



Backcountry Horsemen (Peninsula Chapter) and Weed Board crew team up to tackle Canada thistle in the Buckhorn Wilderness

## **Olympic Peninsula Cooperative Noxious Weed Control 2019 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](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 or grants have sometimes augmented additional tasks added to a work plan. Depending on funding levels in any given year, work has been accomplished by crews of varying size and expertise.

### 2019 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-such as elk habitat.
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.

### 2019 Resources:

- Supervisor (up to 20 hours/week, 6 months)
- 2 Project Specialists (up to 40 hours/week, 4 months)

### 2019 Accomplishments:

- Examined **268** acres for invasive species, treated **217** weed-infested acres, and monitored **10** treated acres.
- Inspected and treated high priority weeds in **11** FS rock sources; inspected and identified corrective measures for **8** private, **5** state and **26** 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 established. 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.

Olympic National Forest (ONF) land is accessed via the county road system. These roads can therefore serve as a significant vector for the spread of invasive non-native plant species that imperil natural resources, habitat, and ecosystem function. Under the Clallam County Road Department's Integrated Weed Management (IWM) plan, the Clallam Noxious Weed Control Board (CNWCB) crew treated county roads connected to ONF managed lands. This was a coordinated response to our ONF 2019 work plan and is an excellent example of the cross jurisdictional cooperative approach to managing noxious weeds on a landscape scale. Additionally, there is a significant opportunity on the horizon for the development of a cooperative native plant consortium to further long term goals to increase watershed scale native plantings. These examples of almost unprecedented cooperation for the greater public good between the Forest Service, Clallam County and the Clallam Noxious Weed Control Board, are at the heart and intent of the Title II of the Secure Rural Schools Act. 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 and the vital funding it provides.

## 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 or special habitat sites. 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 many 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.

### 2019 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 6<sup>th</sup> field watersheds. The FS provided native grass seed for rehabilitation of treated locations as appropriate.

In 2019, 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 such as elk habitat
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 enroute to known sites.

**2019 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 2020 field season
- Provided non-forest rock source inventory, monitoring and reporting, as requested

**Field team: 2 project specialists, (licensed applicators), up to 40 hrs/week over 5 months,**

- Field treatments (**36 treatment days**)
- Data collection, completing treatment forms, rock source inventory and monitoring

**2019 Project Accomplishments:**

- The Clallam NWCB examined **268** acres, and treated **23** different weed species over **217** of those acres; **38** acres were manual or combined manual/chemical treatments. In the course of these treatments we documented at least **23 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 **11** FS, rock sources, inspected and facilitated control plans for **5** state and **8** private rock sources. Treated **26** county rock sources under ancillary Clallam Integrated Weed Management plan which compliments FS prevention protocols.
- Monitored **10** acres, and completed associated Monitor forms.

