15.4	18	CEDE CIVU CYSC LALA	14	8.15	CIVU CIAR CYSC GERO HYPE PHAR RUAR	3	3	CYSC GERO LALA			
2929070	3	525		CYSC GERO RULA	6	2	GERO	6.3			3.3	0.25	GERO RULA						
2931000	12	1		SEJA				12.3			2.4	5.04	CEDE CIVU CYSC HYPE PHAR						
2931190	1.7								5.2	CIVU GERO HYPE LAGA RUDI RULA SEJA									

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2931200	2.5																		
2932000	15	2153	0	LEVU CYSC	11		CYSC GERO SEJA	5											
2932030	1.4				1	0.1	CYSC												
2932031	0.5																		
2932035	0.2																		
2932040	0.4																		
2932050	0.3							0.1	CIVU CYSC										
2932070	0.9	12		CYSC															
2952000								2.2											
2978000	4.7	3604		CYSC SEJA						4.6	2.2	CYSC							
2978011	0.4																		
2978015	1.6	18		CYSC															
2978025	0.3																		
2978030	0.6																		
2978030	0.7																		
2978035	0.1																		
2978040	0.3																		
2978085	1.1																		
3000000	92	8830 98	1	CYSC CIVU GERO RULA SEJA	39	32	CEDE CIAR CIVU CYSC GERO LALA SEJA	30.8	30.3	CIVU CYSC GERO LALA SEJA	32	63.7 3	CIAR CIVU CYSC GERO HYPE LALA SEJA						
3000011	1								0.4	CYSC GERO									
3000200	70	6	0	SEJA	30	26.6	CIVU CYSC GERO SEJA	18.8			16.9 6	63.6 4	CIVU CYSC GERO HYPE LALA						
3000215	3.6				1	2	GERO	0.6	0.1	GERO	0.6	0.3	GERO CYSC						
3000220	2.8																		
3000250	10	10	1	CYSC	8	2.66		3.8	0.7	CIVU CYSC GERO SEJA	6.9	5	CIVU CYSC GERO HYPE LALA						
3000260	0.7								0.7	CIVU CYSC SEJA									
3000300	3.5							3.5	0.07	CIVU CYSC GERO SEJA	5.25	9.4	CIVU CYSC GERO HYPE SEJA						
3000330								2.2											
3000370								0.8			0.4	0.7	CIVU DIPU LEVU SEJA						

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds Acres Treated (2006 Only)	Weed Species		Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3000395	0.2																		
3000401	1																		
3000591							0.3	2.46	CIVU GERO HYPE, RUDI RULA SEJA										
3000800										1.8	0.1	GERO							
3006000	8				2	1	CYSC	6.5											
3006011	1.2																		
3006300	4.1																		
3040000	71	3513 6	1	CYSC GERO SEJA	67	23.4	CEDE CIAR CIVU CYSC GERO LALA SEJA	49	0.3	CIVU DIPU GERO	26.2	10.6	CIAR CIVU CYSC GERO SEJA	12.5	9.5	CIVU CYSC GERO	12.5	39.1	CIAR, CIVU, CYSC, GERO, LALA, SEJA
3040011	2																		
3040012	0.31	2	0	CYSC					1.09	CIVU DIPU HYPE SEJA									
3040025	0.4	1		RUDI															
3040100	4	8	0	CYSC SEJA	2			2.3											
3040115	1	95	0	GERO				0.7											
3040200	1																		
3040595	4	373		CIVU SEJA	4	1	GERO SEJA												
3040800	0.5	5470 9	2	ARMI GERO ILAQ POCU	2.5	17	CIAR CIVU CYSC GERO LALA POBO RUDI SEJA	1	82.3	CIVU CIAR GERO HIAU HYPE ILAQ LALA PRLA SEJA	21	8.3	CIVU CIAR CYSC GERO LALA PHAR POBO RUAR						
3040900	0.5																		
3050000	3.8	2		SEJA	18	18	CIAR CIVU GERO HIAU HYPE LEVU LALA	20.2											
3050011	1.5				2.5	5.08	CIVU GERO HYPE	2.9											
3050150					1.1	1.7	GERO		3.3	CYSC									
3067000	7.06	1402		CYSC SEJA							3.6	4.5	CYSC GERO						
3068000	32.3	521		CEDE CYSC SEJA	2.8	5.1	CYSC	3.58			5.6	0.5	CIVU CYSC HYPE SEJA	2.2	0.0 1	CIAR CYSC	5.6	3.2	CEDE CIVU

	2002-2006				2007-2009			2010-2012			2013-2014			2015			2016		
	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	
3068190	0.4																		
3068200	7.2	815		CYSC															
3071000	3.4	60		CYSC	1						0.5	1.3	CIVU CYSC GERO HYPE LALA SEJA				0.5	1	CYSC GERO LALA RUAR
3071015	0.6																		
3100300	5				2	3.5	GERO												
3100400	2.9																		
3100420	0.6																		
3116000	10				3.5	3.1	CIAR GERO RUDI		0.1				CIVU CYSC HYPE SEJA TAVU						
CR 5006								1.22											
CR2036								5	6	GEROPOBO									
CR2071	2	15	0	SEJA	1	3	CIAR CYSC GERO LALA POBO	1.5											
CR2274								3.8											
CR2500	25.1	3507	4	CYSC, GERO				7.6											
CR2515	0.4							0											
CR3039	1.1	4959	0	GERO	4	0.5	SEJA	1.4											
CR3057	1.9	3	0	SEJA				1.9											
CR4360								2.6											
CR4361								2.6											
CR5331	8.24				6	1.03	CEDE GERO SEJA	7.5											
CR5695	4.98	8499		CIAR CYSC SEJA	4	2	SEJA	1.7											
SR101	2	4	0	GERO HICA SEJA	19	28.7	CYSCPOBO POSA	0											
TOTALS	1487.93	2618717	26.68		1152.3	595.12		763.14			487.77	666.061		108.1	230.84		95.45	158.83	

For common name equivalent of Forest Service weed species plant codes, see Appendix G. This table is based on a table of all roads provided by Olympic National Forest in 2002, but currently contains only Forest Service roads within Clallam and Jefferson Counties. Many roads have since been closed or decommissioned. The lower-numbered roads (<2500), originally included in this table because of surveys conducted in Mason and Gray's Harbor Counties on behalf of Olympic National Forest, have been removed. See reports prior to 2010 for that information. All or a portion of 32 roads have been decommissioned since this list was compiled.

The project focus has shifted each year as the program matures. Scope of accomplishments is directly tied to project funding and Forest Service policies, which have both varied since its inception and affect crew composition and size. Additionally, reporting protocols were modified by the Forest Service, changing how on the ground conditions were reported and how accomplishments were documented. Specific comments are presented after the roads table to add perspective.

*As of 2013 Survey miles recorded for a road only once, retreats or additional visits to complete project, not counted in mileage. Total acres treated may not include areas which were not specifically associated with a road, such as an administrative site. It is not clear whether surveyed miles may have included duplicates in 2014.

