



View from 2840-150 which may be decommissioned soon. Crew treated small amounts of herb Robert before it became established

Olympic Peninsula Cooperative Noxious Weed Control 2018 Project Report

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

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

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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.

2018 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.

2018 Resources:

- Supervisor (up to 20 hours/week, 6 months)
- 2-3 Project Specialists (up to 20 hours/week, 4 months)

2018 Accomplishments:

- Examined **240** acres for invasive species, treated **207** weed-infested acres, and monitored **56** treated acres.
- Inspected and treated high priority weeds in **13** FS rock sources; inspected and identified corrective measures for **12** private, **5** state and **23** county rock sources in regard to their potential to spread invasive weeds,
- 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. This year, one new species was detected, and several small infestations of known, but infrequent species were found and treated before they became well established. Treatment success and development of native plant materials allows crews to over-seed previously infested sites with native blue wild rye and a new forb mix provided by the Forest Service. This preventative practice can reduce the probability of weed re-infestation and is being expanded as additional native plant material as becomes available. As some of the long standing backlog of invasives recedes because of this program, we are able to shift toward early intervention and prevention; the most efficient and least expensive weed control methods in the long term. Long-range goals, detailed planning, consistency, and skilled staff have been the keys to progress to date.

Weed board staff have extensive knowledge ranging from project history and infestation locations to weed identification and best treatment practices. 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 rehabilitation 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. Large scale coordinated, multi-jurisdictional projects such as those 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 Title II of the Secure Rural School Act.

PROJECT SUMMARY

Project Goal:

The goal of this project is to protect the natural resources of Forest Service lands in 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 FS land in 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.

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 by finding and treating new invaders before they become well established. 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 chemical methods, while incorporating prevention and cultural control methods whenever possible. 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 preventative and cultural practices 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 species.

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 are spreading and hindering coordinated control activities. County noxious weed control boards provide the vital link to private and public landowners whose weeds threaten federal lands. Weed board program goals include public education, surveying for new noxious weed infestations, seeking landowner compliance with RCW 17.10 and WAC 16-750, and encouraging and supporting other public agencies in 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 Noxious Weed Control Board (CNWCB), 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. The 10,000 Years Institute, a local non-governmental organization is one such entity that has been working toward collaborating on projects with the FS where interest areas overlap such as the coastal portion of the Olympic Peninsula.

2018 Project Description:

This year's work focused on sites designated as high priority by the Forest Service, including infrequent high priority species, sites planned for decommission, forestry related activities, and habitat conservation. This year's team consisted of two to three members (generally accompanied by a more experienced leader) who alternated between Forest Service projects and county work including in-stream knotweed and county roadside weed control over the course of the treatment season.

The Forest Activity Tracking Sheet (FACTS) form was used to document treatments. Treatment reporting was based on a unique "Reference Number", arbitrarily assigned within 6th field watersheds. The FS provided native grass seed for rehabilitation of treated locations as appropriate.

In 2018, 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 infrequent weed species.
4. Control weeds in Botanical Areas and other special “critical area” sites.
5. Control weeds in campgrounds, trailheads and other heavily-used sites
6. Revisit previously controlled sites and perform necessary follow-up control work.
7. Identify and treat new populations, especially when seen en route to known sites.

2018 Project Resources and Roles:

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

- **CNWCB**

Coordinator: up to **20 hours/week, for 6 months, licensed applicator**

- Supervised and administered the project
- Provided technical information and support, crew training, and field treatments
- 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 2019 field season
- Provided non-forest rock source inventory, monitoring and reporting, as requested

Field team: 2-3 project specialists, (licensed applicators), up to 20 hrs/week for 4 months,

- Field treatments (**41 treatment days**)
- Data collection, completing treatment forms, rock source inventory and monitoring

2018 Project Accomplishments:

- The Clallam NWCB examined **240** acres, and treated **31** different weed species over **206** of those acres; **42** acres were combined manual/chemical treatments. In the course of these treatments we documented at least **15 new** infestations; all were small easily-controlled, early detections.
- Completed and submitted associated FACTS forms for all treated sites
- Inspected, treated, and documented the status of **13** FS, rock sources, inspected and facilitated control plans for **5** state and **12** private rock sources. Treated **23** county rock sources under ancillary Clallam Integrated Weed Management plan which compliments FS prevention protocols.
- Monitored **58** acres, and completed associated Monitor forms.

2018 Treatments:

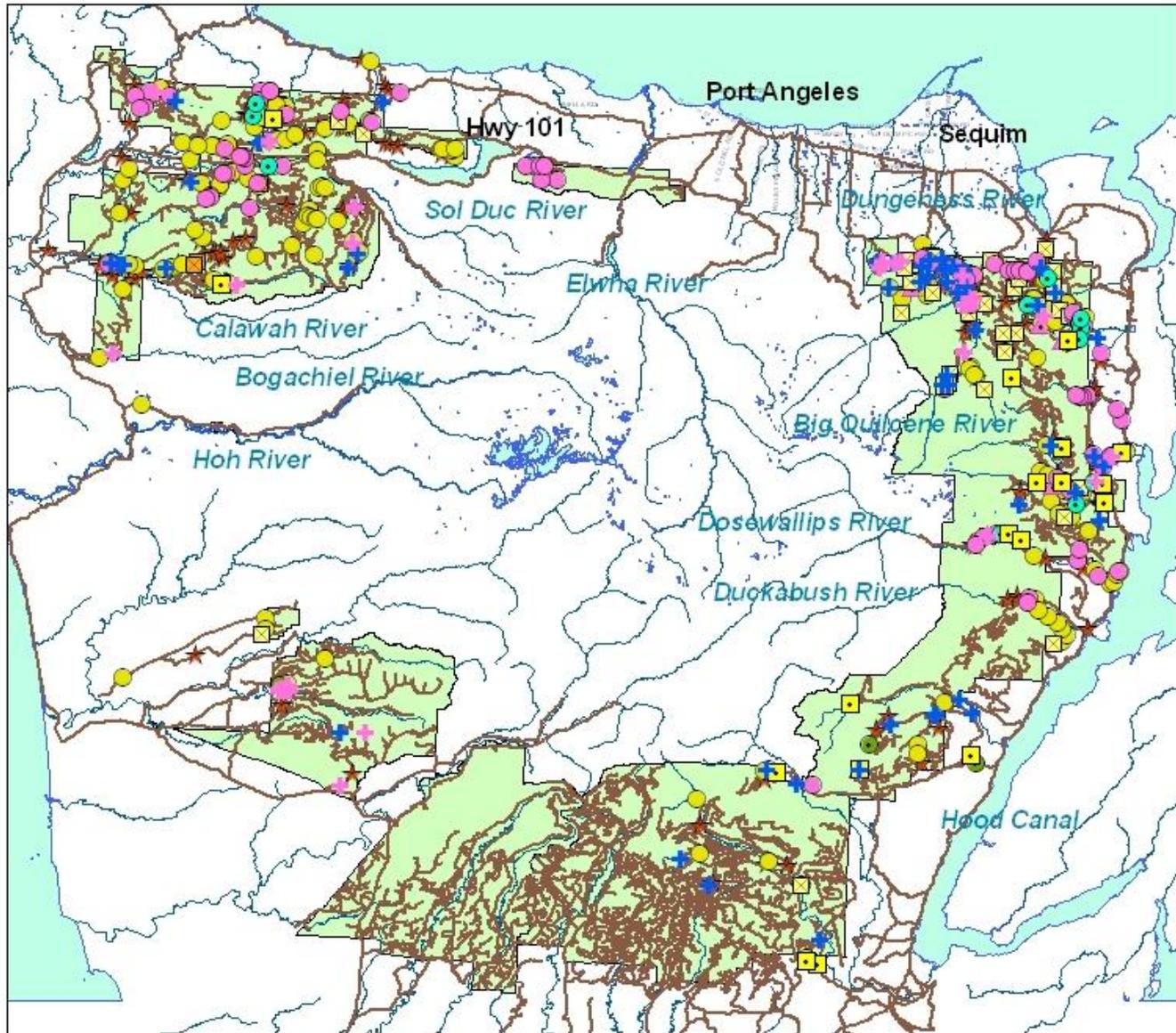
The increased capacity to cover ground by using all available tools has been instrumental in getting ahead of, and reducing the spread and impacts of invasive plant species. The discovery of brand new sites and/or species has begun to slow. Often these new infestations are small and easily controlled validating the concept of early detection, rapid response. See *Post–Season Observations* for more detail. Appendix A provides detailed information about specific 2018 treatments. Ensuring that rock sources meet the Forest Service’s “weed free” standard is a significant prevention tool that we have worked hard to encourage and are sure will pay dividends far into the future. See Appendix B for detail on the current “weed free” suitability of 76 rock sources. Adding rehabilitation activities such as overseeding with native material is the next step in overall the over-arching goal to reduce weed impacts and support multiple, but sustainable forest activities. For more background on how this program has adapted over time, please see the end of Appendix D for a brief history of FS policies, program focus and available resources which shaped overall program direction and accomplishments in different years.

The 2002-2018 Accomplishment Summary Table in Appendix D provides perspective on 2018 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 since this program began in 2002. 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. Treatments shown for years after 2006 may also have been combined, to conserve space. See previous reports posted on our website for greater detail of any specific project season.

MAPS

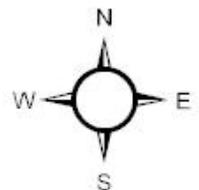
- Four maps are shown—an original baseline Overview of the Olympic National Forest—two showing current season surveys and weed sites in the Hood Canal District from north to south —one showing current season surveys and weed sites in the Pacific North district.
- The Overview Map shows baseline weed sites, documented from 2002- 2005.
- Roads where weed board crew worked in 2018 are shown in yellow. The Roads Surveyed 2018 layer was based on GPS track logs.
- The 2018 activity maps show weed sites newly documented in 2018; 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 6.1.0.6, which were then overlaid on previous species shape files to ascertain which infestations were new.

Olympic National Forest Overview, with Baseline Weed Sites

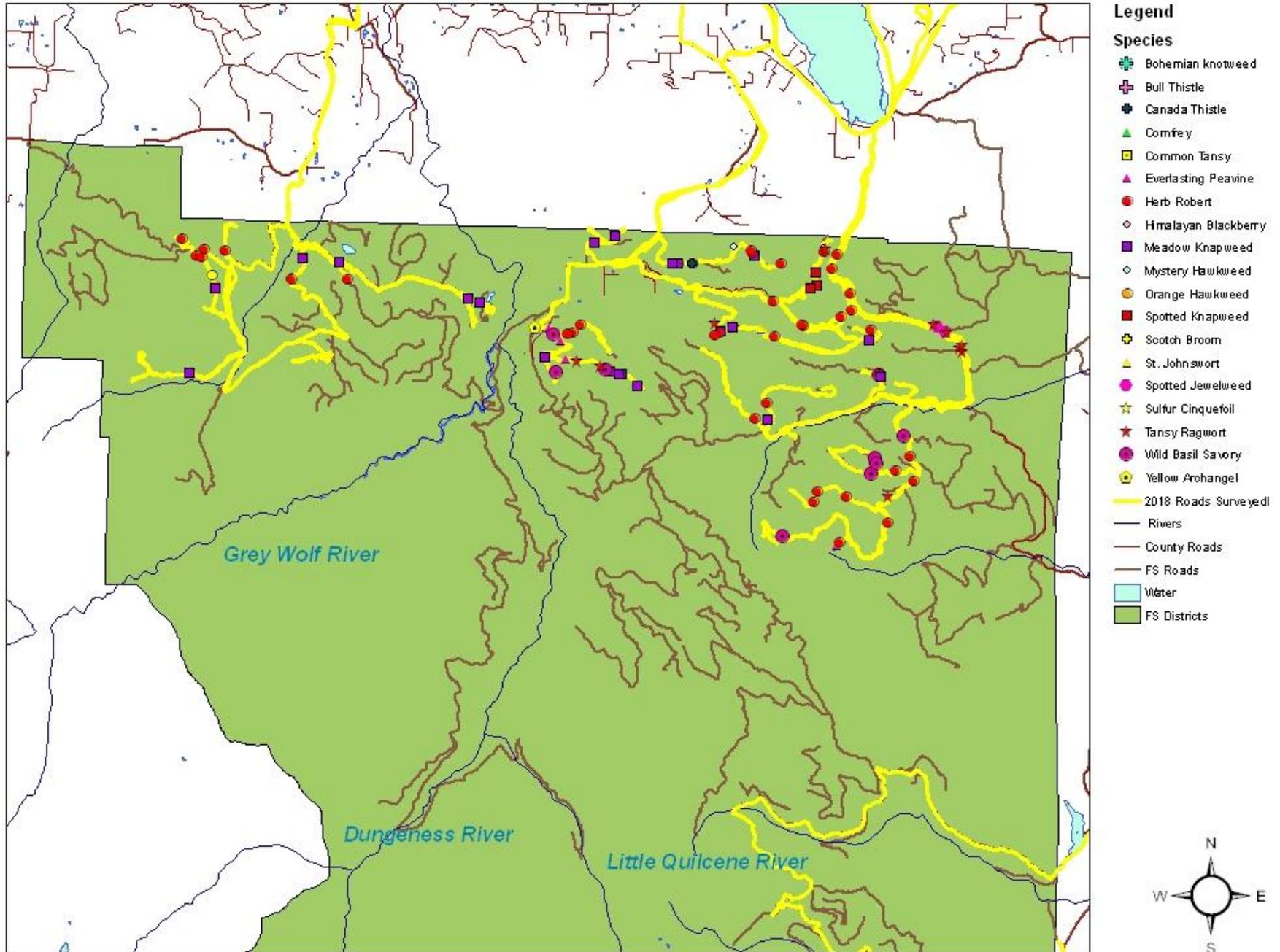


Legend

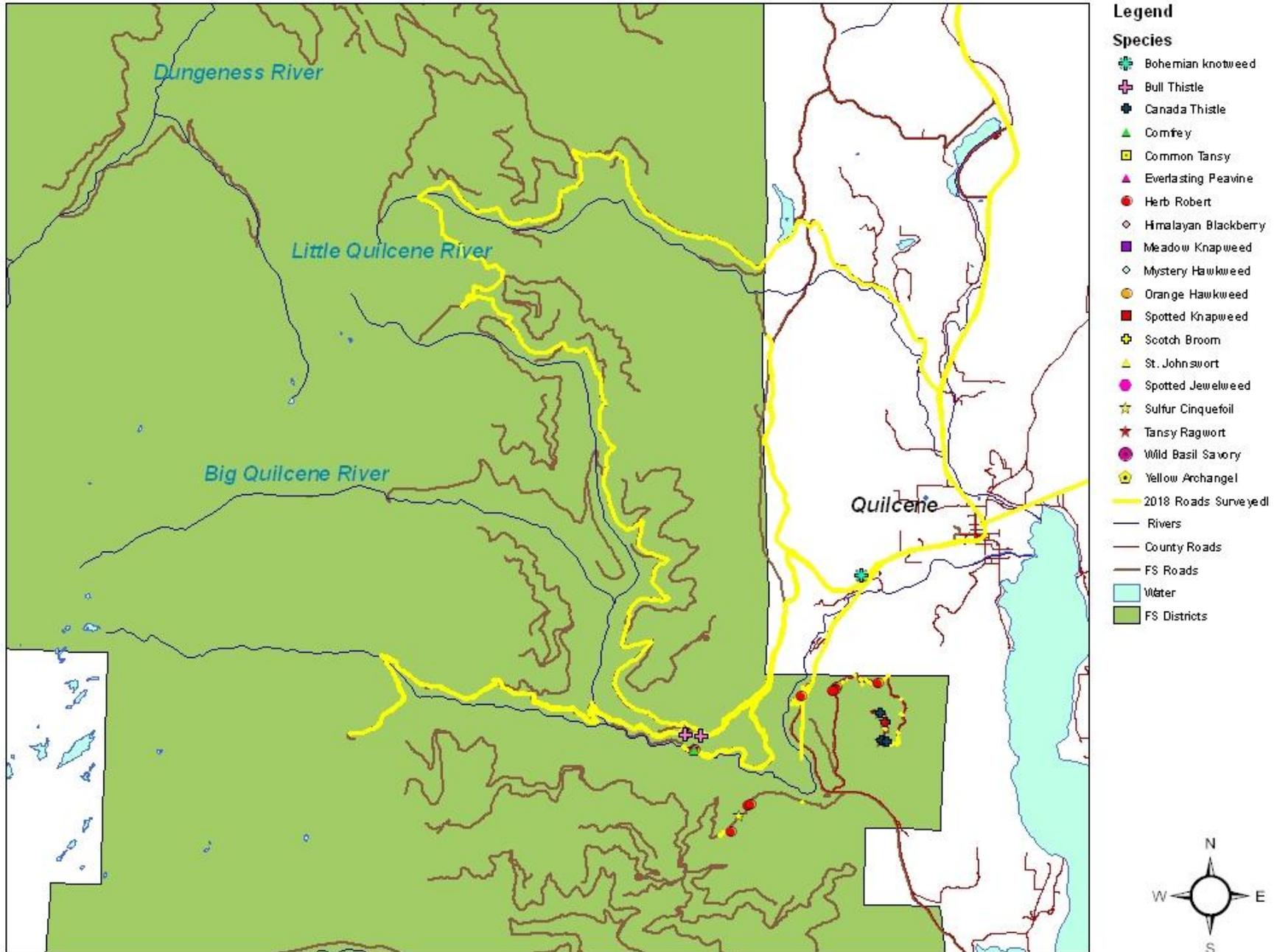
- ✦ bull thistle
- ✦ Canada thistle
- ☐ common tansy
- evergreen blackberry
- herb Robert
- himalayan blackberry
- ☐ meadow knapweed
- ☐ orange hawkweed
- ▲ peavine
- scotch broom
- ★ tansy ragwort
- FS Roads
- Rivers
- Water
- FS Districts



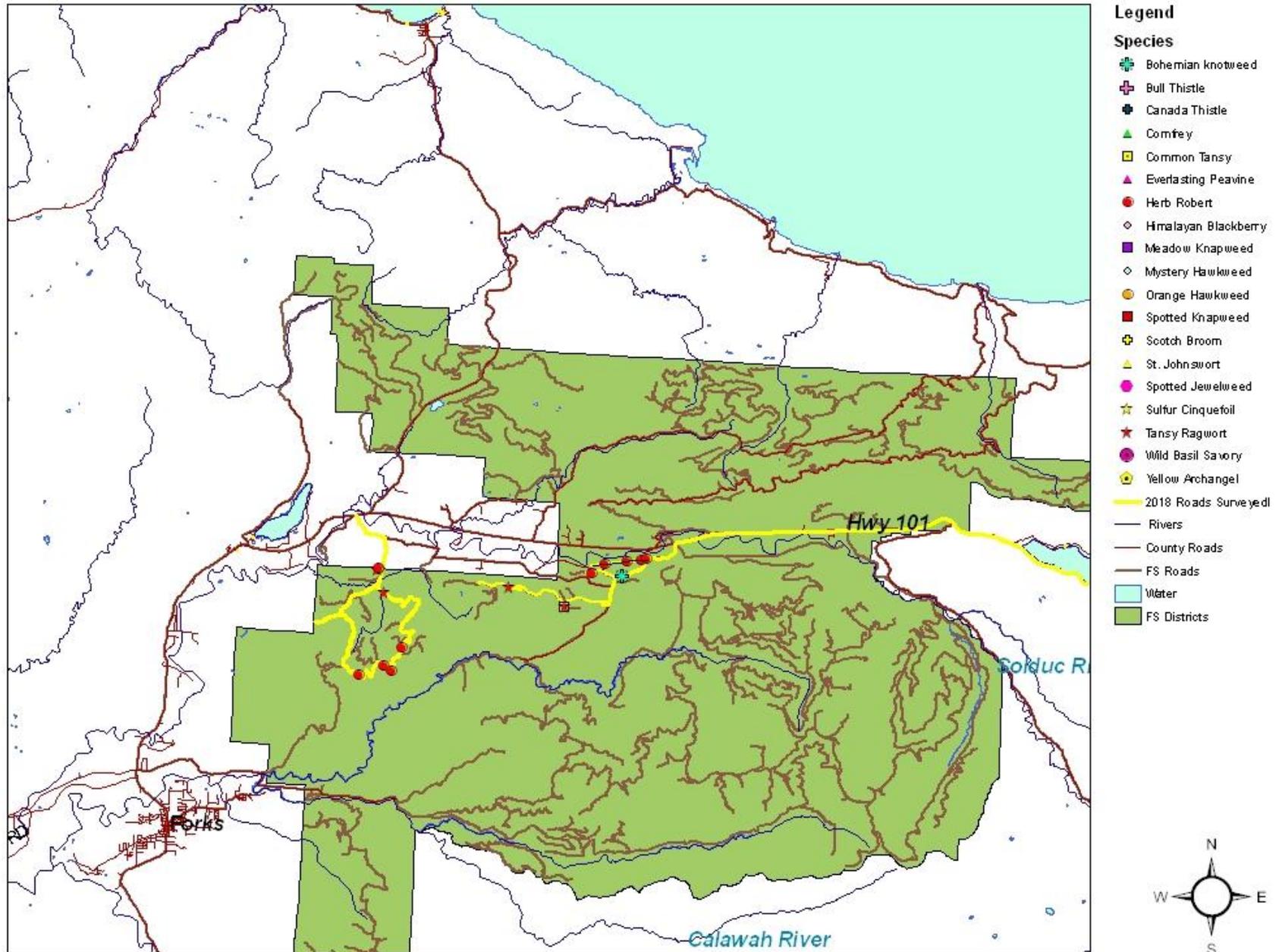
Hood Canal North - Roads Surveyed and New Weed Sites, 2018



Hood Canal South - Roads Surveyed and New Weed Sites, 2018



Pacific North - Roads Surveyed and New Weed Sites, 2018

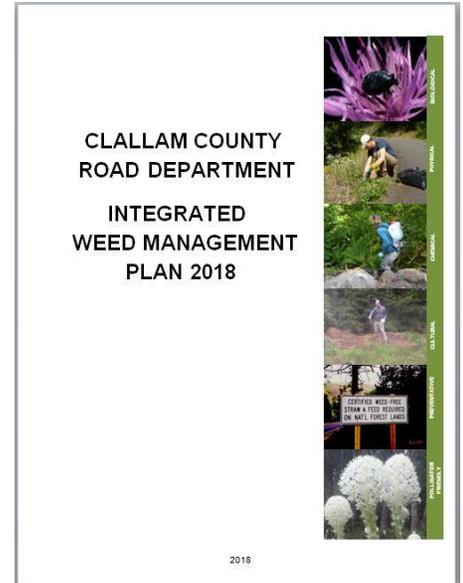


PROJECT SPOTLIGHT: MANAGING WEEDS ACROSS BORDERS

Clallam County Road Department Integrated Weed Management Plan

All Olympic National Forest (ONF) land in Clallam County is accessed via the county road system. These road systems can therefore serve as a significant vector for the spread of invasive non-native plant species that imperil natural resources, habitat, and ecosystem function. Conversely, invasive plant species on ONF land can spread directly to and impact county residents via this same road system.