**2019 Treatments:**

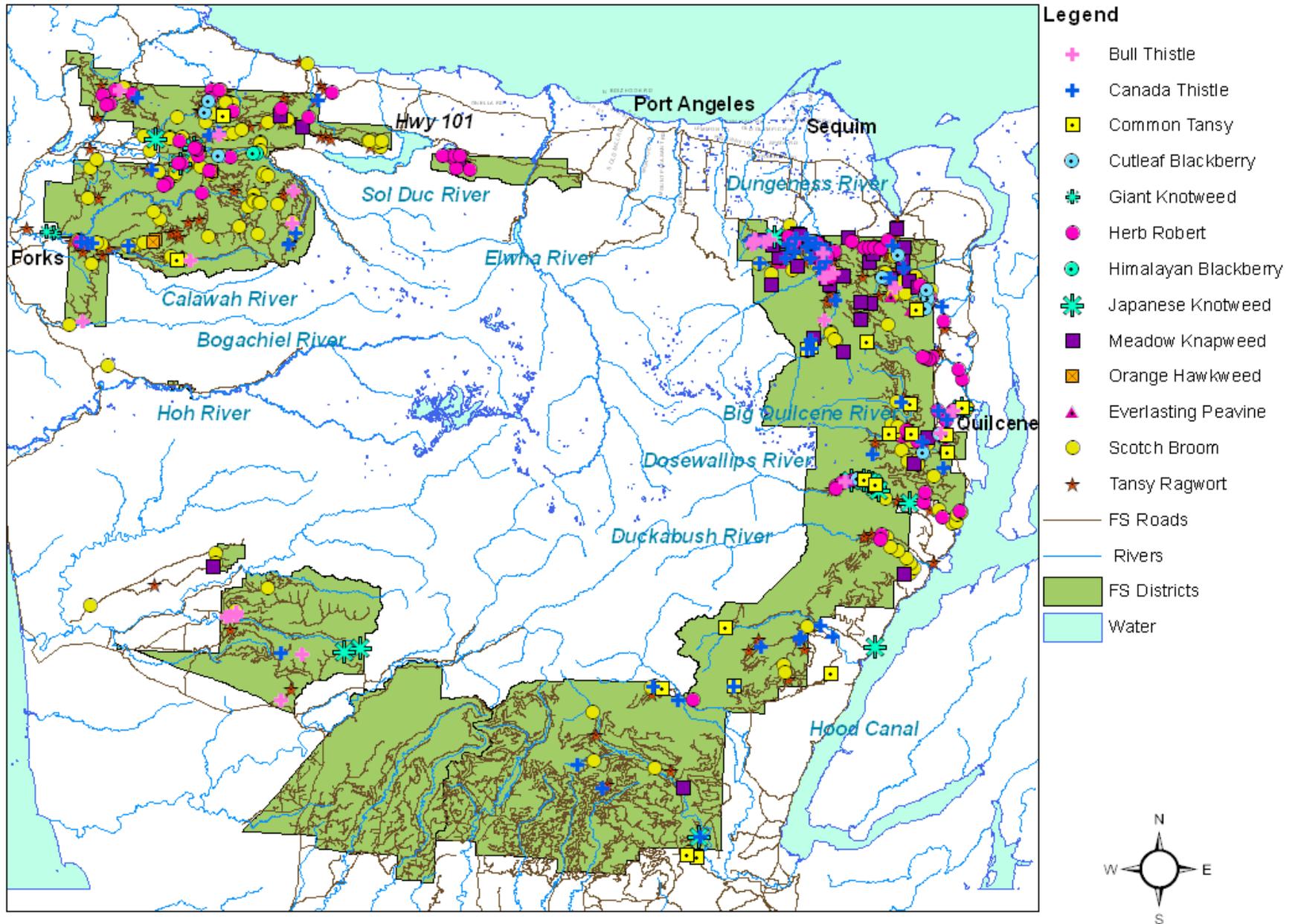
The increased capacity to cover ground by using all available tools has been instrumental in getting ahead of, and reducing the spread and impacts of invasive plant species. The discovery of new sites and/or new species has begun to slow. Often these new infestations are small and easily controlled validating the concept of early detection, rapid response. See *Post –Season Observations* for more detail. Appendix A provides detailed information about specific 2019 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 rock sources of which we have knowledge. Under the Clallam County Road Department’s Integrated Weed Management (IWM) plan, the Clallam Noxious Weed Control Board (CNWCB) crew treated county roads connected to ONF managed lands. This was a coordinated response to our ONF 2019 work plan and is an excellent example of the cross jurisdictional cooperative approach to managing noxious weeds on a landscape scale. As appropriate, these county road treatments are shown on maps in this report. Rehabilitating sites with native material where needed is another focus to achieve 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 policies and resource levels that have influenced accomplishments in different years.

The 2002-2019 Accomplishment Summary Table in Appendix D provides prospective on 2019 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.