PROGRAM HISTORY FROM 2002-2016: A PERSPECTIVE

- **Focus:** When the project began in 2002 the focus was almost exclusively on surveying, with a small amount of manual weed removal. From 2003 to 2005 surveying was still the primary focus, and the use of herbicide was limited by policy. Different crews manually removed thousands of weeds each year. In 2006 some herbicide treatments were allowed. After the completion of a new EIS, herbicide treatments expanded and the focus shifted from survey to control. The increase in productivity between years with manual control only and a mix of control methods including herbicide is striking. In a single year crews were able to cover in one year what previously took nearly five. As we transition to more riparian, restoration, or habitat projects, productivity may decrease due to long walk in or other logistical complexities.
- **Crew Resources:** The County has hired a small field crew each year since the inception of the project, but changes in funding have meant that the crew size has ranged from 2 to 5 members. Some years a WCC crew has been made available to the Counties (typically for two weeks in each county, but this can vary). From 2007 to 2009 an Olympic Corrections Center (OCC) crew was used, mainly to pull Scotch broom from pits, quarries and roadsides. A Clallam County Sheriff's Chain Gang has been funded for a number of years for mixed purposes, sometimes weed control. Their efforts were not always coordinated with the Weed Control program. When provided, their data has been incorporated into the end of year report.
- **Reporting:** Protocols have changed during the life of the project. From 2002 to 2005 we reported miles of roads surveyed and/or treated and number of weeds manually removed. Acres treated and/or surveyed were estimated, based on the road miles.
- In 2006, when herbicide treatments began, reporting was acres treated. However, crews or office staff tracked miles surveyed, for some reporting consistency across project years. Most roads are surveyed multiple times during the year, when different plant species are apparent.
- Because 2006 was a transition year crews reported manual treatments both as acres treated and number of weeds removed. County crews have not reported number of weeds removed since 2006; the WCC crew made the change in 2005. The Chain Gang still reports number of weeds removed but in 2011 they also reported acres treated. Chain Gang reporting in 2012 was chaotic and inconsistent, none has been reported to us since 2014.
- Estimating acres treated has always been problematic. In 2007 the OCC crew reported treating 337 acres, which we suspect is an inflated figure, because of confusion about protocol. Still, that figure has been retained in the table as reported.
- Each year, some of our documented work is for re-treatments. When compiling acreage figures for each year we record re-treatments and subtract them from the total, however, the work involved should somehow be acknowledged as it shows a new kind of success; time in the season to do needed follow-up work.. Re-treatments are a significant factor in effective control of certain species such as herb Robert.
- Changes in the FACTS sheets over the years have made comparisons of acreage treated from year to year difficult. From 2007 to 2009 we used the "Infested Area Treated" figure from the FACTS sheets to sum up acres treated. In 2010 the forms were changed and "Infested Area Treated" was no longer on the form, so in that year we used the "Application Area" figure from the back of the form. In 2011 this total reverted back and "Infested Area Treated" was again used. Further, in 2010 "Acres Examined for Weeds" was on the FACTS sheet, so that figure was used for "Acres Surveyed" in the table below, rather than extrapolating it from "Miles Surveyed".
- In 2011 we began to break down acres treated chemically and acres treated manually in the summary table.
- In 2012, there was a notable emphasis on restoration, habitat, or prevention projects that are more logistically complicated, and therefore, more labor intensive and expensive. However, it is heartening to see weed infestations so significantly reduced that re-introduction of native plants has begun in some of the more fragile environments and treatments are implemented only every other year.
- In 2013 there were many changes; monitoring was added as a weed board task, we reseeded some sites, three PSC enabled additional treatment. Chain Gang focus shifted to other tasks, weed work was unfunded. Forest Service created their own two person invasive crew but there were insufficient resources for some of the larger weed control projects that remain. Coordination which has become increasingly complicated is even more essential than before.
- In 2014 we were short staffed and the Jefferson NWCB's coordinator retired but was not replaced. We focused heavily on infrequent high priority species and herb Robert sites. Our totals are less for this year than in years with more staffing.
- In 2015 we hired less staff in response to anticipated funding shortages and focused heavily on infrequent high priority species and herb Robert sites.
- In 2016 we hired a two man team, but had a shorter season due to funding limitations and college start dates. Despite this, the 2016 team completed almost as many acres as in 2015. The 2016 crew also had previous experience identifying and controlling weeds and was able to do a more thorough job than crews in previous years.

*The table showing the number of new sites/ total sites recorded in any given year nicely depicts changes in program focus since its inception. As more emphasis is given to treatments, and less to surveys and discoveries, fewer "new" sites are discovered.

APPENDIX D: POTENTIAL SURVEY AND TREATMENT SITES

Crew was asked to note whether sites they treated this year, should be a priority for the following season. This information has been included in the 2016 Project Action table in Appendix A and can inform the project list for next year.

Future work should continue to focus on priority species with limited distribution in the forest. Herb Robert, which has become one of the most troublesome species, continues to be a top priority because of its ability to rapidly spread into uninfested areas and degrade wildland habitat. The method of prioritizing projects for the Project List worked well for Herb Robert treatments



Getting water for treatment at Cranberry Bog

The 10,000 Years Institute is training “weed swat teams” under new grant funding. Further investigation of this potential labor force and potential locations for these teams is warranted. We recommend utilization be reserved for control of large herb Robert or broom infestations, not surveys.

Specific Recommendations:

- Species with limited distribution: Continue focus to eradicate the limited species orange hawkweed, yellow archangel, comfrey, sulfur cinquefoil, knotweeds, teasel, and common mullein. There are no large infestations of these species on any FS lands in Clallam and Jefferson. This recommendation is working! Keep pressure up for all meadow knapweed sites. Continue to press for Burnt Hill treatment-it is the source of the knapweed. Encourage Clallam County to allow treatment of Palo Alto Rd, which has become another source.
- Herb Robert: Check 3000 and spurs after recent logging activities. We will likely need assistance with long stretches of the 3000 and spurs, 2610 and spurs, and 3040. 3050 and 3006 have not been treated for several years now.
- Everlasting peavine: Set additional goals for everlasting peavine treatments using clopyralid, which has worked very well. 2700 or 2800 are areas that come to mind, although there are likely others. Plan for reseeding with native grass species.
- Specific Roads: Tunnel Creek, a priority in last year’s report, was successfully treated this year. Follow-up should be a priority, as well as associated road system, which have not been treated for many years. Walker Mountain, another area that had not been treated for many years but was prioritized and treated this year will likely benefit greatly from follow-up. Additionally, follow-up on Rockybrook and associated spurs would likewise be advised.
- Campgrounds/Admin/Trails: Keep up treatments of campgrounds such as Dungeness Forks, trailheads, and special use facilities such as administrative sites and water diversions. The region above the washout on Dosewallips Rd must get follow-up in 2017. Schmidt’s Knob has not been visited for several years.
- Botanical Areas/Wetlands: Cranberry Bog-Monitor effectiveness of imazapyr treatment, and treat herb Robert. Pat’s Prairie, Juniper Meadow, and Sink Lake should be surveyed and treated next year. Ask BCH for update of Camp Handy next year; according to their report this site did not need treatment this year. Check status of Caraco Units next year.
- Rock Sources: Keep pits as a priority at least one more year unless crew said it didn’t need to be a priority on FACTS sheets. Survey and treat pits not seen in the past two years. Identify old pit sites that are along the way of other scheduled treatments, encourage concurrent treatment. DNR’s Mary Clark is a high priority because of high use and LAGA presence. POBO resurgence there was a bit of a surprise. We will look for 2014 documentation of rock source with POBO at 2900200 (dubbed Mystery Pit).
- Untreated high priority: Treat all 1 or 1A projects that were missed in the current season.
- Identify high-priority cross-boundary projects with other public land agencies.
- Surveys: Even though there is never adequate time for needed surveys, the locations provided by FS staff was excellent this year-Continue to identify areas that have not been surveyed or treated for four years-in case there is an opportunity.
- It was helpful to know which sites the FS based crew treated this year in Jefferson and Clallam Counties, and what they found; we’re not sure if we got a complete list.