Under the road department Integrated Weed Management (IWM) plan, Clallam Noxious Weed Control Board (CNWCB) crew treated county roads connected to Forest Service managed lands. This was a coordinated response to our FS 2018 work plan and is an excellent example of the cross jurisdictional cooperative approach to managing noxious weeds on a landscape scale. This almost unprecedented cooperation for the greater public good is the intent of Title II of the Secure Rural Schools Act.



Noxious Weed Control Board personnel target noxious weeds on County ROW.



Roadside meadow knapweed infestation- 2017 and 2018 comparison

Healthy desirable plant communities are less susceptible to weed invasion. Promoting and preserving a diverse native plant community is an effective weed prevention tool and achieves multiple goals simultaneously; it helps repel weeds, is more likely to be self-sustaining and require less maintenance and provides habitat and ecological benefits.

Meadow knapweed is a regulated noxious weed in both Clallam and Jefferson Counties. It is a high priority, but relatively scarce species on Forest Service lands. Following prevention principles, we strive to remove invasive species and protect and promote desirable native species whenever possible. The composite picture, (above on right), shows a county roadside heavily infested with meadow knapweed. In the following year, effective treatments not only preserved but also released thimble berry, a native shrub, allowing it to dominate. In 2018, CNWCB crew treated 170 miles, nearly one-third, of Clallam County's roads system. *Effective weed control on county roads protects ONF lands.*

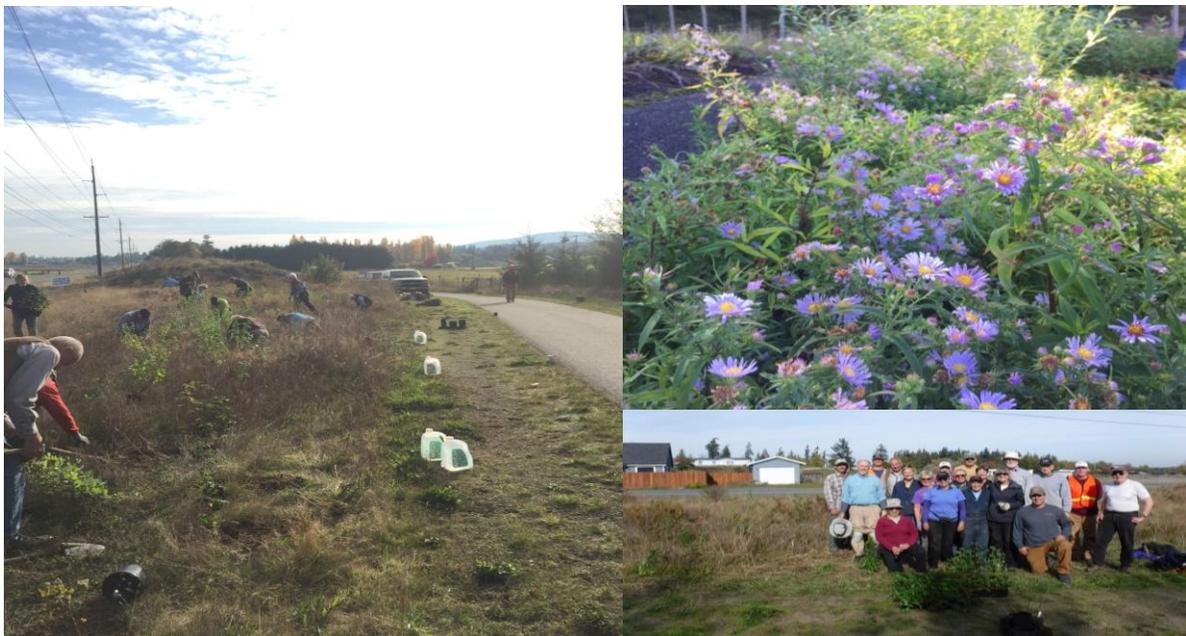
Prevention is the most cost effective and efficient weed control method in the long term. Controlling weeds in rock sources prevents weed propagules from being widely dispersed, and is therefore a top priority.

Under the 2018 IWM plan we targeted 23 county pits. Additionally, we promoted the “weed free” rock source program, by inspecting and certifying many private and WA Department of Natural Resources sites so they could meet FS rock source standards for material used in FS maintenance and construction projects. See appendix for a concise summary of weed status and rock sources suitability. *Effective weed control in non-forest rock sources protects ONF lands.*



Before and after photos show successful Scotch broom treatment in a county pit. We used multiple treatment methods, (manual, cut-stump, foliar) as best suited the site, species, and labor resources. Broom is one of 33 weed species controlled in county pits.

The IWM plan also identified pollinator enhancement plantings as a cultural weed control method to achieve desired goals. This is consistent with FS restoration goals and responsibilities under the Endangered Species Act. We implemented two pilot projects this year, and our Master Gardener Roadside Weed Monitor Team (RWMT) mapped pollinator corridors and identified 18 additional future enhancement projects as resources are available.



From upper right hand, clockwise: locally sourced plant material grown at the Matt Albright Plant Center, Volunteer group poses after a long day planting, Volunteers plant, then water pollinator friendly native plants. 23 successively blooming native forbs and shrubs were used in the pilot pollinator-enhancement projects.

A comprehensive county-wide weed control program encouraged and supported by an effective Noxious Weed Control Board protects Olympic National Forest’s natural resources!

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.

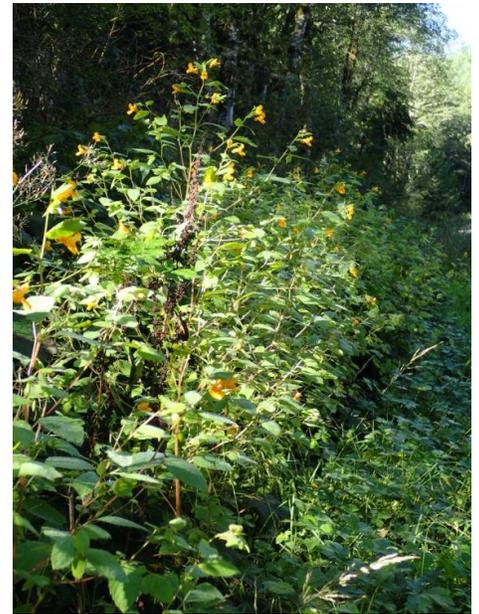
The Forest Service, in consultation with the local weed boards, creates an annual work plan identifying high priority sites based on known problems or anticipated needs. These include the potential for weed invasion during road decommissioning, thinning, or other forest health and maintenance projects. This year, the NWCB crew treated **40** of 41 high priority, **20** additional lower priority, and **8** Early Detection projects for a total of **68** projects.

An early detection and rapid response strategy has 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 eradicated. Infrequent high priority species such as jewelweed, hawkweeds, knapweeds and knotweed were specifically targeted again this year. Of the 19 occasions where meadow knapweed was found this season, all but two had no more than a single plant or two; at least half were new, early detections. Of known sites, only one site had spotted knapweed, only 1 had knotweed. We found and treated one new infestation of each of the following known species: yellow archangel, sulfur cinquefoil, common tansy, teasel, comfrey and orange hawkweed. A more significant orange hawkweed site up Mt Mueller near Jasmine's Meadow was discovered by an off-duty crew member; it will be recommended for treatment next year. Possibly two new yellow-flowered hawkweed species were found; yellow hawkweed, and a still undetermined, but non-native hawkweed. All were small and easy to control. These early detections were found in areas we had not surveyed for at least a decade, or had never surveyed. We continued to document the prevalence of wild basil savory, (12 new waypoints), some, where it was just becoming established, others where it already had a good foothold. Wild basil savory appears to be able to out-compete herb Robert that is adjacent to roadsides, and is much harder to kill than herb Robert.

Although we are making progress, herb Robert continues to be problematic. It is clear that more frequent treatments per season are required. We relied primarily on Milestone for most treatments, especially sites that contained herb Robert, where Milestone appears to inhibit some germination while having less impact to native woody species. However, it appears that Milestone alone may not adequately control wild basil savory. We will look for more direction from the Forest Service on their future desired action for wild basil savory.

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 certification inspections. The NWCB treated **13** Forest owned rock sources, and also provided certification services for **12** of the privately owned rock pits that may provide material for Forest projects in the future. **23** county rock sources were treated under the County Integrated Weed Management plan and **5** quarries owned by the Department of Natural Resources were inventoried and certified. Most of the DNR rock sources will be used in upcoming projects either in partnership with the Forest Service, or in projects that cross FS jurisdiction. The results of these surveys are summarized in Appendix B.

There are many examples of progress. Over the years, weed infestation size, density, and diversity have declined significantly. Intra-agency partnerships and collaboration have increased. Long range goals, detailed planning and consistency, and trained eyes in the field have been the key to our successes.



Heavy spotted jewelweed infestation along Jefferson County road is likely source of new infestations found on FS land.

Invasive Weed Populations:

- The most commonly recorded invasive species continue to be herb Robert, everlasting peavine, tansy ragwort, Canada and bull thistle, and now wild basil savory. The most infrequently recorded species are teasel, bishops weed, comfrey, sulfur cinquefoil, hawkweeds, knotweed, English ivy and poison hemlock. There were limited infestations of some new weeds as noted above.
- The crew took 140 waypoints, 15 of which likely document infestations new to the associated project area.
- We determined that private land was NOT the source of sulfur cinquefoil on 285500 (Jimmy-come-lately Rd) This information and a new sulfur cinquefoil site on Rockybrook, makes the Quilcene Ranger station the more likely source for all cinquefoil on Forest Service land that we've found to date.
- Cheryl Bartlett discovered, and we concur, that spotted jewelweed, found for the first time in our area last year is most likely the result of the infested Lord's Lake Loop, in Jefferson County. Coordinated efforts with the Jefferson NWCB to cause spotted jewelweed to be controlled on that county roadside would be very helpful.
- Tansy abundance is down in areas where there has been consistent follow-up, especially in the Dungeness Watershed. Tansy ragwort on Mt. Walker Rd improved considerably after treatment last year.
- The number of herb Robert infestations remains concerning. Small herb Robert patches treated last year responded well to treatment.
- Earlier than usual surveys in Bockman Pit resulted in orange hawkweed detection that might have otherwise been missed. In general, the condition of rock sources on FS land improves every year.
- It is clear that the more often trained crew is out in the field, the more often we find and eliminate small, new infestations before they gain a foothold. Many times, a single treatment of these EDRR sites is sufficient!
- With a special DNR key, we were able to access and treat the long lost Luella LuLu pit and associated roads!
- **A new Class A weed**, Italian thistle (*Carduus Pycnocephalus*) was discovered in and around a private rock source in Sequim. Small populations of purple loosestrife, common hawkweed, hoary alyssum, hairy willowherb, wild chervil, chicory and common reed are all present on Jefferson and/or Clallam County roadsides. We consider control of all of these plants a high priority to prevent their spread.
- The implementation of Clallam County's Integrated Weed Management plan with its focus on controlling weeds in county rock sources and building self-sustaining resilient roadside vegetation through mowing modification and native plantings will be significant factors that reduce overall weed pressure on Forest lands, now and into the future. A full report of our complementary activities under the IWM plan can be viewed on our website.

Survey, Treatment, and Monitoring

- The Forest Service eliminated the priority 1 category, and deliberately limited the number of 1A priority projects in the work plan for the NWCB which gave us considerable flexibility to adapt priorities.
- The pool of eligible seasonal crew members continues to be very tight. Although we had a slightly larger crew, we would have greatly benefitted from one additional member.
- NWCB crew treated **40** priority 1A projects listed for Jefferson/Clallam in the 2018 work plan. An additional **20** priority 2 projects and **8** non-prioritized projects were treated and listed as EDRR.
- A Forest Service Crew, assisted by a WCC crew for 2 weeks treated **19** priority 1A, **9** priority 2 and **4** EDRR projects from the same list. We've been able to add their treatments into the table in Appendix A, and better capture all work completed within Jefferson and Clallam Counties this year.
- A number of lower priority roads adjacent to 1A sites often yielded single plant infestations of high priority weeds, underscoring the importance of regular surveys for early intervention.
- Most treatments included the use of Milestone. Our initial impression comparing last year treatments indicates Milestone provides longer lasting herb Robert control than Vastlan with less impact to native woody species. However, Milestone may not be as effective on everlasting peavine, as Transline. We'd like to hear from others regarding their experience.
- Last year's treatment of wild basil savory treatment in Falls View Campground did reduce overall abundance, but still requires significant follow-up.
- There are new collaborative weed control opportunities between Coastal Restoration Team under the leadership of the 10,000Years Institute. Close communication will be essential to ensuring efficiencies.
- A few rainy days helped us increase our monitored acres.

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!

RECOMMENDATIONS

Future Direction of the Project

Title II funding under 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 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. A limited supply of non-grass mixes, are now available. Continued development of diverse native plant materials including a variety of forbs will be a focus in coming years.

The working relationship between Weed Board and Forest Service has enabled us to refine and improve many elements of this project over the years. The expertise, flexibility, and locality of weed boards make us ideally suited to identify and control new or small infestations and other tasks as needed and directed by the Forest Service Botany program.

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.

Specific recommendations for next year are listed below.

Program Development

- Pursue Title II funding, as available, to ensure program continuity and preservation of progress to date.
- Seek longer Master Agreement duration: the newer agreements are shorter and often come with deadlines that are out of sync with field work and reasonable reporting timeframes. The short Master Agreements create additional administrative costs that can detract from funding for field work.
- 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.
- Continue to collaborate with ONP and ONF on a native plant material consortium.
- Pursue a formal CWMA with federal partners which may open new funding sources for work across jurisdictional boundaries.

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.



Seeded native blue wild rye flourishes and inhibits a previously heavy herb Robert infestation in Falls View campground- adjacent to Hwy 101.



Trained staff and broadened search areas yield new sites. Above, crew treats unidentified, non-native hawkweed on FS road, behind DNR gate.

Below, small patch of orange hawkweed found in Bockman Pit.



- Develop an agreement with Coastal Restoration Crews if they have been funded. Clearly communicate expectations, priority sites and establish periodic reviews during the season to ensure we are all on the same track.
- Treat sites indicated as high priority by crew on FACTS sheets.
- Survey and treat areas as recommended in Appendix C.
- Continue to include a survey component in the work plan.
- Ask crews to identify areas that would benefit from re-planting to reduce erosion and possible sediment pollution into streams.
- Seek cooperation from Jefferson County road department to treat spotted jewelweed on Lord's Lake Rd to reduce invasion potential to FS land.

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 will be helpful.



Tiny patch of bishop's weed, an infrequent invasive, was re-treated as part of high priority follow-up, per work plan treatment prioritization protocols.



Amphibian found in Juniper Meadow, a beautiful, healthy botanical area treated for minimal amounts of Canada thistle this year

2018 PROTOCOLS



The 2018 crew, plus Carli Miller ,ONP (at far right) prepared for the trek to Cranberry Bog

1. Team and Project Dates

This year's project focused almost entirely on treatment but had time for limited seeding after onset of seasonal rains with material provided by FS. Treatments were performed by a crew consisting in various combinations of Cathy Lucero (Clallam County Coordinator), and field technicians, Natalie Beatty, and Jim Knappe, Tommy Roche Josef Sollman. 2018 fieldwork began in mid June and continued through mid October. The Olympic National Park loaned us crew member Carli Miller, who assisted with treatments in Cranberry Bog.

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 2018. 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. In 2018, only treated mileage was documented on FACT sheets, was recorded; surveyed miles was not included.
- 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 July 12th and October 11th.

- 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 0.125% Milestone, 1.5% Element or 1% Vastlan (both triclopyr), 0.5% Transline (clopyralid), or 1.0% Polaris (imazapyr) and 0.5% Competitor or Liberate (surfactants) and 0.25% Blazon (marker dye).
- 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 that can 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 6.1.0.6

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 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 2018 treatments by acreage, date and species. It is a comprehensive account of work accomplished in 2018..
- b. **Appendix B** is summary of this year’s rock source inspections and treatments.
- c. **Appendix C** shows weed sites recommended for next season’s project area list.
- d. **Appendix D** 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 2018, and weed species treated. The master list is followed by a table summarizing yearly accomplishments by crew since 2002. Finally, brief annual narratives provide perspective on how the program has responded to changing conditions and resources.
- 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** is a list of all weed species reported and entered into the NRIS Terra database over the lifetime of this project.
- g. **Appendix G** gives control recommendations for each invasive species identified during the course of this project.
- h. **Appendix H** shows the 2018 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: 2018 PROJECT LIST ACTIONS

This table is based on the Project List developed by the Forest Service, which serves as a prioritized work plan for the Clallam Noxious Weed Control Board (CNWCB). This year the list had only three categories, Priority 1A, 2, or no priority. This table includes all Clallam and Jefferson Priority 1A that were assigned. Priority 2 sites are only shown when treated. Sites shown in the table as Early Detection Rapid Response were originally listed in the work plan with no priority, or were not shown. Also shown are two county roads that have been shown in the project list, but not treated until this year. Under the new Clallam road department Integrated Weed Management (IWM) Plan, county roads that directly lead to Forest Service land are prioritized and treated for regulated or high priority weeds.

The table is sorted by road number; smallest to largest. It shows the acreage treated each date the Clallam Noxious Weed Control Board (abbreviated to NWCB in the table) was on site and whether the treatment was manual, chemical or a combination of both. All told, we surveyed **240** and treated **206** acres, manually or chemically.

The table also shows treatments by a FS led crew, (including sites treated with the assistance of WCC) from information in the *Treatment Tracker* (through 9/30/18) which was provided to us by the Forest Service. Acreage and herbicide information for FS /WCC is not shown in the table although we assumed all treatments were primarily herbicide. All told the FS/WCC crew treated **90** acres manually or chemically. We have no information about work performed by other crews (such as the Coastal Restoration Crew under the supervision of 10,000 Year's Institute) on other sites in the combined Clallam/Jefferson Counties project list. To the best of our knowledge, there were no weed sites treated by a Clallam County Chain Gang this year.