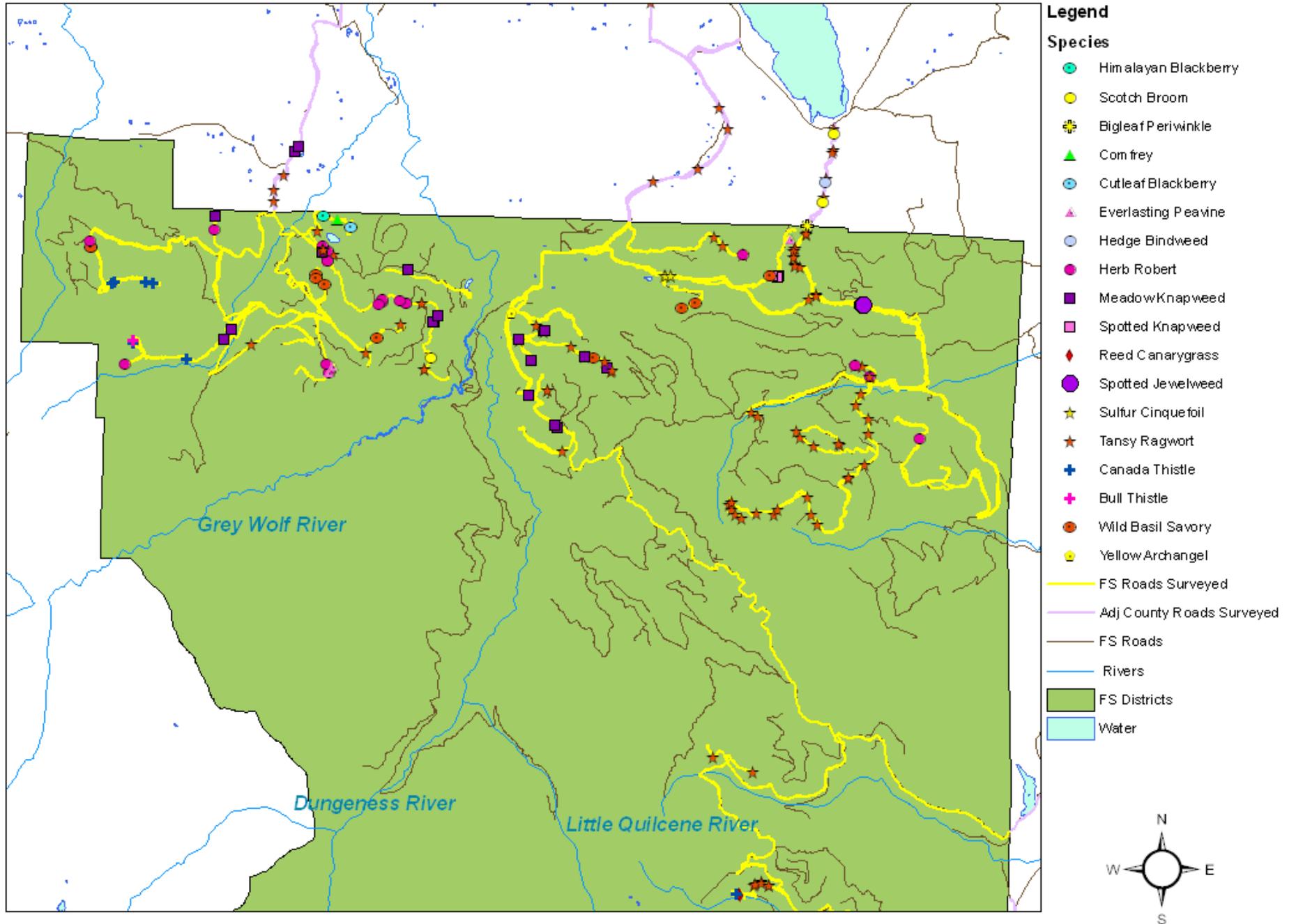
## MAPS

- 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.
- Forest Service roads where weed board crew worked in 2019 are shown in yellow. The Roads Surveyed 2019 layer was based on GPS track logs. In some cases, we experienced a track log failure and some surveyed FS roads are not displayed. ***New this year***, some adjacent County roads that were surveyed and some of those treated in Clallam County jurisdiction for regulated weeds, are shown in pink. This addition reflects Clallam County’s commitment to reduce the spread of noxious weeds between jurisdictional boundaries.
- The 2019 activity maps show weed sites either newly documented in 2019 OR sites of weed species that are regulated in Clallam or Jefferson County under state law, whether they were documented in past years or not. Points displayed on the map were collected this year by the field crew, using either a Garmin 78 or a smart phone. Office staff converted the points collected with a Garmin 78 to shape files, using the Minnesota DNR public domain software DNR GPS version 6.1.0.6, Crew used Collector and WSDA’s IForm to document treatment of regulated weed species when collecting points on a smart phone. Points gathered this year by either method were collated into the weed layer displayed on the map. Note that points are not sized to reflect the size of an infestation.