APPENDIX E: COUNTY ACCOMPLISHMENTS-A SNAPSHOT

(This is not a complete list of county work, but gives some highlights and focuses on work and issues of relevance to the Forest Service)

County Cooperation: Clallam and Jefferson Counties have worked together closely for years. In addition to receiving Title II funding, for several years the weed board programs jointly received funding from Washington State Department of Agriculture for knotweed control and have worked on all the major waterways in both counties. The knotweed program has involved cooperation with six Native American Tribes, Olympic National Park, 4 state agencies (WSDOT, WDNR, WDFW, and WA State Parks), 9 local governments, and hundreds of private landowners.

Jefferson County is larger than Clallam County, covering 1,397,760 acres on the eastern edge of the Olympic Peninsula. However, more than half of Jefferson County is in federal ownership and the county is split into two sections with federal land in the center. The western portion is sparsely populated and is 120 miles from Port Townsend, the county seat. Consequently, Jefferson County Weed Board operates almost exclusively in the eastern portion of the county, comprising roughly 300,000 acres.

The new full time Jefferson county coordinator has focused on administration and in-county projects; there was little overlap this year between Jefferson County’s weed control program and adjoining Forest Service lands. No Title II funding was used directly to support that program. A snapshot of Jefferson County weed status and control efforts is not available.

Clallam County covers 1,112,960 acres on the north edge of the Olympic Peninsula, along the Strait of Juan de Fuca. Almost half the acreage of the county (46%) is in federal ownership (National Park or National Forest). The major highway, US 101, runs from east to west through most of the county. Many roads lead from US 101 into the National Forest and many go through the Forest into the popular Olympic National Park. Clallam has a stable, assessment-funded weed program. The CCMWCB is seeking integrated weed management on all county managed lands because of weed problems that are spreading to adjacent lands. If that strategy is implemented, there will be new opportunities to partner with the Forest Service to procure native plant material and to coordinate pollinator friendly projects.

Clallam County 2016 Snapshot	
Number of Known Noxious Weed Species	70
Number of Regulated Noxious Weed Species	42
Most Common Regulated Noxious Weeds	tansy ragwort, poison hemlock, knapweeds
Least Common Regulated Noxious Weeds	hoary alyssum, hairy willowherb, hawkweeds, purple loosestrife, sulfur cinquefoil, giant hogweed, gorse, perennial sowthistle
Total Number of Sites (Regulated Species Only)	2,113-1,130 surveyed, plus 1477 rechecks -of sites surveyed, only 8%, were not controlled by year’s end, consisting mostly of county roadside or adjacent properties.
Number of Landowner Contacts	559
Educational Events	23
Public Contacts (Phone Calls, Walk-Ins, Emails)	1895
Web-Site Hits	1205
Volunteer Weed Events	1-192 hrs
Area of Weeds Controlled by Weed Board Staff	7,733 individual plants removed from multiple properties

A Puget Sound Corps provided 10 days of assistance on various projects scattered across both counties. In general, they supported projects begun with their assistance last year.

Additionally, Clallam County is the de facto leader of the Olympic Knotweed Working Group, a loose consortium of government entities, tribes, and non-profits that meets to exchange information and strategize effective knotweed control on the Peninsula. As part of Cooperative Weed management Area, we are increasingly focused on an “all invasives” approach.

Both Counties partner with many other agencies and volunteer groups, including the Back Country Horseman, Master Gardeners, Stream Keepers, Audubon Society, North Olympic Land Trust, Jefferson Land Trust, and North Olympic Salmon Coalition.

APPENDIX F: CONTROL RECOMMENDATIONS BY WEED SPECIES

Specific treatment recommendations for each species encountered are given in the table below. General recommendations based on plant lifecycle are listed below.

- Annuals like herb Robert, especially at campgrounds, should be treated as early in the season as possible. With herb Robert in particular it will almost certainly be necessary to repeat treatments within the season, though if seed set is prevented each time, it is hoped that the size of the infestation can be greatly reduced with each treatment. Trials utilizing acetic acid, limonene and clove oil, all contact herbicides, are underway to determine whether these products can be safely used while effectively controlling herb Robert with minimal damage to nearby native vegetation. None of these three contact herbicides are currently allowed for use in the Forest. Early results indicate no significant advantage to using these contact herbicides. The study suggests good germination control with Oust (sulfometuron ethyl); subsequently this herbicide may be considered for roadside herb Robert populations next season.
- Early blooming perennials, such as orange and yellow hawkweed should be treated as early as possible.
- Biennials like tansy ragwort are often difficult to treat effectively with either chemical or manual treatment alone; once plants have bolted it may be most effective to pull and deadhead flowering stalks then spray first year rosettes.
- Scotch broom and other woody shrubs can be effectively pulled early in the season before seed set and while the ground is damp; herbicide treatments can be made early, but are still effective later in the summer.
- Later blooming perennials like reed canarygrass, Canada thistle, everlasting peavine, knotweeds, knapweeds, common tansy and common toadflax may be effectively treated from midsummer until fall, depending on the species and the location (altitude, aspect, etc).



The first poison hemlock plant ever found on ONF lands

Plant Code	Common Name	Botanical Name	Control Recommendation
AEPO	bishop's weed	<i>Aegopodium podgraria</i>	Foliar application of imazapyr, or triclopyr
ANSY	wild chervil	<i>Anthriscus sylvestris</i>	Manual removal; spot herbicide application
ARM12	common burdock	<i>Arctium minus</i>	Where minimal occurrence, manual removal; spot herbicide application to rosettes by early spring; or to second year growth, before budding
BUDA	butterfly bush	<i>Buddleja davidii</i>	Manual removal small plants, or cut-stump/foliar treat with triclopyr, or glyphosate,
CESTM	spotted knapweed	<i>Centaurea stoebe</i>	Manual removal very small sites; spot application with selective herbicide - clopyralid preferred
CASE13	Hedge bindweed	<i>Calystigia sepium</i>	Herbicide application combined with manual removal. Very difficult to eradicate.
CEDE5	meadow knapweed	<i>Centaurea jacea x nigra</i>	Foliar herbicide application with selective herbicide, late season - clopyralid preferred
CEDI3	diffuse knapweed	<i>Centaurea diffusa</i>	Manual removal for very small sites; foliar herbicide application - clopyralid preferred
CIAR4	Canada thistle	<i>Cirsium arvense</i>	Manual removal has limited effectiveness, for only very early infestations; spot herbicide application with glyphosate at bud to full bloom; fall or foliar application of a selective herbicide throughout the summer, fall. Clopyralid has worked well and will be emphasized in future treatments.
CIVU	bull thistle	<i>Cirsium vulgare</i>	Where minimal occurrence, manual removal; spot herbicide application to rosettes by early spring or to second year growth, before budding. Remove seeded heads.
COMA	Poison hemlock	<i>Conium maculatum</i>	Manual removal very small sites; spot application with triclopyr
COTON	rockspray cotoneaster	<i>Cotoneaster horizontalis</i>	Manual removal; herbicide treatment only if size of infestation increases