In the table below, cells in the *Crew* column have been color coded to show which crew performed each treatment, and the project's priority (set by FS). For the CNWCB: Priority 1A sites are **bright yellow**, Priority 2 sites are **light yellow**. For FS crews: Priority 1A sites are **gray**, priority 2 sites have no color. The CNWCB treated a total of **68** projects; all but one of our assigned Priority 1A sites were treated. The FS crew treated a total of **32** projects, all but six of their assigned Priority 1A sites were treated. 1A sites that were not treated by either crew are highlighted in **red**. Sites shown as ED/RR were newly discovered and treated; the **font** for these sites is **red**. The table includes each visit to a specific project this year.

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. Totals have been rounded to the nearest whole number.

This year the focus was on the sites with infrequent, high priority weeds such as orange hawkweed, yellow archangel, knotweed, and knapweeds in addition to sites that may be soon decommissioned or are in the planning stages for forestry activities. We discovered two new species in the forest this year as well as a number of sites with single plant infestations of high priority weeds. The *2018 Priority* column reflects crew suggestions based on field observations and should be considered in preparing next year's project list.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
76			Jimmy-come-lately	5331	Palo Alto Rd (county)		6/25/18 8/15/18 8/29/18 9/11/18							CEDE CIAR CYSC GERO PORE SEJA	A major connector road to FS land-treated under the County's IWM plan

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount OZ	Manual Acres	Species	Comments
	NWCB		Jimmy-come-lately	5695	Woods Rd (county)		7/23/18 8/6/18				Herbicide Manual			CEDE CIVU CYSC GERO LALA RUAR SEJA	A major connector road to FS land-treated under the County's IWM plan
295	NWCB	EDRR	Lower Big Quilcene	2620000		Y	9/18	3.8	3.8		Herbicide Milestone Vastlan AquaNeat Manual	6.62	0.5	CIAR CIVU CYSC GERO PHAR PORE SEJA	CLVU infested-50-100% coverage. Priority for PORE.
295	NWCB	EDRR	Lower Big Quilcene	2620000		Y	10/11	3	3		Herbicide Milestone Vastlan AquaNeat Manual	12.18	0	GERO SEJA	Bad GERO hidden behind CLVU!
462	NWCB	2	Lower Big Quilcene	2700040		N	9/24/2018	3.3	3.3		Herbicide Milestone	6	0	CIVU CLVU* DIPU GERO HYPE LALA SEJA	CLVU starting to come in heavy between 3.7-2.6 MP
462	NWCB	2	Lower Big Quilcene	2700040		Y	10/3/2018	2.5	2.5		Herbicide Milestone	3.33	0	CIAR CIVU DIPU GERO LALA, DIPU SEJA SYOF VETH	GERO extends down to river in most areas between MP 2.6-2.1.
462	NWCB	2	Lower Big Quilcene	2700040		Y	10/4/2018	7	7		Herbicide Milestone Manual	6.67	0.75	CIAR CIVU CYSC DIPU GERO HEHE SEJA VETH	
462	NWCB	2	Lower Big Quilcene	2700040		Y	10/9/2018	4.8	4.8		Herbicide Milestone	6.75	0	CIAR CIVU DIPU GERO LALA SEJA VETH	GERO really bad - behind CLVU on hillslopes.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount OZ	Manual Acres	Species	Comments
590	NWCB	2	Lower Big Quilcene	2700040	PT Muni WS caretakers cabin	Y	5/17/2018	2	1.25		Herbicide Milestone Vastlan Polaris Manual	5.5	0.25	CIAR GERO HIAU LAGA LEVU PHAR SEJA VIMI	2018: Met Michael Speers and Matt Lewis onsite to discuss water diversion construction project and weed mitigation. This site is really looking good, GERO is improved.
297	NWCB	EDRR	Lower Big Quilcene	2730000		Y	10/10/2018	8.4	8.4		Herbicide Manual	2.4	4.2	CIAR CIVU GERO LALA RUAR RULA SEJA	2018: SEJA dispersed throughout.
292	NWCB	1A	Lower Big Quilcene	2730200	Falls View CG	Y	6/27/2018	6	6	6	Herbicide Milestone	7.2	0	CLVU GERO SEJA	2018: CLVU has seriously infested the campground - where treated last year looks better. Mostly small GERO plants.
292	NWCB	1A	Lower Big Quilcene	2730200	Falls View CG	Y	7/2/2018	2.5	2.5	2.5	Herbicide Milestone	6.5	0	GERO	Finished north loop of CG. Worked towards south loop. Creek at culvert is heavily infested with GERO.
292	NWCB	1A	Lower Big Quilcene	2730200	Falls View CG	N	9/18/2018	3	3		Herbicide Milestone	5.67	0	CLVU GERO ILAQ RULA	2 acres retreated and 1 newly treated.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
291	NWCB	2	Lower Big Quilcene	2740000		Y	10/3/2018	3.5	3.5		Herbicide Milestone Manual	1.83	3.5	CIAR CIVU CYSC DIPU LALA GERO* , SEJA VETH*	2018: Exceptionally bad GERO, LALA, and DIPU at MP 0.3 pull-off - appears to be old pit.
454	NWCB	2	Upper Big Quilcene	2740000		N	9/27/2018	5	5		Herbicide Milestone Vastlan Manual	4.5	5	CIAR CIVU GERO LALA SEJA	2018: CLVU present - gets progressively worse towards beginning of road.
454	NWCB	2	Upper Big Quilcene	2740000		Y	10/2/2018	5.6	5.6		Herbicide Milestone Manual	1.67	5	CIAR CIVU CYSC DIPU* GERO* LALA SEJA	
922	FS	1A	Upper Big Quilcene	2760000											
194	FS	1A	Little Quilcene	2800000	Bon Jon Quarry										
907	FS	1A	Middle Dungeness	2800120			9/16/2018				Herbicide			CEDE CIVU LALA SEJA	
101	FS	1A	Middle Dungeness	2800130	Lost Pit (aka Canine)		9/12/2018				Herbicide			CIAR CIVU CYSC HYPE LALA SEJA	
906	FS	1A	Middle Dungeness	2800220			7/19/2018				Herbicide			CIAR CIVU CYSC4 LALA SEJA	
675	FS	1A	Middle Dungeness	2800250			7/19/2018				Herbicide			CIAR4 CIVU GERO SEJA	

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
113	FS	1A	Middle Dungeness	2800260											
909	FS	1A	Middle Dungeness	2800280			7/19/2018				Herbicide			CIAR CIVU GERO LALA SEJA	
910	FS	1A	Middle Dungeness	2800283			7/19/2018				Herbicide			CIAR CIVU LALA SEJA	
911	FS	1A	Middle Dungeness	2800290											
669	NWCB	2	Canyon Creek /Pats Creek	2800320		N	6/25/2018	1.4	1.4		Herbicide Milestone	1.16		LAGA LALA SEJA	2018: Close to known herb Robert infestation. 2018: From ref # 670 to intersection with #671 (0.7 mi) plus LAGA at intersection with 310 Rd.
669	NWCB	2	Canyon Creek /Pats Creek	2800320		N	6/26/2018	2.5	2.5		Herbicide Milestone	3.3		CIAR CLVU LALA SEJA	2018: RESEEDING CANDIDATE. Wild basil savory treated - mainly lower portion of road.
670	NWCB	1A	Jimmy-come-lately	2800320		Y	6/25/2018	1.25	1.25		Herbicide Milestone	0.825		CEDE CIAR CIVU HYPE SEJA	2018: Close to known herb Robert infestation.
667	NWCB	2	Canyon Creek /Pats	2800321		Y	6/26/2018	1.5	1.5		Herbicide Milestone	2.24		CIAR CIVU GERO LALA	2018: Reseed in fall.
668	NWCB	1A	Jimmy-come-lately	2800321		Y	6/26/2018	1.1	1		Herbicide Milestone	0.24		CIVU GERO LALA	2018: Prevalant HYPE, didn't treat.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
671	NWCB	2	Middle Dungeness	2800325		Y	6/25/2018	1.2	1.2		Herbicide Milestone	1.8		CIAR CIVU LALA	2018: Peavine, Bull Thistle, Canada Thistle.
75	NWCB	2	Jimmy-come-lately Creek	2800350	Louella Work Center	Y	6/25/2018	0.5	0.5		Herbicide Milestone Manual	0.016	0.25	CEDE CLVU	2018: chemical treatment on Wild Savory Basil only.
65	NWCB	2	Jimmy-come-lately	2800351		N	6/25/2018	1.16	0.15		Manual		0.15	CEDE	2018: No GERO found. Hand pulled small individual knapweed plants.
58	NWCB	1A	Jimmy-come-lately	2800351	Louella Rock pit	N	6/25/2018	1.0	0.001		Manual		0.001	CEDE	2018: one knapweed plant found above the pit.
921	NWCB	2	Jimmy-come-lately Creek	2800353		Y	6/25/2018	0.87	0.87		Manual		0.87	CEDE CIVU	2018: Pulled 125 CEDE5 and 2 CIVU.
67	NWCB	1A	Jimmy-come-lately	2800360		Y	8/20/2018	0.8	0.8		Herbicide Milestone Manual	1.33	0.8	CIAR, CIVU, DIPU, HYPE*, GERO SEJA unknown Hieracium sp.	2018: 3 patches of mystery hawkweed around MP 2.5-2.1 section.
67	NWCB	1A	Jimmy-come-lately	2800360		Y	8/27/2018	5.45	5.45		Herbicide Milestone Manual	5.0	3	CEDE CIAR CIVU GERO RULA SEJA unknown Hieracium sp.	2018: Big patch of mystery hawkweed in roadway. 3 CEDE plants found.
67	NWCB	1A	Jimmy-come-lately	2800360		Y	8/29/2018	1.0	1.0		Herbicide Milestone	2.83		CIAR* CIVU* GERO* LALA*	Portion of road adj. to DNR land. Lots of GERO, CIAR, and LALA; not all treated. 0.1 miles of road remaining.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
59	NWCB	1A	Jimmy-come-lately	2800360	Luella LuLu quarry		8/27/2018	1.0	0					None found- CIVU near	FOUND!- behind DNR gate requiring special key: no invasive species found, CIAR and CIVU found adjacent to quarry.
77	NWCB	1A	Jimmy-come-lately	2800362		N	8/20/2018	0.8	0.8		Herbicide Milestone Manual	0.83	0.8	CIAR CIVU GERO SEJA	2018: GERO only at jct with 2800-360.
102	FS	1A	Middle Dungeness	2820000			9/12/2018				Herbicide			CEDE SEJA	
78	NWCB	2	Jimmy-come-lately	2840000		Y	7/16/2018	0.8	0.7		Herbicide Milestone	0.5		CIVU GERO SEJA	2018: Really heavy patch of GERO at junction of 2840 and 120.
70	NWCB	1A	Jimmy-come-lately	2840070		Y	7/17/2018	3.9	3.5		Herbicide Milestone	3.7		CIAR CIVU GERO SEJA	2018: Additional unmapped spur accounted for 0.5 acres of examined and treated area for CIAR, SEJA, and GERO.
71	NWCB	1A	Jimmy-come-lately	2840071		Y	7/17/2018	5.0	5.0		Herbicide Milestone Vastlan	5.91		CEDE CIAR CIVU CYSC GERO LALA SEJA	2018: GERO found in unnamed pit at first 0.3 mile of road. SYOF found with GERO, forested edge to right when facing rockwall.
57	NWCB	1A	Jimmy-come-lately	2840080	Coho Pit	N	7/17/2018	1.9	0.01	1	Herbicide Milestone	0.16		CIAR LALA	2018: Almost clean. LALA found at rockface. 20 sq-ft of CIAR.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
83	NWCB	2	Jimmy-come-lately	2840120		Y	7/16/2018	1.2	0.5		Herbicide Milestone	0.67		CEDE CIVU CLVU GERO SEJA	2018: Herb Robert directly across from quarry and a little past.
62	NWCB	1A	Jimmy-come-lately	2840120	Wolf Quarry 2	N	7/16/2018	0.6	0.3		Herbicide Milestone	0.04		HYPE	2018 No GERO found in pit, but adjacent over slope.
914	NWCB	1A	Snow Creek/Salmon	2840150		Y	7/16/2018	1.2	1.2		Herbicide Milestone	1.17		CIVU GERO SEJA	
845	NWCB	1A	Snow Creek/Salmon	2845000		Y	7/12/2018	7.0	7.0	7.0	Herbicide Milestone	4.17		CIAR CLVU GERO HYPE SEJA	2018: 0.2 mile spur treated from back end 0.6 miles long. High priority for Herb Robert patches.
845	NWCB	1A	Snow Creek/Salmon	2845000		Y	7/16/2018	4.2	4.2	4.2	Herbicide Milestone	0.64		CIVU CLVU GERO SEJA	MP 2.1-0
147	NWCB	2	Snow Creek/Salmon	2845070		Y	7/11/2018	3.0	3.0		Herbicide Milestone	1.01		CIVU CLVU GERO HYPE SEJA	2018: Much improved. Small spots of GERO. Timber theft noted. No CEDE
148	NWCB	1A	Snow Creek/Salmon River	2845073		N	7/11/2018	2.7	2.7		Herbicide Milestone	0.6		CLVU CYSC GERO HYPE SEJA	2018: Really getting clean. Tiny amounts of GERO. Surprising amounts of CLVU.
61	NWCB	1A	Jimmy-come-lately	2845073	2845073 spur pit	N	7/11/2018	1.0	0.61		Herbicide Milestone	0.24		CIAR CIVU CYSC SEJA	2018: Really looking good. No CEDE

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
847	NWCB	EDRR	Snow Creek/Salmon	2845120		Y	7/12/2018	3.4	3.4		Herbicide Milestone	0.83		CIAR CLVU GERO SEJA	
846	NWCB	EDRR	Snow Creek/Salmon	2845150		Y	7/12/2018	1.0	1.0		Herbicide Milestone Vastlan	5.16		CIAR CYSC GERO LALA SEJA	
844	NWCB	1A	Jimmy-come-lately	2845200		N	7/12/2018	0.6	0.1		Herbicide Milestone	0.042		CIAR	
84	NWCB	1A	Jimmy-come-lately	2850000		Y	7/11/2018	0.75	0.75	0.75	Manual		0.75	IMCA	2018: only known area in forest-2 patches along this road-moved into wetland adjacent to road, as well as ditch
84	NWCB	1A	Jimmy-come-lately	2850000		Y	7/23/2018	3.0	3.0	3.0	Herbicide Milestone Manual	4.08	2.5	CIAR CIVU CLVU GERO SEJA	
84	NWCB	1A	Jimmy-come-lately	2850000		Y	7/24/2018	4.0	4.0	4.0	Herbicide Milestone	4.9		CIAR CIVU CLVU CYSC GERO SEJA	
84	NWCB	1A	Jimmy-come-lately	2850000		Y	7/30/2018	1.6	1.6	1.6	Herbicide Milestone Manual	7.44	1.0	CIAR CIVU GERO IMCA SEJA	IMCA-See note above-has exploded at this spot HAD to spray!
84	NWCB	1A	Jimmy-come-lately	2850000		Y	8/6/2018	0.3	0.3	0.3	Herbicide Milestone	1.5		GERO	

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount OZ	Manual Acres	Species	Comments
63	NWCB	1A	Jimmy-come-lately Creek	2855000		Y	7/3/2018	0.1	0.1	0.1	Herbicide Milestone	0.33		GERO	2018: Treated GERO in 0.1 acre around junction with 2855000 and 2855070. No CEDE
63	NWCB	1A	Jimmy-come-lately Creek	2855000		Y	7/5/2018	5.4	1.003	1.003	Herbicide Milestone	6.58		CIAR CIVU GERO SEJA	GERO dense patchy, goes all the way to creek.
63	NWCB	1A	Jimmy-come-lately	2855000		Y	7/9/2018	2.0	2.0	2.0	Herbicide Milestone	8.58		CIAR CIVU CLVU GERO HYPE SEJA	Herb Robert heavy in this particular patch (MP 1.8-2.2).
63	NWCB	1A	Jimmy-come-lately	2855000		Y	7/19/2018	7.0	7.0	7.0	Herbicide Milestone	6.8		CEDE CIAR CIVU CLVU GERO PORE SEJA	
73	NWCB	1A	Jimmy-come-lately	2855030		Y	6/21/2018	5.2	1.8	1.8	Herbicide Milestone Manual	0.5	1.8	CEDE CYSC, CIVU, GERO HYPE RUAR SEJA	2018: Dispersed CEDE at end of road (12 plants). Last 4/10 mile impassible and we had to walk.
74	NWCB	1A	Jimmy-come-lately	2855032		N	7/5/2018	2.1	0.064		Herbicide Milestone	0.33		CEDE CIVU CLVU GERO SEJA	2018: Small sub-spurs off of 2855032 inspected, only 1 SEJA found. These spurs increased our acres examined. CEDE found.
64	NWCB	1A	Jimmy-come-lately	2855070		Y	6/21/2018	1.0	1.0	1.0	Herbicide Milestone	1.3		CEDE CIAR CIVU GERO LALA	2018: Vandalized vehicle license plate: AWJ2912. Single meadow knapweed at end of road.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
64	NWCB	1A	Jimmy-come-lately	2855070		Y	7/3/2018	2.75	2.6	2.6	Herbicide Milestone	2.8		CEST GERO LALA RUAR	2018: CEST found at beginning of road and further up hillside than ever found before.
60	NWCB	1A	Jimmy-come-lately	2855070	Raccoon Pit	Y	7/3/2018	1.5	1.5	1.5	Herbicide Milestone	2.0		CIAR CIVU CYSC GERO HYPE LALA HYPE, SEJA	2018: Hillside covered with LALA.
66	NWCB	1A	Jimmy-come-lately	2855100		Y	6/26/2018	3.9	3.9	3.9	Herbicide Milestone	2.0		CEDE GERO	2018: Found a half dozen CEDE5 closer to end of road. Area looks so much better.
66	NWCB	1A	Jimmy-come-lately	2855100		Y	7/3/2018	1.0	1.0	1.0	Herbicide Milestone	1.75		CIAR GERO	2018: Much much improved, but GERO seedlings extend far into the woods.
66	NWCB	1A	Jimmy-come-lately	2855100		Y	7/19/2018	1.0	1.0	1.0	Herbicide Milestone	1.16		GERO	MP 0.1 at gate to creek. Met neighbor John Poe and was open to us treating his property where it adjoins FS.
66	NWCB	1A	Jimmy-come-lately	2855100		Y	7/25/2018	4.0	4.0	4.0	Herbicide Milestone	9.33		CIAR CIVU GERO	Treatments effective. Most plants small and not flowering.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
24	NWCB	EDRR	Canyon Creek /Pats	2870000		N	8/15/2018	0.25	0.25		Herbicide Milestone	1.08		CIAR CIVU GERO	This treatment targetted GERO@entrance to Upper Caraco Quarry along walking path, CIAR closer to quarry.
24	NWCB	EDRR	Canyon Creek /Pats	2870000		N	7/18/2018	1.25	0.75		Herbicide Milestone	2.33		CIVU GERO	2018: treated from rockwall to creek at MP 1.9.
19	NWCB	1A	Canyon Creek /Pats	2870000	Lower Caraco Quarry	Y	7/18/2018	2.0	2.0		Herbicide Milestone	5.0		CIAR GERO SEJA	2018: GERO infested.
19	NWCB	1A	Canyon Creek /Pats	2870000	Lower Caraco Quarry	Y	8/1/2018	2.0	2.0		Herbicide Milestone	3.33		CEDE CIAR GERO SEJA	2018: GERO infested. Finished treatment
21	NWCB	1A	Canyon Creek /Pats	2870000	Upper Caraco Quarry										2018 Crew went here, but no record???
103	FS	1A	Middle Dungeness	2870000			7/17/2018				Herbicide			CIAR CIVU CYSC LALA SEJA	
17	NWCB	2	Canyon Creek /Pats	2870058		Y	8/14/2018	0.6	0.08		Herbicide Milestone	0.08		CEDE GERO	2018: CEDE present - 2 plants.
10	NWCB	2	Canyon Creek /Pats	2870059	Cranberry Bog	Y	8/14/2018	4.0	4.0		Herbicide Milestone	45.92		CIAR CIVU GERO LEVU PHAR	PHAR considerably improved! Unexpeted amount of CIAR-heavy in woods adjacent to bog.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
586	NWCB	1A	Lower Gray Wolf River	2870150	Armpit quarry	Y	8/15/2018	0.75	0.75		Herbicide Milestone	2		CIVU LALA	Continued improvement.
5	NWCB	2	Canyon Creek /Pats	2875000	Canyon Pit	Y	6/19/2018	3.8	3.2		Herbicide Milestone	1.16		CEDE CIA4	2018: Less meadow knapweed than years prior.
27	NWCB	1A	Canyon Creek /Pats	2875020		N	7/10/2018	1.2	1.2		Herbicide Milestone Polaris	1.13		CIAR CIVU GERO PHAR3	No POBO or CEDE found.
37	NWCB	1A	Canyon Creek /Pats	2875070		Y	6/19/2018	2.6	0.25		Herbicide Milestone	2.0		CEDE GERO SEJA	Single CEDE found.
697	NWCB	1A	Canyon Creek /Pats	2875070	Juniper Meadow	Y	6/19/2018	4.0	4.0		Herbicide Milestone	0.33		CIAR LEVU	2018: Much less than last year. CIAR in first part of meadow only!
98	NWCB	2	McDonald Creek/Siebert	2877000		N	7/10/2018	0.9	0.9		Herbicide Milestone Vastlan	5.143		CIAR CYSC GERO HYPE	2018: 2875 to 2877-052 searched and treated. No CEDE. Herb Robert patch at int. 2875 and 2 patches along road between 052 and 2875. CYSC at int. with 052.
99	NWCB	1A	McDonald Creek/Siebert	2877000	Pat's Prairie										