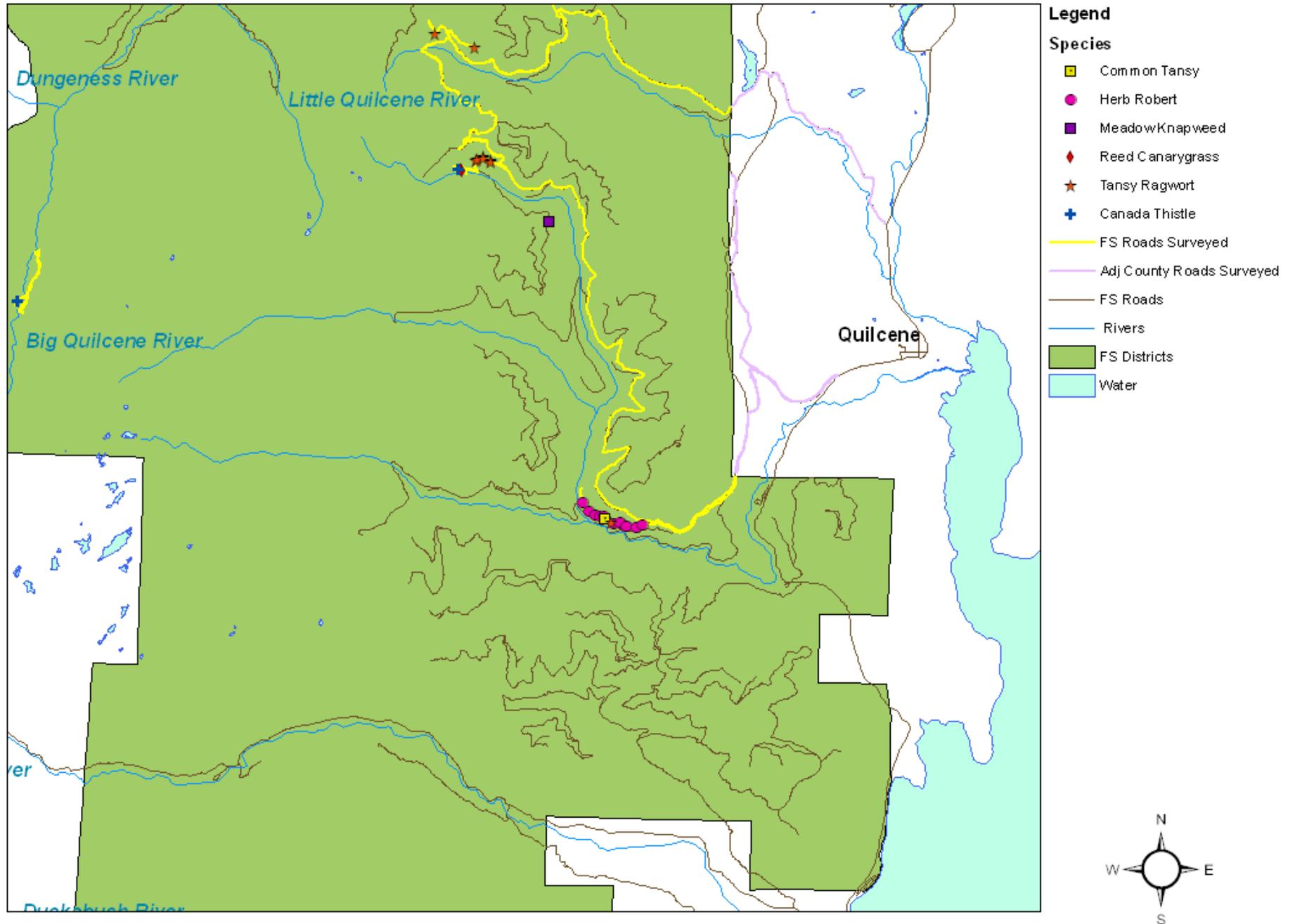
# Olympic National Forest Overview, with Baseline Weed Sites