Plant Code	Common Name	Botanical Name	Control Recommendation
CYSC4	Scotch broom	<i>Cytisus scoparius</i>	Manual removal for small infestations; cut stump treatments preferred for very large infestations, foliar herbicide applications possible, newer herbicides such as aminopyralid would be useful.
DACA6	wild carrot	<i>Daucus carota</i>	Manual removal; spot herbicide application triclopyr
DIFU2	Fuller's teasel	<i>Dipsacum fullonum</i>	Manual removal before full bloom (after full bloom, flower heads need to be removed and disposed of); selective herbicide application in first year or pre-bloom in 2 nd year.
GERO	herb Robert	<i>Geranium robertianum</i>	Manual removal for small infestations; spot herbicide application where feasible; multiple treatments per season preferred, to prevent multi-generational seed production each season. Prevention measures a must. Imazapyr may be considered-where off-target loss is more tolerated, such as roadside- for fall treatments after rain has induced seed germination. Herbicide effects on late stages of plant lifecycle may be too slow to stop seed production. New study results suggest sulfometuron ethyl may provide good germination inhibition and may be especially useful for roadside populations.
HEHE	English ivy	<i>Hedera helix</i>	Manual removal; cut stump or foliar herbicide application. Higher end surfactant rates may be needed.
HIAU	orange hawkweed	<i>Hieracium aurantiacum</i>	Spot spray with selective herbicide in late spring or summer; - clopyralid preferred - possible manual removal for very small infestation.
HYPE	St. Johnswort	<i>Hypericum perforatum</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Possible candidate for biocontrol releases where infestations are heavy. Herbicide control options are available should this species otherwise become a resource management issue.
ILAQ80	English holly	<i>Ilex aquifolium</i>	Manual removal; cut stump or foliar herbicide treatment. May be best treated with imazapyr.
IRPS	yellow flag Iris	<i>Iris pseudacorus</i>	Manual removal for small infestations, foliar herbicide, imazapyr may be preferred
LAGA2	yellow archangel	<i>Lamium galeobdolon</i>	Foliar herbicide application –triclopyr, glyphosate, or a combination
LALA4	everlasting peavine	<i>Lathyrus latifolius</i>	Foliar herbicide application - clopyralid preferred
LEVU	oxeye daisy	<i>Leucanthemum vulgare</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Herbicide control options are available should this species otherwise become a resource management issue.
LIVU2	common toadflax	<i>Linaria vulgaris</i>	Spot herbicide application
LYSA2	purple loosestrife	<i>Lythrum salicaria</i>	There is only one known site: manual removal should be possible, however herbicide application is available (potential aquatic application)
PHAR3	reed canary grass, ribbon grass	<i>Phalaris arundinacea</i>	Glyphosate or imazapyr in mid-June and mid-Sept.
POBO10 POSA or POCU	knotweed species	<i>Polygonum spp.</i>	Injection with glyphosate; and/or foliar application of glyphosate or imazapyr
PORE	sulfur cinquefoil	<i>Potentilla recta</i>	Selective herbicides preferred. Will need several years of re-treatment Small, but long-time plants may need to be dug; plant surface may be insufficient to fully control large root system.
RUAR9	Himalayan blackberry	<i>Rubus armeniacus</i>	Cut stump with glyphosate or triclopyr or foliar application as appropriate to site. Triclopyr preferred
RULA	evergreen blackberry	<i>Rubus laciniatus</i>	Cut stump or foliar herbicide application - triclopyr preferred
SEJA	tansy ragwort	<i>Senecio jacobaea</i>	Will require systematic removal from roadsides and follow-up; manual removal before full bloom (after full bloom, flower heads need to be removed and disposed of); selective herbicide application in first year or pre-bloom in 2 nd year.
SYOF	common comfrey	<i>Symphytum officinale</i>	Minimal occurrence, but expanding; spot herbicide application.
TAVU	common tansy	<i>Tanacetum vulgare</i>	Spot herbicide application
VIMA VIMI12	bingleaf periwinkle common periwinkle	<i>Vinca major</i> <i>Vinca minor</i>	Thorough spot herbicide application

**APPENDIX G: WEED SPECIES REPORTED 2002-2016
ON FOREST SERVICE LAND IN CLALLAM OR JEFFERSON COUNTIES**

(Other counties may have reported other species)

List sorted alphabetically by botanical name.

Note: No new species were found in 2015.

Plant Codes come from the USDA Natural Resources Conservation Service PLANTS database.

Common Name	Botanical Name	Plant Code
bishop's weed	<i>Aegopodium podgraria</i>	AEPO
common burdock	<i>Arctium minus</i>	ARM12
cheatgrass	<i>Bromus tectorum</i>	BRTE
butterfly bush	<i>Buddleja davidii</i>	BUDA
hedge bindweed	<i>Calystegia sepium</i>	CASE13
meadow knapweed	<i>Centaurea debeauxii</i>	CEDE5
diffuse knapweed	<i>Centaurea diffusa</i>	CEDI
spotted knapweed	<i>Centaurea stoebe</i> ssp. <i>micranthosi</i>	CESTM
Canada thistle	<i>Cirsium arvense</i>	CIAR4
bull thistle	<i>Cirsium vulgare</i>	CIVU
rockspray cotoneaster	<i>Cotoneaster</i>	COTON
poison hemlock	<i>Conium maculatum</i>	COMA
Scotch broom	<i>Cytisus scoparius</i>	CYSC4
wild carrot	<i>Daucus carota</i>	DACA6
Fuller's teasel	<i>Disacus fullonum</i>	DIFU
herb Robert	<i>Geranium robertianum</i>	GERO
English ivy	<i>Hedera helix</i>	HEHE
orange hawkweed	<i>Hieracium aurantiacum</i>	HIAU
yellow hawkweed	<i>Hieracium caespitosum</i>	HICA10
European hawkweed	<i>Hieracium sabaudum</i>	HISA4
St. Johnswort	<i>Hypericum perforatum</i>	HYPE
English holly	<i>Ilex aquifolium</i>	ILAQ80
yellow flag Iris	<i>Iris pseudacorus</i>	IRPS
yellow archangel	<i>Lamiaeum galeobdolon</i>	LAGA
everlasting peavine	<i>Lathrus latifolius</i>	LALA4
oxeye daisy	<i>Leucanthemum vulgare</i>	LEVU
common toadflax	<i>Linaria vulgaris</i>	LIVU2
purple loosestrife	<i>Lythrum salicaria</i>	LYSA2
reed canary grass	<i>Phalaris arundinacea</i>	PHAR3
ribbon grass*	<i>Phalaris arundinacea</i> , variegated	PHAR3
Japanese knotweed	<i>Polygonum cuspidatum</i>	POCU6
giant knotweed	<i>Polygonum sachalinense</i>	POSA4
Bohemian knotweed	<i>Polygonum x bohemicum</i>	POBO10
sulfur cinquefoil	<i>Potentilla recta</i>	PORE
English laurel	<i>Phalaris arundinacea</i>	PRLA
Himalayan blackberry	<i>Rubus armeniacus</i>	RUAR9
evergreen blackberry	<i>Rubus laciniatus</i>	RULA
tansy ragwort	<i>Senecio jacobaea</i>	SEJA
comfrey	<i>Symphytum officinale</i>	SYOF
common tansy	<i>Tanacetum vulgare</i>	TAVU
common mullein	<i>Verbascum thapsus</i>	VETH
periwinkle	<i>Vinca minor</i>	VIMI