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount OZ	Manual Acres	Species	Comments
28	NWCB	1A	Canyon Creek /Pats	2877040		Y	8/1/2018	4.0	4.0		Herbicide Milestone Vastlan Manual	15.29	0.15	CEDE CIAR CIVU CYSC GERO HICA	2018: Good candidate for grass reseeding, especially at sunny treated Herb Robert patch. New HICA found on norther portion this decommissioned road.
913	NWCB	1A	McDonald Creek/Siebert	2877052		N	7/10/2018	0.36	0.11		Herbicide Milestone Vastlan Manual	0.283	0.01	GERO CYSC SEJA	2018: Added Vastlan to mix at intersection with 050 for Scot's broom.
26	NWCB	2	Canyon Creek /Pats	2878000		Y	8/15/2018	1.7	1.7		Herbicide Milestone	2.67		AEPO CEDE CIAR CIVU GERO LALA	2018: Bishop Weed and CEDE both present, minor amounts.
38	FS	1A	Canyon Creek /Pats	2878060			7/18/2018				Herbicide			LALA4 CIVU CEDE SEJA CIAR4 CYSC4	
39	FS	1A	Canyon Creek /Pats	2878080			7/18/2018				Herbicide			CIAR CIVU CYSC LALA SEJA	
29	FS	1A	Canyon Creek /Pats	2878100			7/18/2018				Herbicide			CIVU LALA	Knapweed found here in 2003 just past 104 spur
905	FS	1A	Lower Gray Wolf River	2878100			7/18/2018				Herbicide			CIVU LALA	
607	FS	2	Canyon Creek /Pats	2878101			7/18/2018				Herbicide			LALA	

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
603	FS	2	Canyon Creek /Pats	2878102			7/18/2018				Herbicide			LALA	
606	FS	1A	Canyon Creek /Pats	2878104			7/18/2018				Herbicide			LALA	
604	FS	2	Canyon Creek /Pats	2878108			7/18/2018				Herbicide			LALA	
605	FS	2	Canyon Creek /Pats	2878109			7/18/2018				Herbicide			LALA	
41	FS	1A	Canyon Creek /Pats	2878110			7/18/2018				Herbicide			CIVU LALA	
42	NWCB	1A	Canyon Creek /Pats	2878120		N	7/10/2018	1.25	1.25		Herbicide Milestone Vastlan	24.24		CIAR CYSC GERO LALA4	2018: 2 small patches of Herb Robert. Good candidate for grass reseeding.
42	NWCB	1A	Canyon Creek /Pats	2878120		Y	8/1/2018	0.75	0.75		Herbicide Milestone Vastlan	6.33		CIAR CYSC LALA	Just a few full grown LALA, but mostly seedlings.
20	NWCB	1A	Canyon Creek /Pats	2878123	Ned Hill Quarry	N	8/1/2018	1.0	1.0		Herbicide Milestone Vastlan	10.5		CIAR CIVU CYSC LALA	Lots of progress, some LALA, thistles- biggest problem. Very limited CYSC
156	FS	2	South Fork Calawah	2900000			9/20/2108				Herbicide			CYSC GERO	No CEDE noted
136	FS	2	North Fork Calawah	2900000			8/22/2018				Herbicide			CYSC DIPU	GERO, CEDE, HIAU on site. All need follow up. Hawkweed at MP 36.05, just past south turn from 2929 jxn. Not found in 2018???

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount OZ	Manual Acres	Species	Comments
165	FS	1A	Upper Sol Duc	2900000	Bonidu Pit		7/26/2018				Herbicide			CIVU CYSC DIPU GERO HYPE LALA RUAR RULA SEJA TAVU	
152	FS	1A	North Fork Calawah River	2900015	Calawah Pit		9/18/2018				Herbicide			CYSC GERO HYPE ILAQ RUAR RULA SEJA ?? Heather	
	FS	EDRR		2900070							Herbicide			RUAR	
	FS	EDRR	North Fork Calawah	2900540			9/19/2018				Herbicide			CYSC	
	FS	EDRR	Upper Sol Duc River	2900650			9/19/2018				Herbicide			CYSC GERO HYPE	
645	NWCB	2	Bockman Creek	2902000		Y	6/20/2018	6.6	0.25		Herbicide Milestone	1.4		CYSC GERO	
588	NWCB	1A	Bockman Creek	2902000	Bockman Pit	Y	6/20/2018	1.25	1.25		Herbicide Milestone Polaris	1.55		CASE CYSC DIPU GERO HIAU HYPE SEJA	2018: Orange hawkweed! Near small brush pile to right upon entry. Small amount of herb Robert.
648	NWCB	1A	Bockman Creek	2903000		Y	6/20/2018	2.0	2.0		Herbicide Milestone	0.24		GERO	

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
648	NWCB	1A	Bockman Creek	2903000		Y	6/28/2018	11.6	11.6		Herbicide Milestone	3.6		CIVU CYSC DIPU GERO HYPE DIPU SEJA	
743	FS	1A	South Fork Calawah	2912000											
900	FS	2	South Fork Calawah	2922000			7/25/2018				Herbicide			CIVU CYSC DIPU HYPE SEJA	Quinault fawn lily at MP 9.3 - 9.5 - be sure you can recognize it before spraying here.
753	FS	1A	South Fork Calawah	2922200			7/24/2018				Herbicide			CYSC DIPU GERO	
816	FS	2	North Fork Calawah	2922240			7/25/2018				Herbicide			DIPU HYPE	
754	FS	1A	South Fork Calawah	2922250			7/24/2018				Herbicide			CIVU CYSC DIPU LALA SEJA	CEDE detected in 2013.
946	FS	1A	South Fork Calawah	2922300			7/25/2018				Herbicide			CYSC DIPU	
154	NWCB	2	South Fork Calawah	2923000		Y	9/17/2018	0.5	.0006		Herbicide AquaNeat	1.28		POBO	Sitkum TS planning area. HIAU at MP 4.1 and 4.6. Unsure if it's still there -HIAU not found in 2015, Follow up treatments needed. 2018: POBO found 0.9 mi from 070 spur.

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
142	NWCB	1A	North Fork Calawah	2923070		Y	9/17/2018	4.6	4.6		Herbicide Milestone Vastlan	2.62	4.6	CIAR CIVU CYSC RUAR RULA, TAVU	CYSC scattered along road, along with other weeds. 2018: 1 acre treated with herbicide.
133	NWCB	1A	North Fork Calawah	2923070	Grindstone Pit	Y	8/30/2018	3.5	3.5		Herbicide Milestone Vastlan Polaris	16.13		CIVU CYSC DIPU HYPE* LALA PHAR RULA	
637	NWCB	1A	Middle Sol Duc River	2923070		N	9/17/2018	4.0	4.0		Herbicide Milestone Vastlan Manual	0.09	4	CIAR CIVU CYSC RULA RUAR	2018: 0.5 acres treated with herbicide.
127	NWCB	1A	Middle Sol Duc River	2923090		N	9/17/2018	2.4	0.8		Manual		0.8	DIPU GERO	
121	NWCB	1A	Middle Sol Duc River	2923100		Y	9/17/2018	3.0	2.5		Herbicide Milestone Vastlan	7.5	1.5	CIVU CYSC GERO DIFU DIPU	2018: Only priority for GERO. Pulled sporadic DIPU, sprayed patches.
	FS	EDRR	South Fork Calawah	2932030			9/20/2018				Herbicide			CYSC RUAR	
751	FS	1A	South Fork Calawah	2952000											Calawah Road Decomm project. NEPA complete
700	FS	2	Upper Sol Duc River	2978000			8/21/2018				Herbicide			CIVU CYSC DIPU HYPE RULA SEJA	Good rainy day project. Abundant Scotch broom; also on associated spurs. CL found LAGA at spur jxn (025, I think).

Ref #	Crew	2018 Priority	6th Field Watershed Name	Road #	Site Name	2019 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount oz	Manual Acres	Species	Comments
	NWCB	EDRR	Elwha River	3030012		Y	10/5/2018	2.0						CEDE CYSC GERO	2018 Survey conducted with DNR staff, in conjunction with DNR bridge project that will cross FS land. Black Diamond water system is at end of this road. Treat when access becomes avail.
								240	207	56		340	42		

APPENDIX B: ROCK SOURCE SURVEYS AND TREATMENT

A *suitable* rock source is an increasingly rare and valuable commodity, especially on the Olympic Peninsula. As the Forest Service prepares for future harvest and road building activities that must comply with FS weed management protocols, surveys to locate rock sources and prepare them for use before needed, is a significant weed prevention method, and therefore a high priority for this program. We continue to build our inventory of rock sources and their current weed status encompassing as many types of ownership as possible. The summary table below has grown to encompass the status of **76** rock sources across Clallam and Jefferson Counties.

In 2018, **13** high priority FS rock sources were inspected and treated by **CNWCB**, another 6 were treated by FS crew (included here, but no rating was ascribed). In general, sites that have been treated for several years are in very good condition. Dates treated or inspected, treated species, and suitability are shown in the table below, as well as whether the rock source is dormant or how it is currently being used. FS Rock Source Index codes, when available, have been added because they are helpful when locating sites; the type of ownership is shown for non-Forest sources.



The elusive Luella LuLu Pit was located behind a locked DNR gate. No weeds were found!

To reduce the spread of weeds across jurisdictional boundaries, we have made a concerted effort to ensure that as many non-FS managed quarries in Clallam County as possible, meet FS “weed free” standards--see the Rock Source Inventory form in appendix J for an explanation of each standard. The result of our surveys (or treatments, in the case of county-held rock sources) are summarized in the table below, and are intended to be used as a resource for FS personnel gauging the suitability of a wide variety of rock sources. (The status of non-FS rock sources is listed after FS-managed). In the private sector, we inspected **12** and certified 11 private rock sources; one failed to meet standard. Certifications are shown as *not current* if they were not updated this year. We doubled the number of county managed rock sources that were treated (**23** vs. 12) and quadrupled the number of treated acres (**180** vs. 51)-most would still need to be used with caution. The DNR has begun the long process of bringing their rock sources up to speed in advance of forestry projects-6 DNR-held pits were inspected, 5 were certified this year. Most of the non-Forest rock sources shown in the table are in Clallam County. “County” rock source assessments in the following table include only Clallam County. Status of most Jefferson County rock sources is not available. More assessments of non-Forest rock sources in Jefferson County would be useful.

Some color coding has been added to indicate at a glance Forest Service rock source standard, and thus suitability, that 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 the rock source was included on the project list but slated for treatment by a non-weed board crew and possibly not inspected by qualified staff. Orange indicates the current status is unknown or was not inspected this year, but the date of the last inspection and information of past status is provided when known. No color in a cell in the **Name** column indicates it was a specialty survey, and was not rated. The single quarry described in **red font** is a site whose existence is not verified.

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Forest Service Quarries									
Armpit Quarry	0.6	28701500	2870-150	586	1A	CIVU, LALA	8/15/18	DORMANT: Chemical –LALA much less	.75
Bockman Pit	0.6	29020009	2902-000	588	1A	CASE CYSC, DIPU, GERO HIAU HYPE, SEJA	6/20/18	DORMANT: Chemical careful, HIAU and GERO	1.25
Bonidu Pit	6.3	290000037	2900-000	165	1A	CIVU CYSC DIPU GERO HYPE LALA RUAR RULA SEJA TAVU	7/26/18	Spoils, Storage, Extraction: Chemical- FS crew -rating N/A	7.3

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Bon Jon Quarry	1.2	260000004	2600-000	194	1A	CIVU, LALA, SEJA	Treated in 2016	DORMANT: Very clean	0.6
Calawah Pit	8.0	290001500	2900-000	152	1A	CYSC DIPU GERO HYPE ILAQ LALA PHAR RUAR RULA, SEJA	7/23/18 9/18/18	Spoils, Storage, Extraction: Chemical- FS crew -rating not available	8.0
Canyon Pit	3.8	287500001.4	2875-000	5	1A	CEDE , CIAR	6/19/18	DORMANT: Chemical -not suitable- almost ready!	3.2
Coho Pit	1.0		2840-080	57	1A	CIAR, LALA	7/17/18	DORMANT: Chemical very sm amount of weeds	0.8
Grindstone Pit (before expanded)	1.8	292307000.1	2923-070	133	1A	CIVU CYSC DIPU HYPE* LALA PHAR RULA	8/30/18	Spoils? Storage, Extraction Chemical Extraordinary amount of DIPU especially on berms and edges. May have occurred.	3.5
Littleton Horsecamp stockpile	0.8	307100000.0	3017-000.3	173	2	CYSC, HYPE, LALA	Treated in 2016	DORMANT? Storage: Chemical -Met standard A last year; minimal GERO and LALA along road	0.5
Loop Quarry aka-spur (unnamed) Pit	1.0	284507300.9	2845-073	61	1A	CIAR, CIVU, CYSC, SEJA	7/11/18	DORMANT: Chemical Sm. Amount of SEJA	0.6
Louella Rock Pit	1.0	280036000.4	2800-351	58	1A	CEDE , HYPE	6/25/18	DORMANT: Chemical -very clean	1.0
Luella LuLu	0.6	290000360.9	2900-360			No weeds found	8/27/18	DORMANT: CLEAN!	0.0
Lost Pit (aka Canine Pit)	4.5	280013000.3	2800-130	101	1A	CIAR, CYSC, (GERO past years), HYPE, LALA, SEJA	9/12/18	Storage, Extraction? Chemical FS crew did not note GERO rating N/A-	3.0
Lower Caraco Quarry	0.3	287000001.0	2870-000	19	1A	CEDE , CIAR, CIVU GERO, SEJA	7/18/18 8/1/18	Spoils, Storage Chemical -not suitable largely because of GERO extensively around perimeter-better, but still infested	2.0
Mt Mueller TH Gravel Pile	0.8	307100000.3	3071-000	612	1A	CIVU, HYPE, LALA, RUAR	Treated in 2016	DORMANT? Storage Chemical -met standard A; trace amounts of weeds only	0.75
Mystery Pit	N/A	2900200.?			1A	POBO	Treated in 2014	Did not locate.	
Ned Hill Quarry (aka Sandstone Quarry)	1.0	287812500.5	2878-125	20	1A	CIVU, CYSC, LALA	8/1/18	DORMANT? Spoils, Storage, Extraction? Chemical-continued improvement, sm amount weeds present	1.0
Raccoon Pit	1.5	285507001.3	2855-070	60	1A	CIAR, CIVU, CYSC, GERO ,	7/3/18	DORMANT: Chemical	1.5

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
						LALA, SEJA		Use caution; GERO is still present in significant quantities on "road" especially entrance, and on road to pit. Some CEST on road	
Tom Creek Pit	11.0	293100000.2	2931-000	168	2	CIVU, HYPE, TAVU	Treated in 2016	Spoils, Storage: Chemical meets requirements-no CEDE or PHAR found	5
Unmarked Pit N/A		280012001.3	2800-120/ 2800-210		1A- within a 1A priority	LALA	Treated in 2017	DORMANT: Chemical-meets Standard B Very sm amounts of LALA	1
Unnamed Gravel Pit	2		Junction 2878 X 2870	32	2	CEDE, CIAR, CIVU, CYSC, HYPE, LALA, RULA	Treated in 2017	Chemical-Met standard B, but some caution because of very limited CEDE.	0.75
Upper Caraco Pit	1.5		2870-000	21	1A	CIAR, GERO	Treated in 2016	Chemical-trace amounts of weeds only-crew visited but did not report	1.5
Wolf Quarry 2	0.6	28401200.3	2840-120	62	1A	HYPE	7/16/18	DORMANT: Chemical -Met requirements-GERO down bank and not in pit	.3
Private Quarries									
A & A Rock	44.14	Private	Hwy 101 W			CIAR, CYSC, GERO, LALA,	7/2/18	Spoils, Storage, Extraction: Chemical-Meets Standard B-none in active quarry and storage areas. CERTIFICATION CURRENT	
Beaver Falls		Private	Hwy 113 near Beaver Lake			CYSC, HYPE, PHAR, RUAR	8/2/18	Storage, Extraction Chemical-Meets Standard B CERTIFICATION CURRENT	
Blue Mountain		Private	Hwy 101 E			CEST, CIAR, CIVU, COMA, CYSC	Inspected 2016	Partial dormant, Spoils, Storage, Extraction: This pit is improving, but needs additional treatment NO CERTIFICATION	
Davis Sand and Gravel		Private	Evans Rd.			CIAR, CIVU, possibly COMA, DACA, DIFU	Inspected in 2015	Overall in good shape, has some DIFU rosettes CERTIFICATION NOT CURRENT	
Elwha Rock Products		Private	Place Rd.			CYSC, POBO, SEJA	Inspected in 2017	Spoils, Storage, Extraction: FAILED -Standard D Soil disturbed, chipped rock placed on POBO infestations	
Green Crow	19.0	Private	Lower Elwha River Rd.			CIAR, CYSC, PHAR-none in pit area	5/26/18	Storage, Extraction: Chemical-Meets Standard A CERTIFICATION CURRENT	
Haller Quarry	20?	Private	2 m south on River Rd. gate on left			BUDA, CIAR, CIVU, RUAR	4/4/18 5/10/18	Spoils, Storage, Extraction: Chemical-Meets Standard B CERTIFICATION CURRENT	
Hecklesville		Private	44 Heckle Rd.			CASE, CIVU	Inspected in	Storage, Extraction:	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Quarry						CYSC, DIPU, LALA	2018	Chemical-Widespread, low density LALA, scattered CYSC in stored material. visited, but no formal inspection CERTIFICATION NOT CURRENT	
Hillcar-Fletcher Quarry	105.0	Private	Hwy 110			CIVU, CYSC, HYPE, SEJA RUAR	8/2/18 8/20/18	Spoils, Storage, Extraction Chemical-Meets Standard B Excellent condition- have checked this quarry for yrs-owner very co-operative. CERTIFICATION CURRENT	
Hoh Pit-Seton		Private No commercial rock avail.	Hoh Rd.			CYSC, LALA, RUAR	8/2/18	Partially dormant, Spoils, Storage, Extraction NO RATING-3 stock piles only-	
Holcomb Pit		Private	Black Diamond Rd.			CIAR, CYSC, DIPU, GERO PHAR (enroute to pit) RUAR	4/23/18	Storage, Extraction: Chemical-Meets Standard C- in general clean-careful of material stored "outside" of pit-not clean. New access rd will help. CERTIFICATION CURRENT	
Lakeside Place Rd Quarry		Private	Place Rd. on right			CIVU, CYSC, DIPU, HYPE, LALA, SEJA ,	Inspected in 2016	Partial dormant? Storage, Extraction Chemical-might be able to isolate from considerable broom in back of pit NO CERTIFICATION	
Mystery Quillayute Pit		Private, possibly WSDOT	Quillayute Rd.			CYSC, PHAR, SEJA	Inspected in 2016	Floor of pit is pretty clean. Edges have scattered SEJA; CYSC is widespread around perimeter of pit. Isolated patches of PHAR NO CERTIFICATION	
Moriarity Rd Pit		Private; unknown	Moriarity Rd.			CYSC, HYPE, PHAR, RUAR, RULA	Inspected in 2016	RUAR, RULA, CYSC are all widespread throughout pit. HYPE is scattered, with a few isolated patches of PHAR NO CERTIFICATION	
Penny Creek Pit		Private	Penny Creek			CYSC, GERO , IRPS LALA, LEDR POBO ,RUAR,PHAR SEJA , TAVU	5/14/18 9/21/18	Spoils, Storage, Extraction: Chemical-Meets Standard C- inspected, treated twice. Concern about POBO remains-where did LEDR go? CERTIFICATION LIMITED CURRENT	
Princess Pit	Approx 40	Private	Princess Ln off Place Rd.			BRRR, CIVU, CYSC DIPU, LUAR, LEVU RUAR	3/15/18	Storage, Extraction Chemical-Meets Standard B CERTIFICATION CURRENT	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Rayonier Pit		Private	Bogachiel Way			CYSC, RUAR, RULA	Inspected in 2016	Meets minimum requirements. CYSC is widespread around rim of pit and scattered on pit floor. RUAR/RULA scattered intermittently around edges. NO CERTIFICATION	
E Snider Quarry	24.86	Private	252 E Snider Rd.			CIVU, CYSC, GERO, HYPE	8/20/18	Storage, Extraction: Chemical-Meets Standard B CERTIFICATION CURRENT	
Thorndyke Pit	Approx 40	Private	Hwy 104, Wahl Rd.			CIAR, PHAR, SEJA	6/27/18	Partially dormant, Spoils, Storage, Extraction: Chemical-Meets Standard B The formal purpose of this inspection was inspect a clay vein for use in ONP. However, much of the pit had been well treated. CERTIFICATION CURRENT	
West Twin-La Farge	N/A	Private	Hwy 112 approx MP 39			CIVU, sundry weeds	7/18/18	Rock stockpiles inspection only, for ONP project-situated on property that did not belong to contractor requesting inspection. <u>Material</u> given a Standard B- NO overall CERTIFICATION	
Clallam County Quarries									
Blue Mountain	2.7	Clallam County	Blue Mountain Rd.			CIAR CIVU CYSC	Inspected 2018	Spoils: (At landfill transfer site) No treatment	0
Blynn Pit	14.3	Clallam County	Woods Rd.			DIFU, POBO, SEJA, SOPH-treated, BUDA, CIAR, CIVU, COAR, CYSC, HYPE, LALA, PHAR- known in pit	5/3/18 8/27/18 9/13/18 10/21/18	Partially dormant, Spoils, Storage, some possible Extraction: Clean areas for material storage	14.3
Clallam Bay Storage	1.2	Clallam County	Frontier St.			PHAR RUAR	Inspected 2018	No treatment	
District 1	N/A	Clallam County	Washington St.			N/A		Storage: Manual	0.02