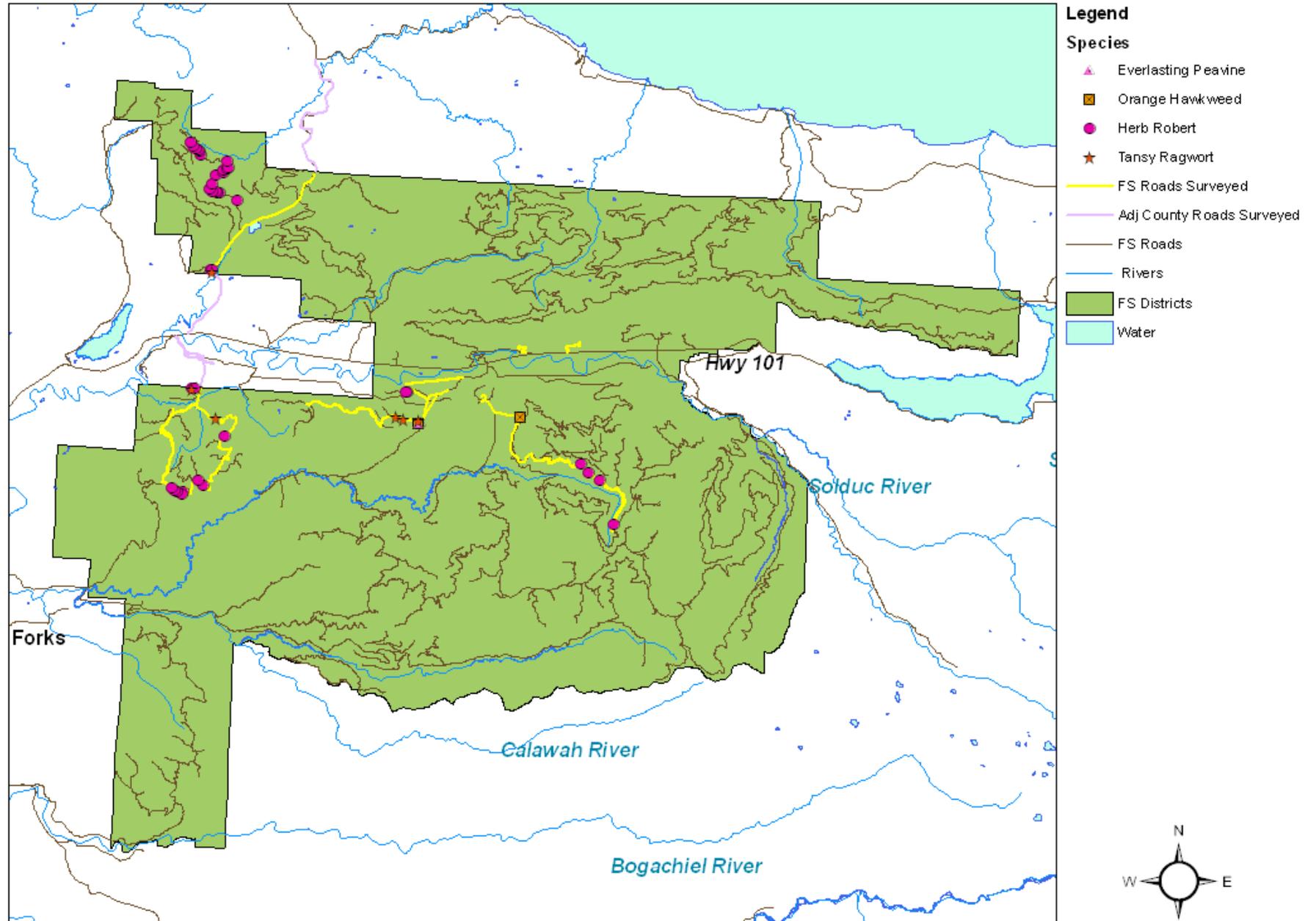
# Hood Canal North



# Hood Canal South



# Pacific North





Panorama of Camp Handy meadow

## PROJECT SPOTLIGHT: ELK HABITAT ENHANCEMENT

This season, one focus was invasive plant treatment at key elk habitat in remote locations. Rocky Mountain Elk Foundation contributions supported these activities.

Natural resource managers increasingly recognize the severe ecological threats noxious weeds or other invasive non-native plant species can have on our precious wild land areas and the species that depend on them. Heavy infestations of Canada or bull thistle in particular, have discouraged elk calving and bedding activities while reed canarygrass and oxeye daisy reduce forage quality needed to support a variety of wildlife species. Canada thistle, a highly prolific rhizomatous non-native is extremely difficult to control, let alone eradicate in these remote natural areas.

We treated invasives at Jupiter Meadow, Pats Prairie, Cranberry Bog, and Camp Handy, and performed touch-up treatments in elk habitat enhancement areas such as the Caraco Units where early seral thinning was conducted by the Forest Service about ten years ago. Each site had a slightly different compliment of invasives but Canada thistle was a common target because it thrives in grassy/shrub wet prairie or wetlands.



Canada thistle

Access to all sites included varying distances to access and degree of complexity to execute. For example, Camp Handy requires a three and one half mile hike to the first meadow, while the hike to Jupiter Meadow was as little as one mile. In all cases, focused treatments were performed by or under the supervision of licensed applicators skilled at distinguishing native plants from noxious weeds. Treatments were carefully designed and implemented to have the least impact on desirable plants, animals and the environment.

**Jupiter Meadow:** Almost pristine, small amounts of Canada thistle, a single, tiny area of oxeye daisy.



Crew on the trail to Jupiter Meadow.



Jupiter Meadow

**Cranberry Bog:** Long standing, large infestations of reed canarygrass are much reduced, selective treatments of Canada and bull thistle has allowed native thistle, a good forage species to rebound. Herb Robert, although reduced in density, is still prevalent in wooded areas.