European Hawkweed
seen on the 2700280
Road

High-Risk Species in Clallam and Jefferson Counties, Not Yet Detected on (Clallam/Jefferson) FS Lands

wild chervil	<i>Anthriscus sylvestris</i>
hoary alyssum	<i>Berteroa incana</i>
spurge laurel	<i>Daphne laureola</i>
hairy willowherb	<i>Epilobium hirsutum</i>
common hawkweed	<i>Hieracium lachenalii</i>
common reed	<i>Phragmites australis</i>

APPENDIX H: 2016 STATE WEED LIST

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 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 Weed District Coordinator to learn which species are designated 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 counties to require control if locally desired. Other counties 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 aethiopsis</i>
Ravenna grass	<i>Saccharum ravennae</i>
silverleaf nightshade	<i>Solanum elaeagnifolium</i>
Spanish broom	<i>Spartium junceum</i>
spurge flax	<i>Thymelaea passerina</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>
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>Anchusa arvensis</i>
bugloss, common	<i>Anchusa officinalis</i>
butterfly bush	<i>Buddleja davidii</i>
camelthorn	<i>Alhagi maurorum</i>
common fennel, (except bulbous 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>
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	<i>Hieracium</i> , subgenus

species and hybrids of the meadow subgenus and wall subgenus	<i>Pilosella</i> and <i>Hieracium</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 x moncktonii</i>
knapweed, Russian	<i>Acroptilon repens</i>
knapweed, spotted	<i>Centaurea stoebe</i>
knotweed, Bohemian	<i>Polygonum x bohemicum</i>
knotweed, giant	<i>Polygonum sachalinense</i>
knotweed, Himalayan	<i>Polygonum polystachyum</i>
knotweed, Japanese	<i>Polygonum cuspidatum</i>
kochia	<i>Kochia 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>
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>
rush skeletonweed	<i>Chondrilla juncea</i>
saltcedar	<i>Tamarix ramosissima</i>
Scotch broom	<i>Cytisus scoparius</i>
shiny geranium	<i>Geranium lucidum</i>
spurge laurel	<i>Daphne laureola</i>
spurge, leafy	<i>Euphorbia esula</i>
spurge, myrtle	<i>Euphorbia myrsinites</i>
sulfur cinquefoil	<i>Potentilla recta</i>
tansy ragwort	<i>Senecio jacobaea</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>Lamiastrum galeobdolon</i>
yellow floatingheart	<i>Nymphoides peltata</i>
yellow nutsedge	<i>Cyperus esculentus</i>
yellow starthistle	<i>Centaurea solstitialis</i>

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>
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 armeniacus</i>
hoary cress	<i>Lepidium draba</i>
Italian arum	<i>Arum italicum</i>
Japanese eelgrass	<i>Zostera 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-</i>

nonnative cattail species and hybrids	<i>Typha spp.</i>
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>
Russian olive	<i>Elaeagnus angustifolia</i>
scentless mayweed	<i>Matricaria perforata</i>
smoothseed alfalfa dodder	<i>Cuscuta approximata</i>
spikeweed	<i>Centromadia pungens</i>
spiny cocklebur	<i>Xanthium spinosum</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 ssp. alba</i>
wild carrot (except where commercially grown)	<i>Daucus carota</i>
yellowflag 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>

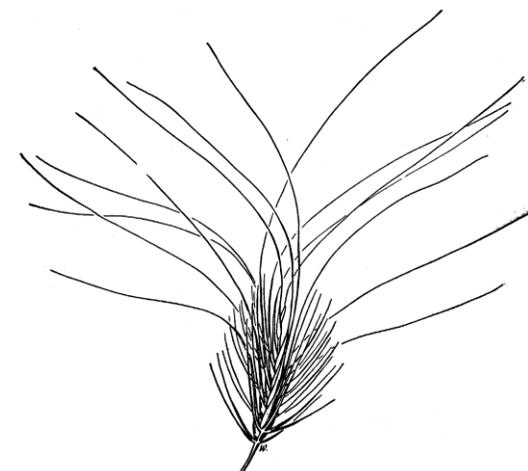
Or

WA State Department of Agriculture
21 North First Avenue #103
Yakima, WA 98902
(509) 249-6973

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

2016

Washington State Noxious Weed List



USDA-NRCS PLANTS Database / Hitchcock, A.S. (rev. A. Chase). 1950. Manual of the grasses of the United States. USDA Miscellaneous Publication No. 200. Washington, DC.

Medusahead (*Taeniatherum caput-medusae*), a new Class C noxious weed for 2016

List arranged alphabetically by:

COMMON NAME

APPENDIX I: SAMPLES OF HERBICIDE NOTIFICATION—LEGAL AD AND ON-SITE POSTING

A legal notice preceding herbicide application on the Olympic National Forest was published in the Peninsula Daily News (PDN), which is distributed throughout both Clallam and Jefferson Counties. The text of the legal notice in the PDN read as follows:

LEGAL NOTICE

The Pacific and Hood Canal Ranger Districts, Olympic National Forest, may be applying the herbicides glyphosate, clopyralid, triclopyr, aminopyralid, or imazapyr to noxious weeds or other invasive plant species at the following Forest Service sites in Jefferson and Clallam Counties May 1 – November 1, 2016. Applications will be conducted as planned in the Final EIS-Olympic National Forest Site Specific Invasive Plant Treatment Project, which was finalized in 2008. Notices indicating that formulations containing glyphosate, clopyralid, triclopyr, aminopyralid, or imazapyr will be applied will be posted at entrances to the target road systems and/or individuals sites. For questions about applications or to receive a complete list of individual sites contact Cathy Lucero, Clallam County Noxious Weed Control Board, at 360-417-2442, or Cheryl Bartlett, Forest Botanist for the Olympic National Forest at (360) 956-2283.