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
District 2	N/A	Clallam County	Lauridson Blvd.			N/A		Storage: Manual	0.01
Forks Pit	3.8	Clallam County	Pit Ln.			CYSC, SEJA		Spoils, Storage: Chemical/Manual	:3.8
Herrick Pit	6.6	Clallam County	Herrick Rd.			CEJA, CYSC, GERO,	2/26/18 3/12/18 5/7/18 9/20/18	Extraction/Storage: Chemical/Manual-Still contains priority 1 and 2 weeds.	6.6
Hogback Pit	1.7	Clallam County	Off Cays Rd. on Hogback Rd.			CIAR, CYSC, LUAR, TAVU	8/13/18	Dormant-High warning! Adjacent to source of CAPY	.25
Hoko-Ozette Rd 4.5	1.2	Clallam County	Hoko-Ozette Rd. MP 4.5			CASE, HIAU, GERO, RUAR*, SEJA	8/9/18	Storage: Chemical-still not suitable for clean material storage	1.2
Hoko-Ozette Pit 13	1.5	Clallam County	Hoko-Ozette Rd. MP 13			SEJA	8/9/18	Storage: Chemical-Clean areas for material storage	1.5
Hwy 101 Storage Yard	1.2	Clallam County	Intersection Old Oly Hwy Hwy 101			COMA, GERO, RUAR	6/5/18	Storage: Chemical-Clean areas for material storage	1
Kirner Pit	15.6	Clallam County	Kirner Rd.			CASE CEDE CIAR, CIIN, CIVU, CEST, COMA, CYSC, DIFU, DIPU, HYPE, LUAR LALA, RUAR	4/23/18 4/30/18 5/30/18 6/12/18 7/21/18	Spoils, Storage, Extraction: Chemical/Manual-piles have been cleaned, areas for clean storage	15.6
La Push Ballard Pit	2.1	Clallam County	Ballard Rd.			CIAR CIVU CYSC, GERO, LAGA, PHAR, RUAR, RULA, SEJA, SYOF	5/21/18 5/23/18 5/29/18 9/23/18	Spoils, Storage: Chemical/manual-Clean areas for material storage	2.1
Lake Creek Pit (Bedrock Pit)	15.1	Clallam County	Hwy 101 (Co. Forks Shop)			DIPU*, CYSC, RUAR*, RULA*, SEJA	5/21/18 5/23/18 9/12/18	Spoils, Storage: Chemical/manual-Piles have been cleaned and a corridor to piles is ready.	15.1
Little River Pit	1.0	Clallam County	Little River Rd.			CASE, CEDE, CIAR, CIVU, CYSC, GERO*, SEJA	7/18/18	Spoils: Chemical-Clean areas for material storage, if desired	1.0

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Lower Elwha-Elwha Pit	1.0	Clallam County	Lower Elwha Rd.			COMA	6/7/18 9/13/18	Spoils-may be full already? Chemical/Manual	1.0
McInnes Pit	5.83	Clallam County	Vistas Dr.			CAPY, CEDE CEST CIAR, CIIN, CIVU, COAR, COMA, PHAR*	4/6/18 5/3/18 5/30/18 6/21/18 8/22/18	Spoils: Chemical-High levels of infested materials	5.83
Morse Creek Pit	25.3	Clallam County	Mt Pleasant Rd.			CAPY, CEDE, CEST, CIAR*, COMA CASE, CIAR, CIVU, DACA HYPE, POBO, RUAR,	4/19/18 5/7/18 5/17/18 9/6/18	Spoils, Storage, limited Extraction: Chemical/Manual	15.0
Piedmont	2	Clallam County	East Beach/Piedmont Rd.			CEMO, CIAR, CIVU, CYSC, GERO, PHAR*, RUAR, SEJA	5/24/18 7/23/18 8/27/18 9/20/18	Spoils, potential Storage: Chemical/Manual-better, but GERO at access corridor may be concerning	2
Place Rd Pit	4.6	Clallam County	Place Rd.			CEDE, CIAR, CIVU CYSC GERO, DIFU, POBO, SEJA	2/26/18 3/12/18 5/15/18 8/6/18 9/13/18 9/20/18	Spoils: Chemical-Not clean enough for storage	4.2
Quilayute Pit	13.5	Clallam County	Quilayute Rd.			CYSC, DIPU, POBO RUAR, RULA, SEJA	5/7/18 5/21/18 5/22/18 9/12/18	Spoils, Storage, Extraction: Chemical/Manual-Piles have been cleaned, and there is a clean corridor-	13.5
Ranger Pit	45.8	Clallam County	Place Rd.			CEDE, CIAR, CIVU, CYSC, DIFU, DIPU, GERO, POBO, RUAR, VIMA	1/29/18 2/12/18	Spoils, Storage, Extraction: Chemical/Manual-piles have been cleaned, there is area for clean storage, clean access	30.4
Sequim Storage Yard	2.1	Clallam County	Washington St.			CEDE, CEST, CIAR*, CIIN*, DALA, Fovu, RUAR-PHAR present, not treated	5/30/18	Spoils, Storage: Chemical-Piles are clean, but area not clean enough for safe storage	2.1
Umbrella Creek Pit	5.5	Clallam County	Hoko-Ozette Rd.			CIVU, CYSC, GERO, POBO, SEJA	8/8/18 8/9/18	Spoils, Storage: Chemical-not clean enough for safe storage of clean materials	1.25

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Whitcomb-Diimmel Pit	5.83	Clallam County	Whitcomb-Dimmel Rd			CASE, CIAR, CIVU, CYSC , DIPU, HYPE, POBO , RUAR*, RULA, SEJA	5/29/18 9/12/18	Spoils, Storage Chemical/Manual-piles have been cleaned, there is area for clean storage, clean access	6.5
State Quarries									
Alpaca Quarry	Not known	DNR	Follow FS Rd 2850, at fork, take left instead of following to FS 2855			BUDA , CIAR, CYSC , GERO , RUAR	Inspected in 2016	Storage, Extraction: Met Standard A requirements; rock prepared and stockpiled is free of weeds. Weeds are present on roads leading to this pit CERTIFICATION NOT CURRENT	
Baby Bear	Approx 2.0?	DNR	Hwy 101 near MP 208			No weeds found	9/13/18	Storage, Extraction: Chemical-Meets Standard A- CERTIFICATION CURRENT	
Fitzgerald Pit	Not known	DNR	Norris Rd			CIAR, CYSC , GERO ,	Inspected in 2016	Storage, Extraction: Quarry looks fine, but the roads leading to it are infested CERTIFICATION NOT CURRENT	
Jimmy-Come-Lately Pit	Not known	DNR	On FS Rd 2850, at fork, take left			BUDA , CIAR, CYSC , GERO , RUAR	Inspected in 2016	Storage, Extraction: Met requirements; weeds indicated are just outside of pit CERTIFICATION NOT CURRENT	
Littleton Pit	78.43	DNR	Hwy 101 west of Heckle Rd.			CIVU CYSC , DIPU, LALA-all outside pit area	9/13/18	Storage, Excavation: Chemical-Meets Standard B Quite clean. CERTIFICATION CURRENT	
Little River	Situated on 587.71	DNR	Little River Rd			CIVU, CEST , SEJA	10/9/18	Storage, Excavation: Chemical/manual-Meets Standard C- CEST control, but must be monitored and retreated. CERTIFICATION CURRENT	.1
Loop Tavern Pit	24.58	DNR	Hwy 101 between Forks and Beaver MP 209.5			CYSC , GERO , SEJA - all outside pit area	9/13/18	Storage, Excavation: Chemical-Meets Standard A-watch for GERO , tiny CYSC SEJA pulled CERTIFICATION CURRENT	
Mary Clark	170.2	DNR	Mary Clark Rd .5 miles			PHAR	9/13/18	Partial Dormant-spoils, Storage, Extraction: Chemical-Multiple treatments by contractor, CERTIFICATION CURRENT	20?
Place Pit	Not known	DNR	Place Rd			CYSC	Inspected in 2016	Spoils, Storage, Extraction: Not suitable at this time: CYSC is too difficult to isolate. In process of treating. NO CERTIFICATION	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Unnamed Pit	1.5?	DNR	Hwy 101 E of Wisen Cr Rd			CIAR, CIVU, CYSC, POBO , LALA, SEJA ,	9/13/18	Dormant?-Spoils, Storage, possible Extraction: No treatment in 2018. 2017 Chemical POBO treated by CNWCB NO CERTIFICATION	.5

APPENDIX C: 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 2018 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 2018 Project List worked well for herb Robert treatments



Treating spotted knapweed on slope-2855

Coastal Restoration Crew under leadership of the non-profit, 10,000 Years Institute, may be available for sites in the west end of Clallam and Jefferson Counties. We recommend utilization be reserved for control of large herb Robert or broom infestations, not surveys.

General Recommendations:

- Species with limited distribution: Continue focus to eradicate the limited species- bishop's weed, comfrey, hawkweeds (orange and yellow-flowered hawkweed species), knapweeds, knotweeds, mullein, sulfur cinquefoil, teasel, and yellow archangel. There are no large infestations of these species on any FS lands in Clallam and Jefferson. This recommendation is working! Spotted jewelweed is an infrequent species, but the quantity is expanding rapidly. Work toward cooperation on Jefferson County roads that may be sources and vectors. Continue to press for Burnt Hill treatment by the DNR -it is the source of the knapweed.
- Herb Robert: Large infestations of herb Robert may be beyond our resources, but past locations of heavy infestations may be isolated by treating on the perimeter (For example, checking 3000 and spurs after recent logging activities). Perhaps the Coastal crew (under 10K Institute) could assist. Continue good follow-up wherever there were small patches. That strategy seems to be working.
- Wild basil savory: We are finding more incidences of this species. Please advise on its priority to the Forest.
- Everlasting peavine: Continue to treat everlasting peavine in advance of road closures. Follow-up on 2700 or 2800 treatments would be valuable. Ensure that Milestone is as effective as Transline.
- Botanical Areas/Wetlands: Reed-canary grass in Cranberry Bog is much improved following imazapyr treatments-We missed treating Pat's Prairie this year-follow-up while access is available. Canada thistle in Juniper Meadow is almost gone. May warrant one last treatment? Treat Camp Handy and associated meadows along Heather Creek. Check status of Caraco Units next year.
- Rock Sources: Keep pits as a priority 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. We will look for 2014 documentation of rock source with POBO at 2900200 (dubbed Mystery Pit).
- Identify high-priority cross-boundary projects with other public land agencies-Lord's Lake Loop jewelweed is an example. Notify us as soon as possible to request Clallam County connector roads so they may be added to our 2019 integrated weed management work plan.
- Specific Roads: In addition to those sites that crew recommended as priorities, consider the ones listed in the table on the following page. NOTE: The priority noted in the table, reflect the priority given in 2018 during which the category *priority 1* was not used-the 2017 priority for a number of the sites recommended for 2019 were previously listed as priority 1s, not 2s.
- Surveys: Even though there is never adequate time for needed surveys, the locations provided by FS staff have been excellent-Continue to identify areas that have not been surveyed or treated for four years or more.
- It was extremely helpful to know FS crew treatment locations in Clallam and Jefferson Counties.

Specific Site Recommendations for 2019

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	Species	Comments
453		Lower Duckabush River	2510065			do with Collins and other Duckabush treatmt
310	2	Lower Duckabush River	2510070	Collins CG	GERO	Not treated in 2018
768	2	Lower Dosewallips River	2610000	Lower Dosewallips River	GERO	Above washout.
758	2	Lower Dosewallips River	2610010		GERO	as above
300	2	Lower Dosewallips River	2610040		GERO	as above
303	2	Lower Dosewallips River	2610050	Elkhorn CG	GERO	Not treated in 2018.
653	2	Lower Big Quilcene River	2650000	Rocky Brook Rd	PORE	Very small site found in 2018
590	2	Lower Big Quilcene River	2700040	PT Muni WS caretakers cabin and road		Follow-up for construction in 2018
201	2	Little Quilcene River	2700280		HISU	hawkweed could be close to eliminated
202	2	Little Quilcene River	2700281		HISU	hawkweed could be close to eliminated
291	2	Lower Big Quilcene River	2740000	Tunnel Cr		Treated in 2018-getting good tansy control
454	2	Upper Big Quilcene River	2740000			should be completed with above
616	2	Canyon Creek /Pats Creek	2800310	Schmits Knob		Not surveyed or treated for many years
59	2	Jimmy-come-lately Creek	2800360		HICA?	Dense patch of unknown non-native hawkweed
162	2	Upper Dungeness River	2870000	Camp Handy, Heather Cr.		Not treated in 2017 or 2018.
7	2	Canyon Creek /Pats Creek	2870050	Caraco Cat Unit 5		Not treated in several years
6	2	Canyon Creek /Pats Creek	2870054	Caraco Cat Unit 6		Not treated in several years
9	2	Canyon Creek /Pats Creek	2870056	Caraco Cat Unit 3		Not treated in several years
8	2	Canyon Creek /Pats Creek	2870057	Caraco Cat Unit 2		Not treated in several years
10	1	Canyon Creek /Pats Creek	2870059	Cranberry Bog	PHAR	Treated in 2017.
99	1A	McDonald Creek/Siebert Creek	2877000	Pat's Prairie	CIAR,	Treated in 2017
637	1A	Middle Sol Duc River	2923070			Not treated in 2017
168	2	Upper Sol Duc River	2931000	Tom Creek Pit		Important rock source, nt checked in 2018
157	2	South Fork Calawah	2932000	Elk Quarry		Have never been to this rock source
193?		Upper Sol Duc River	3040000	Mt Muller Trail	HIAU	Reported by Jim Knape, near Jasmine's meadow-solicit BCH for assistance?
118	2	Middle Sol Duc River	3040800	Snider Work Center	POBO	High priority in previous years
173	2	Upper Sol Duc River	3071000	Littleton Horse Camp gravel pit		Small amount GERO discovered in 2016

APPENDIX D: HISTORIC SUMMARIES-SITES, SPECIES AND PROGRAM FOCUS

The following table shows where survey and treatment work occurred (by road) 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). Survey miles and acres treated have been generally rounded to the nearest tenth, except where the amount was less than a tenth. Individual year activity can be found in prior reports. Roads, and other treatment statistics from 2018 FS crew treatments, although known and noted in appendix A-Project List, have not been included in information contained in the 2018 columns.

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
SR101	3	2	4	0.1	GERO HICA SEJA	19	28.7	CYSC POBO POSA	0											
CR5695	5	5.0	8,499		CIAR CYSC SEJA	4	2	SEJA	1.7											
CR5331	3	8.2				6	1.03	CEDE GERO SEJA	7.5											
CR4361	1								2.6											
CR4360	1								2.6											
CR3057	1	1.9	3	0.1	SEJA				1.9											
CR3039	2	1.1	4,959	0.1	GERO	4	0.5	SEJA	1.4											
CR2515	1	0.4							0											
CR2500	4	25.1	35,074		CYSC, GERO				7.6											
CR2274	1								3.8											
CR2071	4	2	15	0.2	SEJA	1	3	CIAR CYSC GERO LALA POBO	1.5											
CR2036	1								5	6	GERO POBO									
CR5006	1								1.2											
3116000	4	10				3.5	3.1	CIAR GERO RUDI		0.1	CIVU CYSC HYPE SEJA TAVU									

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
3100420	1	0.6																		
3100400	1	2.9																		
3100300	3	5			2	3.5	GERO													
3071015	1	0.6																		
3071000	6	3.4	60		1		CYSC				0.5	1.7	CIVU CYSC GERO HYPE LALA SEJA	0.5	1	CYSC GERO LALA RUAR				
3068200	3	7.2	815				CYSC													
3068190	2	0.4																		
3068000	8	32.3	521		2.8	5.1	CEDE CYSC SEJA	CYSC	3.6		7.8	0.5	CIVU CYSC HYPE SEJA	5.6	3.2	CEDE CIVU				
3067000	3	7.0	1,402				CYSC SEJA				3.6	4.5	CYSC GERO							
3050150	1				1.1	1.7	GERO		3.3	CYSC										
3050011	4	1.5			2.5	5.1	CIVU GERO HYPE		2.9											
3050000	5	3.8	2		18	18	SEJA		20.2											
3040900	1	0.5							11.7	CYSC GEROHIAU LEVU										
3040800	8	0.5	54,709	1.9	2.5	17	ARMI GERO ILAQ POCU	CIVU CIVU CYSC GERO LALA POBO RUDI SEJA	1	82.3	CIVU CIAR GEROHIAU HYPE ILAQ LALA PRLA SEJA	21	8.3	CIVU CIAR CYSC GERO LALA PHAR POBO RUAR						
3040595	3	4	373		4	1	CIVU SEJA	GERO SEJA												
3040200	1	1							4.1	CIVU GERO ILAQ POBO RUDI										
3040115	3	1	95	0.1			GERO		0.7											

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
3040100	3	4	8	0.3	CYSC SEJA	2			2.3											
3040025	3	0.4	1		RUDI															
3040012	1	0.3	2	0.1	CYSC				1.1		CIVU DIPU HYPE SEJA									
3040011	2	2																		
3040000	13	71	35,136	1.3	CYSC GERO SEJA	67	23.4	CEDE CIAR CIVU CYSC GERO LALA SEJA	49			38.7	20.1	CIAR CIVU CYSC GERO SEJA	12.5	39.1	CIAR, CIVU, CYSC, GERO, LALA, SEJA			
3006300	1	4.1																		
3006011	1	1.2							38.4		CEDE CIAR CIVU GERO HYPE ILAQ LALA PHAR RUDI SEJA									
3006000	3	8				2	1	CYSC	6.5											
3000800	1											2.8	0.1	GERO						
3000591	1								0.3	2.5	CIVU GERO HYPE, RUDI RULA SEJA									
3000401	1	1																		
3000400	1	2.2							0.3		CIVU DIPU GERO									
3000395	1	0.2																		
3000370	2								0.8			0.4	0.7	CIVU DIPU LEVU SEJA						
3000330	1								2.2											