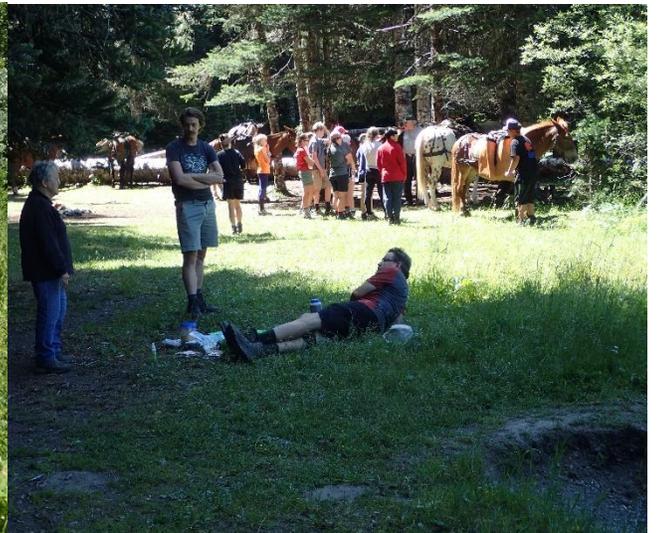


Extensive reed canarygrass stands reduced to patches.



Dense patches of native thistles have replaced invasive ones.

**Camp Handy and associated meadows:** A series of meadows; requires crossing the river. Canada thistle was the almost exclusive target, with Camp Handy itself the most infested. The meadow across the river had the second highest density, while the farthest meadow up Heather Creek was the least infested. Tom Mix (Peninsula Back Country Horsemen) has identified a fourth meadow with a small infestation that needs treatment next year.



BCH volunteers and Weed Board staff treat Canada thistle at Camp Handy. Students attending an eco-adventure camp learn about invasives.



Above: Beyond Camp Handy, Heather Creek meadow, bursting with wildflowers after previous treatments, had minor Canada thistle infestation

Right top: Back Country Horsemen volunteers pack materials and equipment across the river, Right below final meadow destination.

**Pat's Prairie:** A series of three meadows, invasives include Canada thistle along with minor infestations of bull thistle, oxeye daisy, foxglove, St. John's wort. All areas showed EXTENSIVE use by elk.



Extensive elk beds and evidence of forage in all these prairies.

**These important treatments could only have occurred as a result of the strong, cross-boundary relationships that exist between the Forest Service, Clallam County Weed Board and other partners.**

## 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 **54** of 59 high priority sites, **21** additional lower priority ones, and **2** Early Detection projects for a total of **77** projects.



Dog rose, an invasive species, was noted for the first time in the project area (Raccoon Pit)

An early detection and rapid response strategy has proven to be effective. Ribbon grass at Sink Lake was absent for the second year in a row; a trace amount of reed canarygrass and small Canada thistle patch was treated there. There appears to be a decreasing diversity of species in each project area, suggesting that the infrequent species are being gradually eliminated. Of the 15 occasions where we found meadow knapweed this season (a 20% reduction), all but one had no more than a single plant or two. We treated only one infestation of the following species: spotted knapweed, common teasel, sulfur cinquefoil, yellow archangel, common tansy, comfrey and orange hawkweed; no knotweed was found in this year's complement of projects. However, numerous instances of many of these species were treated on adjacent county roads. An untreated orange hawkweed site up Mt Mueller near Jasmine's Meadow discovered by an off-duty crew member will be recommended for treatment next year. Thistle and everlasting peavine treatments continue to show excellent results; persistence will win out over prevalence! Tansy ragwort has responded equally well to treatment; overall density is sharply declining with consistent follow-up. We continued to track the presence of wild basil savory, some, where it was just becoming established, in other cases, 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; The last several work plans have deliberately avoided larger known infestations. Milestone for early treatment and Polaris for late roadside treatments clearly suppress germination. However, in sites where both herb Robert and wild basil savory occur, a mix of more than one herbicide might be necessary. We will discuss wild basil with Forest Service staff to determine our future strategy and to set priorities.

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 **11** Forest owned rock sources, and also provided certification services for **8** of the privately owned rock pits that may provide material for Forest projects in the future. **26** 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. These rock sources will be used in upcoming Forest projects. 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.