Big Creek/Upper Quinault River Watershed, 2190,200 Rd; **Bockman Creek Watershed**, 2902,2903 Rds and spurs; Bockman pit; **Canyon Creek / Pats Creek Watershed**, 2800,2870,2875,2877,2878,2880 Rds and spurs; Cranberry Bog, Juniper Meadow, Schmits Knob, Slab Camp/Deer Ridge TH and Caraco Cat units; Upper and Lower Caraco, Canyon, and Ned Hill Pits; **Deep Creek Watershed**, 3000,3067 Rds and spurs; **East Twin River Watershed**, 3040,3068 Rds and spurs; **Fulton Creek/Waketick Creek Watershed**, 2503,2510 Rds and spurs; **Headwaters Sol Duc River Watershed**, 2918,2920, 2931 Rds and spurs; **Jimmy-come-lately Creek Watershed**, 28, 2840,2845,2850 and 2855 Rds and spurs; Louella Work Center; Louella, Louella LuLu, Coho, Raccoon, and Wolf 2 Pits; **Little Quilcene River Watershed**, i27,28, and spurs; Bon Jon Quarry; **Lower Big Quilcene River Watershed**, 2650,27,2620,2730 and 2740 Rds and spurs; PT Muni WS caretakers cabin, Lower Big Quilcene Trail, Rainbow and Falls View CGs and the Quilcene Ranger Station; **Lower Bogachiel River Watershed**, 2932 Rd and spurs; **Lower Dosewallips River Watershed**, 2610,2620 Rds and spurs; Elkhorn CG and Lower Dosewallips riparian area; **Lower Duckabush River Watershed**, 2510 and 2530 Rds and spurs; Big Hump Trail corridor; Collins CG; **Lower Gray Wolf River Watershed**, 2870,2875, 2880 Rds and spurs; Armpit and Slab Camp Pits; Dungeness Forks CG; **Matheny Creek Watershed**, 21,2140,2160,2170,2180,2190 Rds and spurs; Arlo, Calvin, Cloud, Frog, Hobbs, Jupiter, Loki, Mercury, Newt, and Toad Pits; Matheny Beaver Pond; **McDonald Creek/Siebert Creek Watershed**, 2877 Rd and spurs; Pat's Prairie; **Middle Dungeness River Watershed**, 28,2820,2830,2860 and 2870 Rds and spurs; Lost Pit; East Crossing CG; Gold Creek and Sleepy Hollow trails; **Middle Queets River Watershed**, 2180 Rd and spurs; Park pit; Middle Quinault River Watershed, 2140,2190 Rds and spurs; **Middle Sol Duc River Watershed**, including 2071,2923,30,3040,31 Rds and spurs ; Snider Work Center; **North Fork Calawah Watershed**, including 29,2922,2923,2929 Rds and spurs; Calawah and Grindstone Pits; Bonidu Meadow; **Pysht River Watershed**, 30, 31,3116 Rds and spurs; **Salmon River Watershed**, 2140 Rds and spurs; North Salmon and Salamander Pits; **Sam's River Watershed**, 2170,2180 Rds and spurs; Neptune Pit; **Spencer Creek / Maple Creek Watershed**, 2610 Rd and spurs; Seal Rock CG; **Snow Creek/Salmon River Watershed**, 2840,2845,2850,2852 Rds and spurs; **South Fork Calawah Watershed**, 29, 2912,2922,2923,2932 Rds and spurs; Elk Pit; **Upper Big Quilcene River Watershed**, 2650,2760 Rds and spurs; Lower Big Quilcene Trail; and Sink Lake; **Upper Sol Duc River Watershed**, 29,2918,2929,2931,2978,3071 Rd and spurs; Klahowya CG; Bonidu, Littleton Horse Camp, and Tom Creek Pits; and the Kloshe Namich Loop Trail; **West Twin River Watershed**, 3000 and 3040 Rds and spurs.

PUB: May 11, 2016

Legal No: 698267

Onsite Posting Sample: Information about date of application, locations, and targeted weed species are generally filled out onsite.

NOTICE

The herbicide(s) glyphosate, triclopyr, imazapyr, and/or clopyralid may be applied to the following roads and surrounding area any time between

_____ , 2016 to control weeds, which threaten native vegetation and habitat in this area:

Specific areas to be targeted include roadsides, vegetated openings and rock pits.

Targeted Weed Species include, but are not limited to:

NO USE RESTRICTIONS ARE IN PLACE

Avoid contact with treated vegetation until after it has dried; it will take approximately 1 hour to dry after application.

FOR MORE INFORMATION CONTACT:

**Cheryl Bartlett
Forest Botanist and Invasive Plant Program Coordinator
Olympic National Forest
1835 Black Lake Blvd., SW Suite A
Olympia, WA 98512
cbartlett02@fs.fed.us
360-956-2283**

APPENDIX J: PROJECT FORMS

- FACTS Manual/Herbicide Treatment Data Form-front side

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2016 FACTS Invasive Plant Treatment Data Form
General Activity Fields

Ref #: 310

FS tracks areas treated by the Ref #, so if a Ref # is not recorded in the box to the left, we will have no record of that area being treated. You can document one Ref # per FACTS form (easiest for FS), or multiple Ref # on a single FACTS form. If you document multiple Ref # on a single FACTS form, these Ref # must all 1) be in the same 6th Field Watershed and 2) have been treated on consecutive days. *Rock Pits always get their own FACTS form.*

Region	Area	District (circle one)**	6 th Field Watershed Name	Owner	Workforce** (and Number of People in Crew)
06	09	PAC-N (05) HC-N (02) PAC-S (03) HC-S (01)	Lower Duckabush River	FS	CCNWCB (2) <small>2 people</small>

Method Code	Equipment Code (circle one)	Job Code	Treatment Location and Comments:	Comments:
700 Herbicide	711 hand sprayer 712 backpack sprayer 713 hack & squirt 716 injector		<p>If you are treating a road, record Road number w/ BMP & BMP. If you are not treating a road (ec. a stripplow, rock pit, etc.) record Site Name. Record this information as it appears on the spreadsheet.</p> <p style="font-size: 24px; text-align: center;">Collins Campground-2510</p> <p>Was entire area represented by the Ref# treated for weeds? <input checked="" type="checkbox"/> Yes / No <input type="checkbox"/> No → If no, describe what part was treated above.</p>	<p>From toilet through the east side of campground; everything skipped on 9/14</p>
100 Manual	721 mobile ground sprayer 000 other			

*District Codes: Pacific North (05) = PAC-N; Pacific South (03) = PAC-S; Hood Canal North (02) = HC-N; Hood Canal South (01) = HC-S
 **Workforce: County Name, Contractor Name, WCC, DNR, SCA, ONF, etc.

Site/Inventory Fields

Should this area be a high priority for follow-up treatments next year? Yes / No No (circle one)

Start Date	Stop Date	Acres examined for weeds	Application Site (circle one)	Licensed Applicator: Name and License #
9/15	9/15	7	Road edge/ROW Campground Gravel/rock source Forest Riparian Admin Site	Chandra Johnson - 90231, Cathy Lucero - 56527
Total Manual Infested Area Treated: Do not tally plants together				<input checked="" type="checkbox"/> acres

Weeds Treated (Use PLANTS code; include common or scientific name as well if it is an uncommon weed on the ONP)	Infested Area Treated (DON'T lump plants together)	% cover of species in Infested Area Treated (lump plants together - use cover classes 1 - 9 listed below)	Comments
GERO	7 acres	5	worse around campsites
	acres		

Cover Classes: 1 = Trace, 2 = 1 - 3%, 3 = 3 - 5%, 4 = 5 - 10%, 5 = 10 - 25%, 6 = 25 - 50%, 7 = 50 - 75%, 8 = 75 - 95%, 9 = 95 - 100%

Note: Cover classes are meant to be approximations only. DO NOT spend more than a few minutes determining cover class.

Admin Use Only

Activity Unit FACTS ID#: _____ Name: _____

Activity Subunit #: _____ Name: _____

- FACTS Manual/Herbicide Treatment Data Form-back side

Daily Log Day 1

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Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:
9/15/16	10:45	4:45	67	4	W	Partial	
Total Volume of Mix Applied		UOM	Mix (oz herbicide /1 gallon water)	Dilutant	Applicators Names		
52		Gallons	1.3 oz/ gallon	Water	Chandra Johnson, Cathy Luero		
Herbicide Product Name / EPA #	Amount of this herbicide product that was applied	Percent Solution	Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution	Total Application Area (Acres):	
Vastlan	69 oz	1 %	Blazon	34.7 oz	0.5 %	7	
	oz	%	Competitor	34.7 oz	0.5 %	Area treated in Riparian Reserves: \emptyset	
	oz	%		oz	%	Area Treated within 5 feet of Standing Water: .01	

Daily Log Day 2 For use when more than one day is necessary to treat the infestation.