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
3000300	5	3.5						3.5	0.07	CIVU CYSC GERO SEJA	5.3	9.4	CIVU CYSC GERO HYPE SEJA							
3000260	1	0.7							0.7	CIVU CYSC SEJA										
3000250	4	10	10	1.2	CYSC	8	2.7		3.8	0.7	CIVU CYSC GERO SEJA	6.9	5	CIVU CYSC GERO HYPE LALA						
3000220	1	2.8																		
3000215	5	3.6				1	2	GERO	0.6	0.1	GERO	0.6	0.3	GERO CYSC						
3000200	9	70	6	0.2	SEJA	30	26.6	CIVU CYSC GERO SEJA	18.8			16.9 6	73.6 4	CIVU CYSC DIPU GERO LALA						
3000011	1	1								0.4	CYSC GERO									
3000000	9	92	883,098	1	CYSC CIVU GERO RULA SEJA	39	32	CEDE CIAR CIVU CYSC GERO LALA SEJA	30.8	30.3	CIVU CYSC GEROLALA SEJA	32	63.7	CIAR CIVU CYSC GERO HYPE LALA SEJA						
2978085	2	1.1																		
2978040	2	0.3							37.3		CIAR CIVU CYSC GERO HYPE LALA RUDI RULA									
2978035	2	0.1																		
2978030	2	0.6																		
2978030	2	0.7																		
2978025	2	0.3																		
2978015	2	1.6	18		CYSC															
2978011	2	0.4																		
2978000	3	4.7	3,604		CYSC SEJA							4.6	2.2	CYSC						

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2952000	1							2.2												
2932070	1	0.9	12		CYSC															
2932050	1	0.3							0.1	CIVU CYSC										
2932040	1	0.4																		
2932035	1	0.2																		
2932031	1	0.5																		
2932030	3	1.4				1	0.1	CYSC												
2932000	6	15	2,153	0.3	LEVU CYSC	11		CYSC GERO SEJA	5											
2931200	1	2.5																		
2931190	1	1.7							5.2	CIVU GERO HYPE LAGA RUDI RULA SEJA										
2931000	5	12	1		SEJA				12.3		2.4	5.04	CEDE CIVU CYSC HYPE PHAR							
2929070	6	3	525		CYSC GERO RULA	6	2	GERO	6.3		3.3	0.25	GERO RULA							
2929000	8	10				13	1	CIVU CYSC GERO HIAU	15.4	18	17	11.1 5	CEDE CIVU CYSC LALA CIVU CIAR CYSC GERO HYPE LALA PHAR RUAR							
2923100	3	0.2							6.12	GERODIPU HYPE RUDI RULA				0.2	0.25	CYSC	1.5	2.5	CIVU CYSC DIFU DIPU GERO	
2923095	2								0.2	13.4				1.2	0					
2923090	2								1.2								1.2	0.8	DIPU GERO	

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
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2923077	2					16	2.15	CYSC SEJA	2.6	0.2	CYSC HYPE TAVU SEJA									
2923074	1								0.8	1	CYSC HYPE TAVU SEJA									
2923073	1								0.8	0.1	CYSC HYPE SEJA									
2923072	1								0.8	0.01	CIVU									
2923070	10	5	2		SEJA	9	8.6	CIAR CIVU CYSC GERO HYPE RUDI SEJA	6			5.2	2.3	CIVU CYSC HYPE LALA PHAR	5.6	11.6 3	CIVU CYSC DIPU HYPE LALA LEVU RULA SEJA	4.3	5	CIAR CIVU CYSC DIPU HYPE LALA PHAR RUAR RULA TAVU
2923060	3	1				3	0.15	CIAR CYSC GERO	4.6	0.02	CIAR CYSC HYPE									
2923020	1								1.2	1.06	CIVU CYSC PHAR									
2923015	1								2.4	1.2	CIAR CIVU CYSC GERO HYPE RULA SEJA									
2923000	7	41	1,434	0.5	CIAR CYSC HIAR SEJA	27	4	CYSC GERO	18	0.7	CYSC SEJA				4.7	3.2	CYSC GERO HYPE LALA PHAR SEJA	0.9	0.001	POBO
2922250	2								2.6	3	CIVU CYSC GEROSEJA	1.3	2.8	CEDE CIVU CYSC LALA SEJA						
2922240	1									15.2	CIAR CIVU CYSC GERO HYPE RULA SEJA	1.1	0.5	CIVU LEVU SEJA						
2922200	1								2.86	4	CIVU CYSC LALA									
2922020	2								1.7			0.9	0	NONE						
2922000	3	13				20	4.2	GERO		0.3	CYSC HYPE									
2920210	1	0.2								0.01	GERO									

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2920020	2	1.4									1.4	1	GERO							
2920000	4	6						8			6	3.5	CIVU GERO SEJA							
2918110	3	1				1	1	CYSC DIGIT LEVU LALA	1											
2918100	3	3				3	1	CYSC DIGI LEVU LALA	17	0.5	CIAR CIVU CYSC GERO									
2918000	6	20	2,315		CYSC SEJA	9	1.5	CYSC DIGIT LEVU LALA	5.4		22.6	5.3	CIAR CIVU CYSC GERO HYPE PHAR							
2912060	4	2.8	3		SEJA				7	20	CIAR CIVU CYSC GERO HYPE SEJA						6.8	13.6	CIVU CYSC DIPU GERO HYPE SEJA	
2903000	3	7	78		CYSC SEJA						0.4	0.5	CYSC GERO	6.8	14.95	CIAR CIVU CYSC GERO HYPE SEJA				
2902375	1	0.8								1	CIAR CYSC GERO HYPE									
2902300	1	0.6																		
2902000	7	2.91	4,175	0.2	CYSC SEJA						9.2	1	CIAR CIVU CYSC SEJA	3.4	6.6	CIAR CIVU CYSC DIPU GERO HYPE LEVU RULA RUAR SEJA	3.3	1.5	CASE CYSC DIPU HIAU HYPE GERO	
2900992	1					0.5	0.1	GERO												
2900990	7	2.4	5,300		CYSC GERO	2	0.4	GERO	0.3			1.7	CIVU CYSC GERO ILAQ		6	CIAR CYSC DIPU HYPE LEVU HYPE RULA				
2900960	2	0.1									0.2	1	GERO LALA SYOF							

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
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2900810	1							2.6	3.1	CYSC GEROILAQ										
2900800	1													2	7.7	CIVU CYSC HYPE LALA RUAR RULA SEJA				
2900700	1												2.8	1.8	CIVU CYSC					
2900650	1	1.2							0.1	CIAR CYSC RULA										
2900540	1	2																		
2900200	2	0.7	54		CYSC SEJA															
2900070	1	2.3																		
2900030	1							3												
2900015	4	0.1				0.7	4.5	CYSC GERO RUDI SEJA	0.1				0	0.8	CYSC GERO HYPE LALA PHAR SEJA					
2900000	12	72.2	6642 25	2.3	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	0.7	GERO HYPE SEJA		
2880050	12	0.5	255,0 04	0.5	GERO	1.5	23	GERO	1.2	4.1	CIAR POSA RUDI RULA	0	41.9	CIVU GERO LALA PHAR						
2880000	9	17	9,923	0.3	GERO SEJA	8	5.1	CEDE CIAR CYSC GERO SEJA	5.5	20.2	CIAR CIVU CYSC DIPU GEROHIAU HYPE HYRA LALA LEVU PHAR RULA SEJA	2.9	8.5	CIVU GERO HYPE CIAR						
2878120	10	1	2,170		CYSC	2	2	LALA	1.4	4.5	CIAR CIVU GEROHYPE LALA	2.6	3.5	CIVU CYSC GERO LALA	1	1.3	CIVU CYSC GERO LALA	1	3	CIVU CYSC GERO LALA

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2878110	4	1				1	1	LALA	1	2	CIAR CIVU CYSC LALA	0.9	2.9	CIVU LALA						
2878109	4	0.27								0.3	CIVU CYSC LALA	0.25	1	LALA	0.5	1.5	CIVU CYSC LALA			
2878108	4	0.13								0.2	CEDE CIVU CYSC LALA	0.1	0.2	CIVU CIAR CYSC LALA	0.2	1.4	LALA			
2878104	1											0.2	0.02	GERO						
2878102	4	0.4										0.4	1.5	CIVU LALA	0.8	2.2	CIVU LALA			
2878101	3											0.1	0.4	CIVU LALA	0.2	0.58	CIVU LALA			
2878100	1														1.7	7.3	CIAR CIVU CEDE LALA SEJA			
2878085	3	1				1	1	CIAR CIVU GERO	1											
2878080	4	1.5				1	0.5	CIAR LALA	1	0.2	CIAR CIVU GEROLALA SEJA					0.8	CIVU CYSC LALA			
2878060	4	0.5	127		CYSC	1	0.5	CIAR LALA	1	0.01	CIAR CIVU SEJA				0.6					
2878050	8	0.6								0.3	CIAR CYSC SEJA	1.2	2.5	CEDE CIAR CIVU GERO HYPE LALA SEJA	0.1	0.5	CIVU LALA			
2878000	14	4	2,971	0.2	CYSC	20	13	CEDE CIAR CYSC GERO LALA SEJA	16	0.3	CIAR CYSC SEJA	9.8	26.9	AEPO CIAR CIVU GERO HYPE LALA	1.4	3.7	CIAR CIVU CEDE LALA, SEJA	0.7	1.7	AEPO CEDE CIAR CIVU GERO LALA
2877100	2	0.5																		
2877090	1														1.4	0.00 1				
2877052	3	0.29							1	12.6	CIAR CIVU GERO LALA SEJA				0.3	0.4	CIVU CIAR CYSC DIPU GERO LEVU RULA SEJA	0.3	0.1	CYSC GERO SEJA

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2877050	2	2.65												0.9	0.00 1	CIVU, DIPU				
2877040	6	2.5			1	0.2	CEDE CIAR CIVU SEJA	2.1			2.2	2.2	CIAR CIVU CYSC GERO RUAR				1.1	4	CEJA CIAR CIVU CYSC GERO HICA	
2877000	9	5			20	13.4	CEDE CIAR CIVU CYSC LALA SEJA	24.3			4.2	22.5	CIAR CIVU GERO HYPE RUAR SEJA	3.1	20	CIAR CIVU DIPU GERO HYPE, LEVU SEJA	0.9	0.9	CIVU CYSC GERO HYPE	
2875090	1	0.1										1.8	CIAR CIVU CYSC GERO SEJA							
2875070	7	2.5			1	0.5	CIAR CYSC	3.6	15.8	CIAR CIVU CYSC HYPE LALA SEJA	1.8	0.51	CIAR CYSC SEJA	1.8	9.7	CEDE CIAR CIVU CYSC GERO HYPE LEVU	1.8	4.3	CEDE CIAR GERO LEVU SEJA	
2875020	9	0.5	6		1	0.5	CIAR CYSC POBO	1.6			1.8	0.02	CIAR CIVU POBO	4.7	1.5	CEDE CIAR CIVU GERO LALA POBO	0.6	1.2	CIAR CIVU GERO PHAR	
2875000	14	12	268	0.4	23	10.8	CEBI CEDE CIAR CIVU LALA	17.7	0.9	CEDE CIAR GERO SEJA	6.5	16.2 6	CEDE CEJA CIAR CIVU CYSC GERO LALA SEJA	3.6	14.1	CEDE CIAR CIVU CYSC DIPU GERO HYPE ILAQ LALA SEJA			3.2	CEDE CIAR
2870270	2	3.5		0.28	3.5	3.2	CIAR CIVU			CEDE CIVU HYPE SEJA			1.6	CEDE CIAR CIVU CYSC PHAR SEJA						
2870250	1				1	1.5	CEBI CEDE			CEDE CIAR CIVU CYSC GERO HYPE LALA SEJA			13							
2870230	5	4	38	0.3	4	0.4	CIAR CIVU HYPE SEJA			CIAR CIVU GERO	1.4	2.5	CIAR GERO HYPE	0.1						
2870150	6	0.5			1	3	LALA	0.7			0.5	0.2	CIVU LALA SEJA		0.5	CIAR CIVU LALA SEJA		0.8	CIVU LALA	

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2870130	2	1	1	0.1	CYSC				1											
2870110	3	0.5	729		CYSC				0.5	5.1	CIAR CIVU LALA				0.4					
2870059	12	3	19,529		CEDE CIAR CIVU CYSC GERO SEJA	1			1.2	0.1	CEDE SEJA	0.8	15.3	CIAR CIVU CYSC GERO HYPE PHAR	1	1.3	CIAR CIVU CYSC GERO		2	CIAR CIVU GERO
2870058	9	3		2.55	CIAR GERO PHAR	8	6.5	CIAR CIVU GERO PHAR	5.6	0.1	CYSC					0.8	CIAR CIVU GERO	0.3	0.08	CEDE GERO
2870057	5					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						
2870056	10	2	14	0.1	CEDE SEJA	3	8.9	CEDE CIAR CIVU CYSC SEJA	2.8	5.2	CIAR CIVU CYSC DACA GERO HYPE LEVU SEJA	1.2	3.7	CIAR CIVU CYSC GERO HYPE						
2870054	5					1.5	4	CEDE CIAR CIVU	2.5	3.1	CIAR CIVU CYSC GERO PHAR SEJA	0	0.7	CIAR CIVU						
2870053	8					2	1.7	CEDE CIAR CIVU	4.7	4.8	CEDE CIAR CIVU CYSC DACA GERO HYPE LEVU SEJA TAVU	3	3.5	CEDE CIAR CIVU HYPE						
2870052	2								1.6	10.3	CEDE CIAR CIVU CYSC HYPE LEVU PHAR SEJA				2.6					
2870050	15	16	110	0.8	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	7.9	13.8	CEDE CIAR CIVU GERO HYPE LALA PHAR SEJA	2.8	4.4	CEDE CIAR CIVU GERO HYPE LALA			

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2870030	9	5	78		CEDE CYSC SEJA	4	3.5	CEDE CIAR CYSC SEJA	5.6	0.3	CIAR CIVU HYPE				1.9	2.6	CEDE, CIAR, CIVU, HYPE, SEJA			
2870000	15	143	3,853	3.13	CEDE CYSC SEJA	256	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	25.3	36.6	CEDE CIAR CIVU DACA GERO HYPE LALA SEJA	1.1	5.4	CEDE CIAR CIVU CYSC DACA GERO HYPE LALA SEJA	0	6.5	CEJA CIAR CIVU GERO SEJA
2860120	2	1.6								10.4	CEDE CIAR CIVU HYPE SEJA									
2860011	2	1	2,708		GERO SEJA					25.6	CEDE CIAR CIVU CYSC DACA GERO HYPE LALA PHAR RUDI SEJA									
2860000	5	50	54,000		CIVU GERO							3	0.1	GERO RUAR	0.5					
2855100	6	2.4							1.1			1.1	4.4	CIAR CIVU CYSC GERO HYPE SEJA	2.6	4.7	CEDE CIAR CIVU CYSC GERO LALA SEJA	1.2	9.9	CEDE CIAR GERO
2855070	12	5	5497	0.52	CEDE CIAR CYSC GERO RULA SEJA	3	5	CEBI CEDE CYSC SEJA	4.4			1.5	2.3	CEBI CIVA, CIVU CYSC GERO HYPE LALA SEJA	0.9	4.4	CIAR CYSC GERO LALA RUAR SEJA	1.7	5.1	CEDE CEBI CIAR CIVU CYSC GERO HYPE LALA RUAR SEJA
2855032	5	1.6	1		RULA					2	CEDE GERO HYPE SEJA	0.9	1.3	CIAR CIVU HYPE SEJA		1.6	CIVU SEJA	0.8	0.06	CEDE CIVU CLVU GERO SEJA
2855030	4	5.4	19,200		SEJA				1.3	7.2	CEBI CIAR CIVU CYSC GERO HYPE LALA SEJA	0.4	0	NONE	4.6			2.6	1.8	CEDE CIVU CYSC GERO HYPE RUAR SEJA

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2855000	14	10	51,947	0.4	CEBI CEDE CIVU CYSC GERO SEJA	11	2.2	SEJA	1.3			5.2	6.6	CIAR CIVU GERO HYPE SEJA	2	5.4	CEDE CIAR CIVU CLVU GERO HYPE PORE SEJA	3.3	10.1	CEDE CIAR CIVU CLVU GERO PORE SEJA
2852150	3	1.29	25		CYSC					3.2	CIAR CIVU CYSC GERO HYPE SEJA				0	CIVU CYSC GERO RUAR SEJA				
2852090	2	10	3,362		CIAR CYSC GERO SEJA					3										
2852000	6	5	47,605	0.3	CEDE CIAR GERO RULA SEJA	2	1	CEDE	5.5											
2851090	2	1																		
2851080	2	4	1,660		CYSC SEJA TAVU					3.9	CEDE CIAR CIVU CYSC GERO HYPE SEJA									
2851000	3	8	10,090	0.6	SEJA															
2850124	1	0.2																		
2850120	3	3		0.2	CYSC				2.8											
2850093	1	0.1													1.1					
2850090	3	1								3.2	CIVU CYSC GERO HYPE SEJA				1.1	2.8	CIAR CIVU GERO			
2850010	4	3	5,352	0.9	RULA SEJA							1.5	3.3	CIVU GERO SEJA						
2850000	12	22	67,334	0.6	CYSC GERO RULA SEJA				14.6			7.5	6.2	CIAR CIVU CYSC GERO ILAQ HYPE SEJA	4.9	3.7	CIAR CIVU CYSC GERO HYPE SEJA	5.8	9.2	CIAR CIVU CLVU CYSC GERO IMCA SEJA
2845200	3	0.28													0.3	0	CIAR SEJA	0.3	0.1	CIAR

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2845150	3	0.2							9.3	CIVU SEJA				0.2	0	CYSC LALA SEJA	0.2	1	CIAR CYSC GERO LALA SEJA
2845120	4	2	84		2	1.9	CIVU CYSC SEJA							1.7	0	CIAR CIVU GERO HYPE SEJA	1.7	3.4	CIAR CLVU GERO SEJA
2845090	3	1	12				CYSC SEJA							0.5	0	CIVU GERO SEJA			
2845073	8	1			1.5	2	CYSC	2.8					0.9			CIAR, CIVU, CYSC DIPU GERO, HYPE, LALA, SEJA	0.9	3.7	CIAR CIVU CLVU CYSC GERO HYPE SEJA
2845070	7	6	1,860		6	4	CEDE CIAR CIVU CYSC SEJA	4.6					1.5			CEDE CIAR CIVU CYSC GERO SEJA	1.5	3	CIVU CLVU GERO HYPE SEJA
2845040	3	0.3	160				SEJA		4.19	CEDE CIAR CIVU CYSC DACA DIPU HYPE SEJA				0.3	0	GERO	5.6	11.2	CIAR CIVU CLVU GERO HYPE SEJA
2845000	7	5	12,378	0.7	10		SEJA	5.4	0.9	CIAR CIVU HYPE SEJA	5.4			6.7	3.7	CIAR CIVU GERO SEJA			
2840150	3	1	1				SEJA							0.6	1.1	CEDE, CIVU, DIPU, GERO, HYPE, SEJA	0.6	1.2	CIVU GERO SEJA
2840130	3	1									1.1	0.1	CYSC	1.1	0				
2840120	5	1.27						1.8			1.6	0.1	CIVU GERO SEJA				0.6	0.8	CEDE CIVU CLVU GERO HYPE SEJA
2840084	1	0.25																	

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2840080	5	0.9	1		RULA				0.3	1.1	CIVU GERO HYPE SEJA	1.4	2	CIVU SEJA	1.6	2.9	CIAR, CIVU, CYSC GERO, HYPE, LALA SEJA	0	0.01	CIAR LALA
2840071	4	2	36		BOOF SEJA				3.2									2	5	CEDE CIAR CIVU CYSC GERO LALA SEJA
2840070	4	4	5,753		CYSC SEJA					1	CIAR CIVU LALA SEJA	1.5	5	CIAR CIVU GERO SEJ	0.6	1.2	CIVU SEJA	1.7	3.5	CIAR CIVU GERO SEJA
2840037	1														1	2.2	CEDE CIAR CIVU RUAR SEJA			
2840036	1								3.5	7.5	CIAR CIVU CYSC GERO HYPE LALA PHAR SYOF									
2840035	1								1											
2840034	5	2							2	1	CEDE CIAR SEJA	1.4	1	CIAR CIVU GERO	2.8	9.6	CIAR, CIVU, GERO			
2840030	2	3							3	0.6	CIAR, CIVU, HYPE									
2840000	9	11	10,010		CIAR CYSC SEJA	10			1.8	2.5	CEDE CIAR CIVU GERO SEJA	4.9	0.25	CIVU CYSC GERO SEJA	0.1	0.15	CYSC, LALA, SEJA	0.4	0.7	CIVU GERO SEJA
2830034	1	0.33								7.5	CEDE CIAR CIVU HYPE SEJA									
2830032	1	1								5.5	CIAR CYSC GERO HYPE LEVU SEJA SYOF									
2830030	1	2																		