### **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. Only one new species, dog rose, was detected this year.
- The crew took 262 waypoints, **23** 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) However, we did discover and treat a significant sulfur cinquefoil site on Blue Mountain Road (county road)
- Our treatments of spotted jewelweed have been successful; no new sites were discovered and infested area is much reduced. However, coordinated efforts with the Jefferson NWCB will be essential to ensure that spotted jewelweed along Snow Creek Rd (county) is controlled thus preventing re-infestation of adjacent Forest Service land in the vicinity of Lord's Lake Loop.
- Tansy abundance is down in areas where there has been consistent follow-up, especially in the Dungeness Watershed.
- The number of herb Robert infestations remains concerning. Small herb Robert patches treated last year responded well to treatment.
- There was only one site of orange hawkweed, a tiny remnant of the original infestation. We found none in Bockman pit this year. We need to treat to treat Jasmine's meadow as mentioned above. 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!
- We treated thirteen county roads (55 mi.) at major access routes to the Forest-not all are listed *project list action* table or shown on maps. Extensive yellow hawkweed and sulfur cinquefoil sites were discovered and will be prioritized for treatment in the County's Integrated Weed Management Plan. Italian thistle, newly discovered last year appears, to be contained at present. We consider treatment of these species a high priority, especially along corridors that led to Forest Service lands.
- 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, but increased the number of 1A priority projects in the work plan for the NWCB by about 20%. We completed far fewer county priorities which are listed as 2s.
- The pool of eligible seasonal crew members continues to be very tight. We lost one seasonal hire early in the year, and another moved before the season was over; we would have greatly benefitted from one additional member.
- NWCB crew treated **54** priority 1A projects listed for Jefferson/Clallam in the 2019 work plan, about a 30% increase of 1As than were treated in 2018. An additional **21** priority 2 projects, (approximately the same) and **2** non-prioritized projects were treated and listed as EDRR, (about 25% fewer than in 2018).
- A Forest Service Crew, assisted by a WCC crew for 2 weeks treated **19** priority 1A, **9** priority 2s 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 in this year's report all work on FS lands completed within Jefferson and Clallam Counties.
- Most treatments included the use of Milestone. We see that 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.
- We were unable to treat Falls View Campground a 1A project because of hazard tree removal activity. If that activity is complete, this site should be a high priority for next year after this ground disturbing activity.
- 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.
- We collected points for all regulated weeds, even if they had been found in previous years. We hope to develop a *shared* comprehensive digitized map that allows all weed control practitioners to see all sites to better isolate source areas and anticipate possible weed threats nearby regardless of jurisdiction.

### **Data Collection/Mapping**

- The pre-and post-season meetings between the FS and Weed Boards continue to be essential. The preseason documents and shape files are invaluable. 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. The cross-prioritization strategy between this program and Clallam County's Integrated Weed Management Plan amplifies invasive species control efforts and ensure real successes in both jurisdictions.

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. The planning coordination that occurs because of the Clallam County Weed Board involvement in both FS weed control program and that of the Clallam County Road department is a powerful new tool that not only improves efficiency and efficacy but greatly increases the likelihood of achieving program goals.

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.

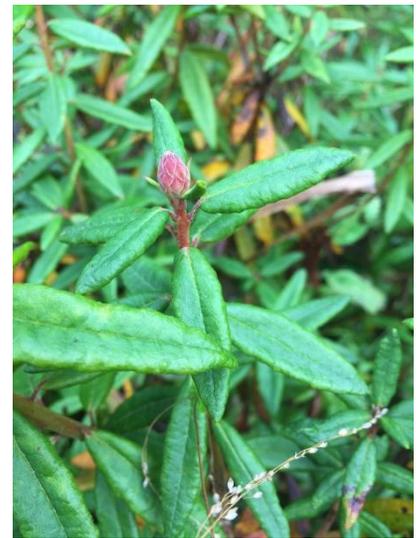
*Specific recommendations for next year are listed below.*

### Program Development

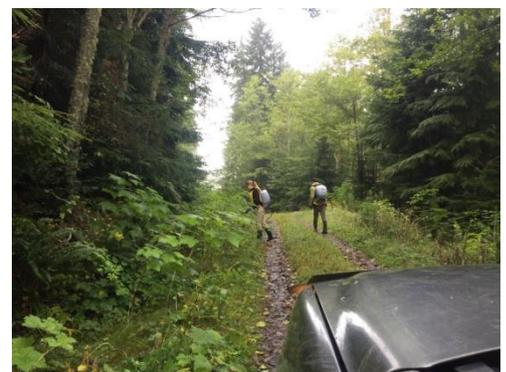
- Pursue Title II funding, as available, to ensure program continuity and preservation of progress to date.
- Seek longer Master Agreement duration: the newer agreements are shorter and often come with deadlines that are out of sync with field work and reasonable reporting timeframes. The short Master 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 that can provide a reliable, low cost, locally sourced supply of wide variety of native plant materials.
- 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.
- Prioritize locations where ground disturbance is planned and bare ground is expected as a result.