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:
Total Volume of Mix Applied		UOM	Mix (oz herbicide /1 gallon water)	Dilutant	Applicators Names		
		Gallons	oz/ gallon	Water			
Herbicide Product Name / EPA #	Amount of this herbicide product that was applied	Percent Solution	Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution	Total Application Area (Acres):	
	oz	%		oz	%		
	oz	%		oz	%	Area treated in Riparian Reserves:	
	oz	%		oz	%	Area Treated within 5 feet of Standing Water:	

(From front page) Ref #: _____ Start Date: _____
 2013 FACTS Invasive Plant Treatment Data Form
 Page 2 of 2 modified by cjh 03/19/2014

Notes:

APPENDIX J: PROJECT FORMS

- Rock Pit Inspection Form

Invasive Plant Inventory for Rock Sources, Olympic National Forest

District or Forest Weed Specialist compliance statement and signature:
This designation is valid for two years from the inspection date listed below.

CHECK ONE:

Option A. Rock source exceeds requirements: *I have determined that this rock source to be completely free of weeds. Weeds, even those listed as tolerated species, are not present in, and are not associated with, this rock source.*

Option B. Rock source meets requirements: *I have determined that this rock source to be acceptable for use, with acceptable levels of contamination. It is very unlikely that distribution of materials from this rock source would contribute to the spread of noxious weeds.*

- Any species listed as priority 1 by Olympic NF, OR those listed as Class A, B or selected weeds on State and County noxious weed lists, OR species of particular concern are absent in or around rock source.
- Species listed as priority 2 by Olympic NF (but not on State or County list specified above) may be present in small, isolated patches within or near the rock source. Typically, less than 10% of the pit either has weeds growing on it or potentially could contain weed seed or other propagules, and these areas are easily isolated from rock source materials.
- Species listed as tolerated are present to various degrees within and around rock source.

Option C. Rock source meets minimum requirements: *I have determined that this rock source acceptable for use, but only if no other source is available. Distribution of materials from this rock source may contribute to the spread of noxious weeds if precautionary measures are not followed. These measures are described in the comments box below.*

- Any species listed as priority 1* by Olympic NF, OR any species listed as Class A, B* or selected weeds* on State and County noxious weed lists, OR species of particular concern are absent in or around rock source.
- Species listed as priority 2 by Olympic NF (but not on State or County list specified above) are present in patches, but some portions of the rock source are relatively free of weeds, are most likely are not contaminated with a significant amount of propagules (seeds, roots, etc.) from these species, and may be an acceptable rock source for FS lands. Typically, between 10 – 50% of the pit will have priority 2 weeds growing on it and/or potentially could contain seed or other propagules from these species, and these areas are easily isolated from rock source materials.

*In limited circumstances, as determined by the inspector, this box may be checked when species listed as priority 1 by Olympic NF, OR class B or selected weeds on State and County noxious weed lists are present in very small, easily isolated patches.

Option D. Rock source fails to meet requirements. *I have determined that this source is unsuitable for use at this time. Distribution of materials from this rock source would likely contribute to the spread of noxious weeds. Weed species listed as priority 1 by Olympic NF, OR those listed as Class A, B or selected weeds on State and County noxious weed lists, OR species of particular concern are present in or around this rock source, OR weed species listed as priority 2 by Olympic NF are present to the extent that plants and/or propagules (seeds, roots, etc.) are present in significant portions of the rock source and cannot be isolated by precautionary measures.*

Signature: Chun Ju Date: 9/10/15

Name of Rock Source: Bonidu Pit

Narrative of Pit Location (include, at minimum, road number and milepost):
end of 2900-000

Ref# (from project spreadsheet): 165

Coordinates of Location N: _____ E: _____ *UTM NAD 83 is preferred
 Projection (circle one): (UTM NAD 83) (UTM NAD 27) (NAD 83 Albers) (Lat/Long) (Decimal Degrees) (Other): _____

Name and Title of Inspector: Chanelva Johnson, CCNWCBS assistant Date of Inspection: 9/10/15

Comments: Include mitigation measures that need to be implemented to minimize the chance of spreading weeds. This should include a description of what parts of pit are usable, and what parts must be avoided. This should also be shown in the sketch of the pit on last page.

Grass is looking better than last year, but is still present on the south side of the pit, and is growing up onto the gravel piles and out into the forest. There is a little bit of thistle on the south west corner, and near the entrance. The current gravel piles on the south side of the pit probably should not be used, ~~used~~ but the north and east sides of the pit should be fine.

Name of Rock Source: Bonidu Pit

Date inspected: 9/10/15

Species present:

Species Code	Common Name	Infested Area (acres)	Cover Class	Comments
GERO	Herb Robert	0.5	3	extends to Salmon berries in forest
CYSL	Scotch Broom	0.25	1	
CIAR	Canada thistle	0.1	1	Just a couple plants

Do not record tolerate species in this table.

DON'T FORGET TO FILL OUT THIS SECTION!

Estimated size of pit: 6.3 acres
 (1 acre = 43560 ft², or approximately 209 ft x 209 feet. 1/10 acre = 4356 ft², or 66 ft x 66 ft, or approximately 435 ft x 10 ft)

Percent of pit occupied by invasive plants 5%
 This percent should indicate the percent of the pit that is NOT usable as a rock source as you find it on the day of the inspection. This includes area occupied by weeds AND the area potentially contaminated with seeds or other propagules.

Was this pit treated for invasive plants during this visit? Yes / No
 If yes, please fill out a FACTS form documenting treatment

Has this pit been treated for weeds before? Yes / No / Don't know If yes, what year? 2014

Cover Class and Infested Area (acres)
 columns are filled out exactly the same way as on the FACTS form.

Cover Classes: 1 = Trace, 2 = 1-3%, 3 = 3-5%, 4 = 5-10%, 5 = 10-25%,
 6 = 25-50%, 7 = 50-75%, 8 = 75-95%, 9 = 95-100%
 Note: Cover classes are meant to be *approximations only*. DO NOT spend more than a few moments determining cover class