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2830000	4	10	1,250		CEBI	11	0.2	SEJA												
2820000	6	4	2,274	0.2	SEJA	8	2	CEDE CIAR SEJA	6.3			2.5	6	CEDE CIAR CIVU GERO HYPE LALA SEJA						
2810070	1	0.61																		
2810000	2	8	10,190		CYSC SEJA					17	CEDE CIAR CIVU GERO HYPE LALA SEJA									
2800362	1																0.4	0.8	CIAR CIVU GERO SEJA	
2800360	1																2.2	7.3	CEDE CIAR CIVU DIPU GERO HI sp HYPE RULA SEJA	
2800353	2													0.6	0.6	CEDE, CIVU, HYPE	0.6	0.9	CEDE CIVU	
2800351	11					4.5	3	CEDE CYSC	2.4			1	5.5	CEDE CIAR CIVU HYPE	1.6	2.4	CEDE, CIAR, CIVU, HYPE SEJA	0.8	0.2	CEDE
2800350	6					3	4	CEDE CIAR CIVU	0.3			1	2	CEDE CIAR GERO LALA SEJA		0.2	CEDE, HYPE	0	0.3	CEDE CIVU
2800325			1														0.6	1.2	CIAR CIVU LALA	
2800321			1														2.5	1	CIVU CIAR GERO LALA	
2800320			1														2.6	5.2	CEDE CIAR CIVU CLVU HYPE LAGA LALA SEJA	

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2800310	4	1	4,655	0.2	CYSC				3.2	CEDE CIAR CIVU GERO HYPE SEJA										
2800290	2	1	2		CYSC SEJA				1.5	CEDE CIAR CIVU HYPE SEJA										
2800270	1	1	310		CYSC SEJA															
2800262	2	0.6															0.4	0.8	CIAR CIVU GERO SEJA	
2800260	1	1.2															2.2	7.3	CEDE CIAR CIVU DIPU GERO HI sp HYPE RULA SEJA	
2800250	5	5	92	0.1	SEJA							2.2	1	CIAR CIVU GERO SEJA						
2800240	1	0.8																		
2800220	1	1.2																		
2800210	1	0.4																		
2800145	1	0.3																		
2800132	4	1	463	0.1	CEBI CEDE	1						0.6	0.6	CIAR CIVU SEJA	0.6	0.5	CEDE, CIAR, CIVU, SEJA			
2800130	4					2	1.3	CEBI SEJA				1.5	7.1	CEDE CEST CIAR CYSC GERO HYPE LALA SEJA	0.6	6.2	CEDE, CIAR, CIVU, CYSC HYPE, LALA, SEJA			
2800120	1														1.6	3.8	CIAR, CIVU, HYPE, LALA, SEJA			
2800060	1	1																		

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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	10	1	10	0.1		3	6	CIAR CIVU GERO ILAQ LALA	2.5			2	11.0 5	CIVU CIAR GERO HYPE SEJA	0.5	4.8	CIAR CIVU GERO ILAQ RUAR RULA SEJA			
2800000	14	89	70,32 1	1	CEDE CIAR CIVU CYSC GERO SEJA	87	88.8	CEBI CEDE CIAR CIVU CYSC DIPU GERO ILAQ LALA SEJA	31.6			30.5	6.2	SURVEYED ONLY CIAR, CIVU, CYSC, LALA, SEJA	3	2	CEDE			
2760000	2									24.8		CIAR CIVU GERO HYPE SEJA	0	2	PHAR	3	CIAR, PHAR			
2750020	1	1.5								4		CIAR CIVU CYSC DIPU HYPE LALA PHAR SEJA								
2750000	3	5				5	8	CIAR CIVU CYSC LALA SEJA	5											
2740110	1					1.5	1	CEDE CIAR CIVU CYSC SEJA												
2740075	2	0.5				0.5	1	CEDE CIAR CIVU CYSC SEJA		18	CIAR CIVU HYPE LALA SEJA									
2740072	4	1	200	0.1	CEBI	1	1	CEDE CIAR CIVU CYSC SEJA												
2740070	3	4				3	1	CEDE CIAR CIVU CYSC SEJA												
2740060	4	9	33	0.2	CYSC	9	1	CEDE CIAR CIVU CYSC SEJA												

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2740000	9	21				25	3.6	CEBI CEDE CIAR CIVU CYSC SEJA	2.4			2.7	15.6	CIAR GERO HYPE LALA SEJA	4.8	18	CEDE CIAR CIVU CYSC DACAGERO HYPE ILAQ LALA RULA SEJA	6.8	14.1	CIAR CIVU CYSC DIPU GERO LALA SEJA VETH
2730000	1																	4.2	8.4	CIAR CIVU GERO LALA RUAR RULA SEJA CLVU*
2730300	10	1	934		CYSC	2	8.3	CIAR CYSC GERO LALA PORE RUDI SEJA	1.2			0	27.5	CIAR CIVU CYSC GERO PORE RUAR SEJA	2.6	5.5	CIAR CIVU GERO LALA RULA SEJA			
2730200	14	5	19,621		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	10.01	GERO, HYPE, HEHE, CIVU, LEVU SEJA	0	9.5	CLVU GERO ILAQ RULA SEJA
2730100	4	0.4	35		SEJA				0.1	8.7	CYSC GERO HEHE HYPE LALA PORE RULA SEJA									
2730020	3	1								11.2	CIVU GERO HYPE									
2730011	3	1	51		GERO				1.9	0.1	CIVU SEJA									
2730000	5	15	146,400		CYSC SEJA TAVU										3.6	5.2	GERO SEJA,			
2700330	2	1							1	4	GERO HYPE ILAQ SEJA									
2700281	2														0.9	2	CIAR, CIVU, CYSC, HISU, SEJA			
2700280	3														1.2	3.9	CEDE CIAR CIVU DIPU HISA HYPE LALA SEJA			

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2700140	1	1.2																		
2700100	1	4.6							0.3	SEJA										
2700090	1	1.99																		
2700080	5				1	2	CIAR CIVU CYSC GERO LALA SEJA	1.6			0.9	4.2	CIAR GERO HYPE LALA SEJA							
2700040	8				4	11.2	BORA, CIVU CYSC GERO HEHE HIAU ILAQ LALA LAGA PHAR PRLA SEJA	15.1			12.5	50.3	AEPO ARMI CASE CIAR CIVU GERO HEHE HIAU HYPE ILAQ LAGA LALA PHAR PRLA SEJA SYOF VIMI	0.4	2.2	CIAR CIVU GERO SEJA	3.7	18.85	CIAR CIVU CYSC DIPU GERO HEHE HIAU LAGA LALA LEVU SEJA VETH	
2700000	13	37	4,201		21	15.1	CEDE CIAR CIVU CYSC GERO LALA SEJA	26.9	0.7	GERO HYPE LALA SEJA	17.9	18.2	CIAR CIVU CYSC GERO HYPE LALA PHAR POBO SEJA VIMI	1.7	1.55	CIAR CIVU CYSCGERO HYPE LALA RUAR SEJA				
2650090	2	1.68							46.6	AEPO CASE CIAR CIVU CYSC DACA GERO HIAU HYPE ILAQ LAGA LALA SEJA SYOF VIMI	1.7	0	SEJA							
2650050	2	0.9							39.2	CEDE CIAR CIVU CYSC GERO HYPE LALA POSA SEJA										

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2650000	6	15	2		ARMI			2.7			7.5	0	CIAR HYPE SEJA	3.8	9	CIAR CIVU GERO HYPE ILAQ PORE RUAR RULA SEJA				
2620060	1							2.8												
2620056	5	0.76	24		CEDE			1.6	6.6	CIAR CIVU HYPE SEJA	3.6	2.2	CEDE CIAR CYSC HYPE SEJA							
2620053	2	1.3							3.1	CIAR CIVU CYSC HYPE SEJA										
2620051	3	0.89						1.6	1	CIVU HYPE SEJA										
2620050	5	2.8						4			2.2	3.2	CIAR CYSC HYPE SEJA	2.1	10.2	SEJA, HYPE, CIAR, DIPU, CIVU				
2620043	1	0.7							0.3	HYPE SEJA										
2620036	1							0.6	3.8	CIAR CIVU HYPE SEJA										
2620035	1							1.2												
2620030	1	9.7							1	CIAR CIVU CYSC HYPE SEJA										
2620000	10	35	39,46 4		CIVU CYSC GERO RULA SEJA	12		8.6	2.6	CIAR CIVU CYSC GERO HYPE SEJA	22.3	19.8	CIAR CIVU CYSC DIPU GERO HYPE RUAR SEJA	1.7	1.9	CIAR CIVU GERO HYPE ILAQ PORE RUAR RULA SEJA	3.4	6.8	CIAR CIVU CYSC GERO PHAR PORE SEJA	
2610200	12	11	3,676	0.2	CYSC GERO HEHE RUDI SEJA	4	5	1.2		CYSC SEJA	0	3	CYSC GERO HEHE HYPE LALA RUAR SEJA							

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2017			2018		
		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
2610050	2					1	1	CIAR CYSC GERO SEJA		15.9	CIAR CIVU CYSC GERO HYPE SEJA	0	1.75	GERO SEJA						
2610040	6	1	3,000			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			
2610012	2	0.85	397	0.2						0.5										
2610010	3									4		3.3	44.4	COAR GERO HYPE ILAQ SEJA						
2610000	13	20	6,570	0.1		32	17.5	CIAR CYSC GERO POBO SEJA	8.4	0.4	CYSC	49	108.9	CIAR CIVU GERO HYPE POBO SEJA	1.6	2.6	CIAR GERO HYPE RUAR SEJA			
2530000	5	5.7							4.4			10.1	3.5	CIVU CYSC GERO HYPE SEJA						
2527000	1	1.2								59.6	CIAR CIVU CYSC GERO HYPE LALA POSA SEJA									
2510070	10	1	1,600	0.82		1	6.5	GERO	1.3	1	GERO SEJA	0	27.5	CIAR GERO HYPE RUAR SEJA						
2510065	5	1							1			0.4	4.2	CIAR CIVU GERO	0.2	1.5	CIAR CIVU GERO HYPE			
2510060	3									29.5	CIVU GERO	0.2	0.2	HYPE SEJA	0.1	0				
2510012	2	1							1.7	0.5	GERO HYPE, SEJA									

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006			2007-2009			2010-12			2013-2015			2016-2017			2018			
		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
2510000	9	40	53	0.53	CEDE CYSC SEJA	41	19.5	CIAR CIVU GERO HYPE RUDI RULA SEJA	42			38.7	23.8	CIAR CIVU DACA DIPU GERO HYPE, RULA PHAR SEJA	5.75	13.5	GERO SEJA			
2503000	1								3.7											
2500000	4	4				19	3.8	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						
2190220	1		251		COTO POCU					11.7	GERO HYPE SEJA									
2190200	3	4		0.1	POCU	38	1.7	CIVU CYSC DIPU POBO SEJA												
2190170	1	2																		
2190000	2	14				10														
2100000	2	8	50		SEJA															
2760	1											0.5	0.6	CIAR CYSC SEJA						
2071	1								1	5	GERO LALA POCU RUDI									
TOTALS		1467.2	2,618,720	26.7		1151.1	592.1		760.9	913.7		587.3	891.2		153.4	339.4		86.0	203.2	

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. In 2017, rock sources and additional sites located on a specific road were included in that road's treated acreage and species added to list of those found on a particular road.

2002-2018 ACCOMPLISHMENT SUMMARY TABLES												
Acres Treated by Crew-rounded to the nearest whole number												
CREW ^A	'02-'06 ¹ manual/ baseline	2007-2008	2009	2010	2011	2012	2013	'14	2015	2016	2017	2018
NWCB manual	8.61	55	27	21	33	33	7	10	30	51	30	42*
NWCB chemical		131	195	316	286	338	360	248	259	245	162	204
NWCB total	8.61 ¹	246 ²	222 ²	337 ²	319	371	367	258	289	296	192	204
OCC-manual	None	412 ²	78 ²									
WCC ⁵ manual	58.83	22	54			2	7					
chemical				None	38	26	8	15	23	0 ⁶		
WCC total	58.83 ¹	22 ²	54 ²		38 ²	28 ²	15	15	23	0 ⁶	N/A	
FS+WCC crew							4					90
Chain Gang	38.68 ¹	9 ¹	7 ¹	0.16 ¹	6 ²	25 ¹	5	None	None	NA	N/A	None
TOTAL Acres Treated	106.12 ¹	689 ²	361	337	338	372	418	273	312	296		294

^ACrew acronyms: **NWCB**=Noxious Weed Control Board, **OCC**=Olympic Correctional Crew, **WCC**=Washington Conservation Corps, **FS+WCC**=Forest Service crew aided by WCC
^{*}Manual treatments were often combined with chemical, so could not be completely separated out

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	2017	2018
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	88/1375	15/1392
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	2017	2018
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	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	N/A	1,542 ⁴
Miles of Roads Surveyed	N/A	N/A	N/A	N/A	391	369	423	299	222	237	309	149	359	125	95	64	90
Acres Surveyed⁶	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	240	240

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.
- "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.
 - Derived from miles surveyed/treated, but not used in the estimate of acres in the top table.
 - Derived from miles surveyed-Recorded as a separate value from 2006 to 2009. Previously combined in miles treated/surveyed and acres treated/surveyed
 - Taken from FACTS sheets—"Area Examined for Weeds"-from 2010-2106. This addition to the sheet gives perspective to infestation density and area covered.
 - In 2016, WCC worked alongside the NWCB. These acres have been accounted for in the "Acres Treated" section for NWCB

*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.

PROGRAM HISTORY FROM 2002-2018: 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 fluctuations 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.
- In 2017 team size was small, limiting number of treatment days and activities. We expanded the use of Milestone (aminopyralid). High priority was given to anticipated road decommissioning, forestry disturbance activities, and low frequency invasive species. Several new invaders were detected.
- In 2018 aminopyralid was the primary herbicide used with only occasional use of triclopyr. A well coordinated, FS-led team treated a number of high priority projects within the scope of our project area. Expanded, coordinated treatments on county roads under a new integrated weed management policy protect adjacent Forest Service lands from weed invasion.

APPENDIX E: COUNTY ACCOMPLISHMENTS-A SNAPSHOT

Forest Service lands (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, NGOs 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 Jefferson county coordinator has focused on administration and in-county projects; to the best of our knowledge, there was no 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. There is no snapshot of Jefferson County weed status and control efforts.

Clallam County covers 1,112,960 acres on the north west edge of the Olympic Peninsula, bordering 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 of our roads lead directly into the National Forest and many go through the Forest into the popular Olympic National Park. The Clallam Noxious Weed Control Board (CNWCB) has a stable, assessment-funded weed program. The CNWCB implemented its second season of an integrated weed management (IWM) plan for Clallam County's road department. CCNWCB and partners treated 170 miles of county roads for a broad array of invasive species (40) which pose a direct threat to adjacent Forest Service land. We also treated 180 acres within 23 county pits as an important weed prevention component of the IWM plan. Similar control plans for other county managed lands such as county parks and restoration projects were created; some work was accomplished under these plans as well. Significantly, a new class A weed, Italian thistle was discovered and treated as a result of early season detection surveys per the plan. Additionally, with significant help from volunteers, we planted two pilot sites with pollinator friendly areas complimentary to and consistent with native plant restoration project currently underway by the Forest Service.



Clallam NWCB controlled a newly discovered Class A weed, Italian thistle-which spread from a rock source, to a county road, then a county spoils pit, via sweepings and road spoils.

Clallam County 2018 Snapshot	
Number of Known Noxious Weed Species	73
Number of Regulated Noxious Weed Species	44
Most Common Regulated Noxious Weeds	tansy ragwort, poison hemlock, knapweeds
Least Common Regulated Noxious Weeds	European coltsfoot, hoary alyssum, hairy willowherb, hawkweeds, Italian thistle, purple loosestrife, sulfur cinquefoil, giant hogweed, gorse, perennial sowthistle, Italian thistle (new class A weed)
Total Number of Sites (Regulated Species Only)	2,197-1334 surveyed, (this does not include rechecks) -of sites surveyed, less than 5% were not controlled by year's end, nearly every county-managed site was treated.
Number of Landowner Contacts	329 (some data not available at this time)
Educational Events	36
Public Contacts (Phone Calls, Walk-Ins, Emails)	Over 1390
Web-Site Hits	1900
Volunteer Weed Events	7-694 hrs
Area of Weeds Controlled by Weed Board Staff	3,457 individual plants removed from multiple private properties and many thousands more from county managed lands.

The CCNWCB accomplishes its mission to protect Washington's natural resources from the degrading impacts of invasive plant species through partnerships with many other federal, tribal and state agencies, as well as volunteer groups, including the 10,000 Years Institute, Back Country Horseman, Master Gardeners, Stream Keepers, Audubon Society, North Olympic Land Trust, Jefferson Land Trust, and North Olympic Salmon Coalition.

The CCNWCB is the de facto leader of the Olympic Invasive Plant Working Group, a loose consortium of government entities, tribes, and non-profits that meets to exchange information and strategize effective weed control on the Peninsula. As part of Cooperative Weed management Area, we have broadened our focus from knotweed to on an "all invasives" approach as well as anticipating how to take the proactive steps toward healthy invasion resilient landscapes.

**APPENDIX F: WEED SPECIES REPORTED 2002-2018
ON FOREST SERVICE LAND IN CLALLAM OR JEFFERSON COUNTIES**

(Other counties may have reported other species). List sorted alphabetically by botanical name.
No new species on FS land; 2 new species within counties: Italian thistle and giant reed
Plant Codes come from the USDA Natural Resources Conservation Service PLANTS database.



Yellow hawkweed found on the 2877-040 Road

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
wild basil savory	<i>Clinopodium vulgare</i>	CLVU
rockspray cotoneaster	<i>Cotoneaster</i>	COTON
poison hemlock	<i>Conium maculatum</i>	COMA
Scotch broom	<i>Cytisus scoparius</i>	CYSC4
spurge laurel	<i>Daphne laureola</i>	DALA11
wild carrot	<i>Daucus carota</i>	DACA6
Fuller's teasel	<i>Dipsacus 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
spotted jewelweed	<i>Impatiens capensis</i>	IMCA
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>Prunus laurocerasus</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

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

wild chervil	<i>Anthriscus sylvestris</i>
giant reed	<i>Arundo donax</i>
hoary alyssum	<i>Berteroa incana</i>
Italian thistle	<i>Carduus pycnocephalus</i>
hairy willowherb	<i>Epilobium hirsutum</i>
shiny geranium	<i>Geranium lucida</i>
common hawkweed	<i>Hieracium lachenalii</i>
common reed	<i>Phragmites australis</i>

APPENDIX G: 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 multiple treatments within the season are preferable. Preliminary studies suggest herb Robert good germination control with Oust (sulfometuron ethyl); subsequently this herbicide may be considered for roadside herb Robert populations in the future. Esplanade may also be an option.
- 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).