2015 Olympic National Forest Invasive Species List

Updated 03/31/2015

Code	Scientific Name	Common Name	Treatment Priority
AEPO	<i>Aegopodium podagraria</i>	Bishop's weed, goutweed	1
ARM12	<i>Arctium minus</i>	lesser burdock	1
BOOF	<i>Borago officinalis</i>	common borage	1
BRTE	<i>Bromus tectorum</i>	cheatgrass	1
BUDA2	<i>Buddleja davidii</i>	butterfly bush	1
CEDE5	<i>Centaurea debeauxii</i>	meadow knapweed	1
CEDI3	<i>Centaurea diffusa</i>	diffuse knapweed	1
CEJA	<i>Centaurea jacea</i>	brownray knapweed	1
CESTM	<i>Centaurea stoebe</i> ssp. <i>micranthos</i>	spotted knapweed	1
DIFU2	<i>Dipsacus fullonum</i>	Fuller's teasel	1
GERO	<i>Geranium robertianum</i>	herb Robert, stinky Bob	1
HIAU	<i>Hieracium aurantiacum</i>	orange hawkweed	1
HICA10	<i>Hieracium caespitosum</i>	meadow (yellow) hawkweed	1
HISA4	<i>Hieracium sabaudum</i>	European hawkweed	1
LAGA2	<i>Lamiastrum galeobdolon</i>	yellow archangel	1
LYPU2	<i>Lysimachia punctata</i>	large yellow loosestrife	1
LYVU	<i>Lysimachia vulgaris</i>	garden yellow loosestrife	1
ORVU	<i>Origanum vulgare</i>	oregano	1
POCU6	<i>Polygonum cuspidatum</i>	Japanese knotweed	1
POPO5	<i>Polygonum polystachyum</i>	Himalayan knotweed	1
POSA4	<i>Polygonum sachalinense</i>	giant knotweed	1
POBO10	<i>Polygonum x bohemicum</i>	Bohemian knotweed	1
PORE5	<i>Potentilla recta</i>	sulphur cinquefoil	1
SEJA	<i>Senecio jacobaea</i>	tansy ragwort	1
SILAA3	<i>Silene latifolia</i> ssp. <i>alba</i>	bladder campion	1
SYOF	<i>Symphytum officinale</i>	common comfrey	1
VETH	<i>Verbascum thapsus</i>	common mullein	1
VIMA	<i>Vinca major</i>	bigleaf periwinkle	1
VIMI2	<i>Vinca minor</i>	common periwinkle	1
CIAR4	<i>Cirsium arvense</i>	Canada thistle	2
CIVU	<i>Cirsium vulgare</i>	Bull thistle	2
COAR4	<i>Convolvulus arvensis</i>	field bindweed	2
CYSC4	<i>Cytisus scoparius</i>	Scot's broom	2
DACA6	<i>Daucus carota</i>	Queen Anne's lace	2
HEHE	<i>Hedera helix</i>	English ivy	2
HYPE	<i>Hypericum perforatum</i>	common St. Johnswort	2
ILAQ80	<i>Ilex aquifolium</i>	English holly	2
LALA4	<i>Lathyrus latifolius</i>	everlasting peavine	2
LYSY	<i>Lathyrus sylvestris</i>	flat pea	2
PHAR3	<i>Phalaris arundinacea</i>	reed canarygrass (including ribbon grass)	2
PRLA5	<i>Prunus laurocerasus</i>	English laurel	2
RUAR9	<i>Rubus armeniacus</i>	Himalayan blackberry	2
RULA	<i>Rubus laciniatus</i>	cutleaf blackberry	2
TAVU	<i>Tanacetum vulgare</i>	common tansy	2
DIPU	<i>Digitalis purpurea</i>	purple foxglove	Tolerate
HYRA3	<i>Hypochaeris radicata</i>	hairy catsear	Tolerate
LEVU	<i>Leucanthemum vulgare</i>	oxeye daisy	Tolerate
LOPE80	<i>Lotus pedunculatus</i>	big trefoil	Tolerate
PLLA	<i>Plantago lanceolata</i>	narrowleaf plantain	Tolerate
RARER	<i>Ranunculus repens</i> var. <i>repens</i>	creeping buttercup	Tolerate
TAOF	<i>Taraxacum officinale</i>	common dandelion	Tolerate

Rock Pit Inspection: Bonidu Pit

Date of Inspection: 9/10/15 (include year)

Clallam County
29 road, MP 37.2
(entrance near 29 x 2900960 jxn)

Approx 6.3 acres

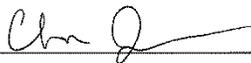


APPENDIX K: SAMPLE NPDES BACKPACK CALIBRATION RECORD

Calibration Verification

Agency/Organization: CCNWCB Date: 6/15/16

Each piece of equipment listed below has been calibrated using an accepted, appropriate method, and examined and repaired as necessary to ensure it is safe and in good working order. Each unit will be maintained periodically as needed throughout the field season.

Signature:  Position: _____

Equipment ID	Equipment Type	Calibrated GPA	Working Condition?	Comments	Examiner Initials
3	Backpack sprayer ↓		N	no wand .will fix	LT
97		42.4	Y		LT
94		38	Y	could use a new gasket . will fix.	LT
99		56	Y		LT

APPENDIX K: CALIBRATION METHODOLOGY

Followed Method 2

Method 1-Hand Sprayer Calibration Method

It is just as important to calibrate manual sprayers as it is to calibrate power sprayers. Generally, these sprayers are calibrated by determining the amount of liquid required to adequately cover the intended target.

Step 1: Area Measurement Measure and mark off an area 20 feet by 50 feet (1,000 square feet). Practice spraying the area with water. Spray the area twice for a uniform application. Walk in one direction, swinging the nozzle back and forth. When you finish, go over the area again, this time walking at a right angle to the direction you walked before. For example, walk from north to south for the first application, and from east to west for the second.

Step 2: Liquid Measurement Using water, fill the sprayer to a known mark and spray the area. Refill the sprayer, measuring the amount of water required to fill to the original level. The amount of water needed to refill the tank is the amount used per 1,000 square feet.

Example: One gallon of water was put in a 1-gallon hand-operated sprayer. After spraying a 100-square-foot test area, it was determined that 8 ounces of water were needed to refill the tank to the 1-gallon mark. At this application rate, how many square feet of carpet could be treated with 1 gallon?

spray used = 8 oz. on 100 sq. ft. 1 gal. water = 128 oz. 128 oz. = 16 x 8 oz.
16 x 100 sq. ft. = 1,600 sq. ft.

Thus, 1,600 square feet of carpet could be treated with 1 gallon of liquid.

Change Delivery Rate

If your sprayer is delivering less than or more than enough spray, you can change the rate by using one of three methods:

- Change the pump pressure. Lower pressure pushes less spray out of the nozzle; higher pressure pushes more spray out. This is not the best method because a pressure change will change the nozzle pattern.

- Change the speed of the sprayer. Slower speed leaves more spray along the target area; faster speed means less spray is left behind. Doubling the speed you move cuts the application rate in half. Changing the speed is practical for small adjustments of the application rate.

Adjust each nozzle's hole size by changing the nozzle's disk or change the entire nozzle. This is the preferred method of adjusting the application rate. By increasing the size of the hole in the disk or nozzle, you increase the application rate.

Method 2-Calibration of Small Volume & Hand Held Sprayers

The procedure for calibrating a hand-held or backpack sprayer is simple. Just follow these steps: 1. Measure out an 18- x 18- foot strip in the area similar to the one you will be spraying.

2. Add water to your tank and in a uniform manner, spray this area with water and record the amount of seconds it takes. Do this 2 or 3 times making sure that you keep your pattern and pressure constant. Take the average.

3. Measure the amount of water delivered to this strip by spraying into a bucket for the same amount of time as in step #2. Also keep your pressure the same as when you sprayed the strip. 4. The amount of water collected in fluid ounces equals the output or GPA. (Ounces = GPA)

This method works because of the relationship between a square that is 128th of an acre (18 1/2 x 18 1/2 = 342.25 ft²) and the fact that there are 128 ounces in a gallon.