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.
CLVU	wild basil savory	<i>Clinopoduma vulgare</i>	Foliar application necessary, it is unclear at this time which product works best. Aminopyralid may be ineffective; triclopyr or imazapyr may be required.
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
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
DALA11	spurge laurel	<i>Daphne laureolus</i>	Foliar application; it is unclear at this time which herbicide is most effective, although it is unlikely that aminopyralid alone will be effective.
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);

Plant Code	Common Name	Botanical Name	Control Recommendation
			selective herbicide application in first year or pre-bloom in 2 nd year. May require triclopyr or imazapyr.
GERO	herb Robert	<i>Geranium robertianum</i>	Manual removal for small infestations; spot herbicide application where feasible; multiple treatments per season preferred. Prevention measures a must. Low rates of aminopyralid may be effective and reduce seed germination. Imazapyr or sulfometuron ethyl 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.
HEHE	English ivy	<i>Hedera helix</i>	Manual removal; cut stump or foliar herbicide application. Higher end surfactant rates may be needed.
HIAU HICA HISA	orange hawkweed	<i>Hieracium aurantiacum</i> <i>Hieracium caespitosum</i> <i>Hieracium sabatum</i>	Spot spray with selective herbicide in late spring or summer; - clopyralid preferred - possible manual removal for very small infestation. Aminopyralid is likely effective.
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.
IMCA	spotted jewelweed	<i>Impatiens capensis</i>	Manual removal; early foliar herbicide when there are many plants,.
IRPS	yellow flag Iris	<i>Iris pseudacorus</i>	Manual removal for small infestations, foliar herbicide, imazapyr may be preferred
LAGA2	yellow archangel	<i>Lamiastrum 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. Imazapyr may provide superior control.
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 <u>systematic</u> 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>Symphaticum officinale</i>	Minimal occurrence, but expanding; spot herbicide application.
TAVU	common tansy	<i>Tanacetum vulgare</i>	Spot herbicide application-may require triclopyr.
VIMA VIMI12	bingleaf periwinkle common periwinkle	<i>Vinca major</i> <i>Vinca minor</i>	Thorough spot herbicide application

APPENDIX H: 2018 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.**

bean-caper, Syrian	<i>Zygophyllum fabago</i>
blueweed, Texas	<i>Helianthus ciliaris</i>
broom, French	<i>Genista monspessulana</i>
broom, Spanish	<i>Spartium junceum</i>
bulrush, ricefield	<i>Schoenoplectus mucronatus</i>
dary, meadow	<i>Salvia pratensis</i>
dlematis, Oriental	<i>Clematis orientalis</i>
cordgrass, common	<i>Spartina anglica</i>
cordgrass, dense flower	<i>Spartina densiflora</i>
cordgrass, salt meadow	<i>Spartina patens</i>
cordgrass, smooth	<i>Spartina alterniflora</i>
crupina, common	<i>Crupina vulgaris</i>
false brome	<i>Brachypodium sylvaticum</i>
flowering rush	<i>Butomus umbellatus</i>
flax, spurge	<i>Thymelaea passerina</i>
four o'clock, wild	<i>Mirabilis nyctaginea</i>
goatsrue	<i>Galega officinalis</i>
hogweed, giant	<i>Heracleum mantegazzianum</i>
hydrilla	<i>Hydrilla verticillata</i>
johnsongrass	<i>Sorghum halepense</i>
knawweed, bighead	<i>Centaurea macrocephala</i>
knawweed, Vochin	<i>Centaurea nigrescens</i>
kudzu	<i>Pueraria montana</i> var. <i>lobata</i>
milfoil, variable-leaf	<i>Myriophyllum heterophyllum</i>
mustard, garlic	<i>Alliaria petiolata</i>
nightshade, silverleaf	<i>Solanum elaeagnifolium</i>
primrose-willow, floating	<i>Ludwigia peploides</i>
sage, dary	<i>Salvia sclarea</i>
sage, Mediterranean	<i>Salvia aethiopis</i>
small flowered jewelweed*	<i>Impatiens parviflora</i>
spurge, eggleaf	<i>Euphorbia oblongata</i>
sweetgrass, reed	<i>Glyceria maxima</i>
starthistle, purple	<i>Centaurea calcitrapa</i>
thistle, Italian	<i>Carduus pycnocephalus</i>
thistle, milk	<i>Silybum marianum</i>
thistle, slenderflower	<i>Carduus tenuiflorus</i>
woad, dyers	<i>Isatis tinctoria</i>

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 mandated. In regions where a Class B species is already abundant, control is decided at the local level, with containment as the primary goal. Please contact your County Noxious Weed Control Coordinator to learn which species are designated in your area.

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>Athagi maurorum</i>
celandine, lesser	<i>Ficaria verna</i>
common fennel (except bulbing fennel)	<i>Foeniculum vulgare</i> (except <i>F. vulgare</i> var. <i>azoricum</i>)
common reed (nonnative genotypes)	<i>Phragmites australis</i>
Dalmatian toadflax	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
European coltsfoot*	<i>Tussilago farfara</i>
fanwort	<i>Cabomba caroliniana</i>
gorse	<i>Ulex europaeus</i>
grass-leaved arrowhead	<i>Sagittaria graminea</i>
hairy willow-herb	<i>Epilobium hirsutum</i>
hawkweed, all nonnative species and hybrids of the wall and meadow subgenera	<i>Hieracium</i> subgenus <i>Hieracium</i> subgenus <i>Pilosella</i>
hawkweed, orange	<i>Hieracium aurantiacum</i>
hawkweed, oxtongue	<i>Picris hieracioides</i>
herb Robert	<i>Geranium robertianum</i>
hoary alyssum	<i>Berteroa incana</i>
houndstongue	<i>Cynoglossum officinale</i>
indigobush	<i>Amorpha fruticosa</i>
knawweed, black	<i>Centaurea nigra</i>
knawweed, brown	<i>Centaurea jacea</i>
knawweed, diffuse	<i>Centaurea diffusa</i>
knawweed, meadow	<i>Centaurea x moncktonii</i>
knawweed, Russian	<i>Acroptilon repens</i>
knawweed, spotted	<i>Centaurea stoebe</i>
knotweed, Bohemian	<i>Polygonum x bohemicum</i>

Class B Weeds - continued

knotweed, giant	<i>Polygonum sachalinense</i>
knotweed, Himalayan	<i>Polygonum polystachyum</i>
knotweed, Japanese	<i>Polygonum cuspidatum</i>
kochia	<i>Kochia scoparia</i>
loosestrife, garden	<i>Lysimachia vulgaris</i>
loosestrife, purple	<i>Lythrum salicaria</i>
loosestrife, wand	<i>Lythrum virgatum</i>
Malta starthistle*	<i>Centaurea melitensis</i>
parrotfeather	<i>Myriophyllum aquaticum</i>
perennial pepperweed	<i>Lepidium latifolium</i>
poison hemlock	<i>Conium maculatum</i>
policeman's helmet	<i>Impatiens glandulifera</i>
puncturevine	<i>Tribulus terrestris</i>
rush skeletonweed	<i>Chondrilla juncea</i>
ravenna grass*	<i>Saccharum ravennae</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>Lamium galeobdolon</i>
yellow floating heart	<i>Nymphoides peltata</i>
yellow nutsedge	<i>Cyperus esculentus</i>
yellow starthistle	<i>Centaurea solstitialis</i>

Class C Weeds: Noxious weeds which are already widespread in WA or are of special interest to the state's agricultural industry. The Class C status allows counties to enforce control if locally desired. Other counties may choose to provide education, technical consultation or other assistance.

absinth wormwood	<i>Artemisia absinthium</i>
babysbreath	<i>Gypsophila paniculata</i>
barberry, common	<i>Berberis vulgaris</i>
bindweed, field	<i>Convolvulus arvensis</i>
blackberry, evergreen	<i>Rubus laciniatus</i>
blackberry, Himalayan	<i>Rubus armeniacus</i>
blackgrass	<i>Alopecurus myosuroides</i>
buffalobur	<i>Solanum rostratum</i>
catsear, common	<i>Hypochaeris radicata</i>
cereal rye	<i>Secale cereale</i>
cockle, white	<i>Silene latifolia</i> ssp. <i>alba</i>
cocklebur, spiny	<i>Xanthium spinosum</i>
common tansy	<i>Tanacetum vulgare</i>
curly-leaf pondweed	<i>Potamogeton crispus</i>
eel grass, Japanese	<i>Zostera japonica</i>
Eurasian watermilfoil, hybrid	<i>Myriophyllum spicatum</i> x <i>M. sibiricum</i>
fieldcress, Austrian	<i>Rorippa austriaca</i>
goatgrass, jointed	<i>Aegilops cylindrica</i>
groundsel, common	<i>Senecio vulgaris</i>
hawthorn, English*	<i>Crataegus monogyna</i>
henbane, black	<i>Hyocyamus niger</i>
hoary cress	<i>Lepidium draba</i>
Italian arum	<i>Arum italicum</i>
ivy, English - four cultivars only	<i>Hedera helix</i> 'Baltica', 'Pittsburgh', and 'Star'; <i>H. hibernica</i> 'Hibernica'
jubata grass	<i>Cortaderia jubata</i>
lawnweed	<i>Soliva sessilis</i>
medusahead	<i>Taeniathenum caput-medusea</i>
nonnative cattail species and hybrids	<i>Typha</i> spp
old man's beard	<i>Clematis vitalba</i>
oxeye daisy	<i>Leucanthemum vulgare</i>
pampas grass	<i>Cortaderia selloana</i>
reed canarygrass	<i>Phalaris arundinacea</i>
Russian olive	<i>Elaeagnus angustifolia</i>
sandbur, longspine	<i>Cenchrus longispinus</i>
scentless mayweed	<i>Matricaria perforata</i>

Class C Weeds continued

smoothseed alfalfa dodder	<i>Cuscuta approximata</i>
sowthistle, perennial	<i>Sonchus arvensis</i> ssp. <i>arvensis</i>
spikeweed	<i>Centromadia pungens</i>
spotted jewelweed*	<i>Impatiens capensis</i>
St. Johnswort, common	<i>Hypericum perforatum</i>
swainsonpea	<i>Sphaerophysa salsula</i>
teasel, common	<i>Dipsacus fullonum</i>
thistle, bull	<i>Cirsium vulgare</i>
thistle, Canada	<i>Cirsium arvense</i>
toadflax, yellow	<i>Linaria vulgaris</i>
tree-of-heaven	<i>Ailanthus altissima</i>
ventenata*	<i>Ventenata dubia</i>
water lily, fragrant	<i>Nymphaea odorata</i>
whitetop, hairy	<i>Lepidium appelianum</i>
wild carrot	<i>Daucus carota</i>
yellow flag iris	<i>Iris pseudacorus</i>

*new

To protect the State's resources and economy, the Washington State Noxious Weed Control Board adopts a State Noxious Weed List each year (WAC 16-750). This list classifies weeds into three major classes – A, B, and C – based on the stage of invasion of each species and the seriousness of the threat they pose to Washington State. This classification system:

- Prevents small infestations from expanding by eradicating them when they are first detected
- Restricts already established weed populations to regions of the state where they occur and prevent their movement to un-infested areas
- Provides flexibility and local control for weeds that are already widespread.

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

Washington State Noxious Weed Control Board

P.O. Box 42560
Olympia, WA 98504-2560
360-902-2053

Email: noxiousweeds@agr.wa.gov

Website: <http://www.nwcb.wa.gov>

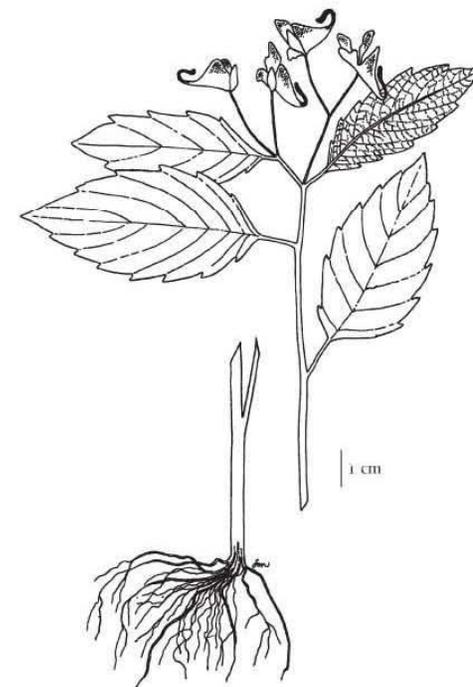
Washington State Department of Agriculture

21 North First Avenue #103
Yakima, WA 98902
(509) 225-2604

Clallam County Noxious Weed Control Board

223 E 4th St., Suite 15
Port Angeles WA 98362

2018 Washington State Noxious Weed List



Impatiens capensis
Spotted jewelweed

Spotted jewelweed, a newly listed noxious weed that is uncommon in Clallam County. Spotted jewelweed is an annual with orange flowers and reddish-brown spots; fused petals form a spur.

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

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, sulfometuron methyl, or imazapyr to noxious weeds or other invasive plant species at the following Forest Service sites in Jefferson and Clallam Counties April 30 – November 1, 2018. 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, sulfometuron methyl, 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, 2190200 Rd, Colonel Bob TH; **Bockman Creek Watershed**, 2902,2903 Rds and spurs; Bockman pit; **Canyon Creek /Pats Creek Watershed**, 28,2870,2875,2877, 2878, Rds and spurs; Cranberry Bog, Juniper Meadow, Slab Camp/Deer Ridge TH and Caraco Cat units; Upper and Lower Caraco, Canyon, and Ned Hill Pits; **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**, 27, 28 and 2820 Rds and spurs; Bon Jon Quarry; **Lower Big Quilcene River Watershed**, 27,2730 and 2740 Rds and spurs; PT Muni WS caretakers cabin, Lower Big Quilcene Trail, Falls View CG and the Quilcene Ranger Station; **Lower Dosewallips River Watershed**, 2610 Rd and spurs; Elkhorn CG and Lower Dosewallips riparian area; **Lower Duckabush River Watershed**, Collins CG; **Lower Gray Wolf River Watershed**, 2870,2878, 2880 Rds and spurs; Armpit Pit; 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; **McDonald Creek/Siebert Creek Watershed**, 2877 Rd and spurs; Pat's Prairie; **Middle Dungeness River Watershed**, 28,2820,2830, and 2870 Rds and spurs; Lost Pit; Gold Creek and Sleepy Hollow trails; **Middle Queets River Watershed**, 2180 Rd and spurs; Park pit; **Middle Quinault River Watershed**, 2190 Rds and spurs; Boulder Creek and Neptune pit; **Middle Sol Duc River Watershed**, 2923 Rd and spurs; **North Fork Calawah Watershed**, 29,2922,2923 Rds and spurs; Calawah and Grindstone Pits; **Salmon River Watershed**, 2140 Rd and spurs; North Salmon and Salamander Pits; **Sam's River Watershed**, 2180 and 2170 Rds and spurs; **Spencer Creek / Maple Creek Watershed**, Seal Rock CG; **Snow Creek/Salmon River Watershed**, 2840,2845,2850 Rds and spurs; **South Fork Calawah Watershed**, 29, 2922,2923,2932,2952 Rds and spurs; **Upper Big Quilcene River Watershed**, 2740,2760 Rds and spurs; Sink Lake; **Upper Dungeness River Watershed**, 2870 Rd and spurs; Dungeness and Heather Basin Trails, Camp Handy; **Upper Sol Duc River Watershed**, 29, 2929,2978,3071 Rd and spurs; Klahowya CG; Bonidu, Littleton Horse Camp, and Tom Creek Pits.

APPENDIX J: PROJECT FORMS

- FACTS Manual/Herbicide Treatment Data Form-front side

2018 FACTS Invasive Plant Treatment Data Form

VNB

General Activity Fields

Ref #: 73

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. Please only document only one area represented by one Ref # per FACTS form.

Region	Forest	District (circle one)*	6 th Field Watershed Name	Owner	Workforce** (and Number of People in Crew)
06	09	PAC-N (05) PAC-S (03)	HC-N (02) HC-S (01)	<u>Jimmy-come-lately Creek</u>	<u>FS</u> (3) # people
Method Code	Equipment Code (circle one)	Job Code:	Treatment Location and Comments:		
<u>700 Herbicide</u>	711 hand sprayer <u>712 backpack sprayer</u> 713 hack & squirt 716 injector		If you are treating a road, record Road number w/ BMP & EMP If you are not treating a road (ex: a campground, rock pit, etc.) record Site Name -Record this information as it appears on the spreadsheet. <u>2855030</u> <u>milepost 0-2.6</u> Was entire area represented by the Ref# treated for weeds? <u>Yes</u> No Comments: <u>Dispersed meadow knapweed at end of road (12 plants)</u> <u>- Last 4/10 mile impassable and we had to walk 2.6 m</u>		
<u>100 Manual</u>	721 mobile ground sprayer 000 other		If no, describe what part was treated above.		

*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 (circle one)

Start Date	Stop Date	Acres examined for weeds	Application Site (circle one)	Licensed Applicator: Name and License #
<u>6/21/18</u>	<u>6/21/18</u>	<u>5.2</u>	<u>Road edge/ROW</u> Gravel/rock source Forest Admin Site	<u>Cathy Lucero 56527</u>
Total Manual Infested Area Treated: Do not lump plants together:				<u>1.8</u> acres

Weeds Treated (Use PLANTS code; include common or scientific name as well if it is an uncommon weed on the ONF)	Infested Area Treated (DO NOT lump plants together)	% cover of species in Infested Area Treated (lump plants together - use cover classes 1 - 9 listed below)	Comments
<u>SEJA</u>	<u>1.8</u> acres	<u>2</u>	<u>Dug the tansy</u>
<u>CEMO</u>	<u>.2</u> acres	<u>1</u>	<u>Half dozen plants scattered</u>
<u>CYSC</u>	<u>.2</u> acres	<u>3</u>	<u>Pulled bigger brams, sprayed smaller</u>
<u>CIVU</u>	<u>.001</u> acres	<u>1</u>	
<u>GERO</u>	<u>.1</u> acres	<u>6</u>	
<u>HYPE</u>	<u>.2</u> acres	<u>2</u>	
<u>RUAR9</u>	<u>.001</u> acres	<u>1</u>	<u>One large plant</u>

Cover Classes: 1 = Tracc, 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.

Admin Use Only

Activity Unit FACTS ID#: _____ Name: _____
 Activity Subunit #: _____ Name: _____

- FACTS Manual/Herbicide Treatment Data Form-back side

Daily Log

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:
6/21	11:00AM	3:00PM	55	12	W	Bloody	
Total Volume of Mix Applied	UOM	Mix (oz herbicide /1 gallon water)	Dilutant	Applicators Names			
3.5 gallons	Gallons	5 oz/gallon	Water	Cathy Lucero, Tommy Roche, Josef Sollmann			
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):	
Milestone	.5 oz	.125%	Competitor	2.5 oz	.5%	1.8	
	oz	%	Blazon	1.25 oz	.25%	Area treated in Riparian Reserves: 10% -18	
	oz	%		oz	%	Area Treated within 5 feet of Standing Water: Ø	

Tank Mix 2 For use when more than one herbicide is used to treat the infestation.

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: _____
 2018 FACTS Invasive Plant Treatment Data Form
 Page 2 of 2 modified by clb 04/27/2018

Notes:

APPENDIX J: PROJECT FORMS

- Invasive Plant Inventory for Rock Source, Olympic National Forest, short 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.

Cathy Lucero

Signature

Date

6/20/18

Name of Rock Source: Bockman Pit

Narrative of Pit Location (include, at minimum, road number and milepost): Follow 2902 for 9.2 miles. Ref # 588

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: Cathy Lucero **Date of Inspection:** 6/20/18

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.

This pit is pretty clean, and could easily achieve an option B instead of a C, with some follow-up next year. It appears that the orange hawkweed arrived via unsolicited brush dumping. At this time, Herb Robert is very limited and near the entrance only. Minor amounts of tansy ragwort are easily isolated.

Let us know plan, if storage or extraction, to help us better prepare this pit for FS use.

Species present:

Species Code	Common Name	Infested Area (acres)	Cover Class	Comments
HIAU	orange hawkweed	4 sq ft	1	Tiny patch, treated-near small brush pile to left and straight as enter pit
GERO	herb Robert	100 sq ft	1	To right as enter pit
CASE	hedge bindweed	100 sq ft	1	Towards back, left side of pit, 2 patches
SEJA	tansy ragwort	50 sq ft	1	Two very small patches
CYSC	Scotch broom	1.25 acres	2	Mostly young seedlings, only 1 blooming plant
RUAR	Himalayan blackberry	200 sq ft.	4	Along rim to back of pit, scattered sm. patches
RULA	Cut-leaf blackberry	20 sq ft	4	Small amount on rim.
HYPE	St Johns wort	0.15 acres	2	small, but heavy patch in middle
Do not record tolerate species in this table.				

DON'T FORGET TO FILL OUT THIS SECTION!

Estimated size of pit: 0.6 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 10 %

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? 2017

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 <i>approximations only</i> . DO NOT spend more than a few moments determining

Name of Rock Source: Bockman Pit

Date inspected 6/20/18

Sketch of pit (or aerial photo .jpegs of pits can be pasted in the space below prior to going into field) :

Include information such as areas of pit that are clean and usable, distribution and location of weed species, a north arrow and scale bar, road numbers or landmarks to assist in finding pit and/or weeds of particular concern, etc. Comments are encouraged!



2018 Olympic National Forest Invasive Species List

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>Lamium 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
LASY	<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

APPENDIX K: SAMPLE 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	CS
97		42.4	Y		CS
94		38	Y	could use a new gasket . will fix.	CS
99		56	Y		CS

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 = 342.25 ft²) and the fact that there are 128 ounces in a gallon.