Labrador tea flourishes in Pats Prairie where Canada thistle treatments took



Crew inspects known meadow knapweed site

- Limit FS crew treatments to southern and extreme west Jefferson County and/or heavy density sites that need crew combinations (WCC or NWCB/FS)
- Develop an agreement with Coastal Restoration Crews. Clearly communicate expectations, priority sites and establish periodic reviews during the season to ensure we are all on the same track.
- Consider adding a new priority category to encompass follow-up treatments as indicated 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.
- Make "agency requests" to the Clallam County Noxious Weed Control Board prior or during its first board meeting of the year to ensure county roads that comprise Forest Service land access are included in the annual roadside Integrated Weed Management Plan.

**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 reseeding. 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.



Ornamental cacti thriving at first pull-off on 2800-280



Herb Robert grows down road center



Bull thistle at Slab Camp trailhead is removed



Amphibian found in Juniper Meadow, a beautiful, healthy botanical area



Crew frequently encounters wildlife- Owl watches crew from safe perch

## 2019 PROTOCOLS



The 2019 crew prepared for the trek to Cranberry Bog

### 1. Team and Project Dates

This year's project focused entirely on treatment of high priority projects, especially elk habitat enhancement or botanical areas. Treatments were performed by Clallam County Noxious Weed Control Board staff consisting in various combinations of Cathy Lucero (coordinator), and field technicians, Natalie Beatty, Tyler Clouse, and Shea McDonald (lead inspector). 2019 fieldwork began in mid-June and continued through mid-October. Backcountry Horsemen volunteers, (Peninsula Chapter), under the direct supervision of weed board staff assisted with Canada thistle treatment in the Buckhorn Wilderness, including Camp Handy.

### 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 2019. Treatments 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 enroute to known sites.

- a. Many known sites are along roadsides, and are typically surveyed by vehicle but also on foot. The distance surveyed was measured using a Garmin GPS unit or vehicle odometer, 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 were 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 on April 14, 2019. Herbicide applications were carried out between July 15<sup>th</sup> and October 9<sup>th</sup>.

- 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 3A or 1% Vastlan (both triclopyr), 0.5% Transline (clopyralid), or 1.0% Polaris (imazapyr) and 0.5-1% 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 on GPS units 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. Beginning in 2018, priority weed species sites were also recorded in state-

- issued phone in the iForm WSDA database app. In 2019, sites containing weed species that were regulated in Clallam or Jefferson under Washington State law, were documented in iForm
- 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 2019 treatments by acreage, date and species. It is a comprehensive account of work accomplished in 2019.
- b. **Appendix B** is summary of this 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 2019, 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 2019 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: 2019 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 five county roads that have been included 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; largest to smallest. 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, the Clallam Noxious Weed Control Board surveyed **268** and treated **217** 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 9/24/19) which was provided to us by the Forest Service. All told the FS/WCC crew treated **195** 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 **77** projects; all but three of our assigned Priority 1A sites were treated. The FS crew, by themselves or with assistance of a Washington Conservation Corps crew treated a total of **28** projects; ten of their assigned Priority 1A sites were not treated. **1A sites that were not treated** by either crew are highlighted in **light red**. Sites shown as ED/RR were newly discovered and treated; the **font** for these sites is **red**. The table summarizes 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 *2019 Priority* column reflects crew suggestions based on field observations and should be considered in preparing next year's project list.

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
	NWCB		Jimmy-come-lately Creek	5695	Woods Rd (county)	Y	7/22/2019	1.8	1.8		Herbicide Milestone Vastlan	17		CIVU <b>CLVU</b> CYSC HYPE LALA <b>SEJA</b>	A major connector road to FS land-treated under the County's IWM plan.

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
76	NWCB		Jimmy-come-lately Creek	5331	Palo Alto Rd (county)	Y	8/14/2019 8/29/2019 9/30/2019	15.6	14		Herbicide Element 3A Milestone Vastlan Manual	15.4	9.7	CEMO CIAR HYPE SEJA	A major connector road to FS land-treated under the County's IWM plan. Majority of CEMO infestation between Jimmy-come-lately Rd and USFS Rd 2880. Noted CEMO extends into USFS Rd.
69	NWCB		Jimmy-come-lately Creek	5006	Jimmy Come Lately Rd (county)	Y	7/16/2019 10/8/2019	2.2	1		Herbicide Milestone Polaris Vastlan	6.0		CEMO CIAR CIVU CYSC GERO HYPE LALA POBO PORE RUAR RULA SEJA	A major connector road to FS land-treated under the County's IWM plan. Left a gap from MP 0.1 to MP 0.7 with extensive GERO. PORE and POBO adjacent to DNR land owners.
	NWCB			4360	Lost Mountain Rd (county)	Y	9/6/2019 10/8/2019	3.9	1.		Herbicide Milestone Vastlan Manual	4.3	1	CEMO SEJA	A major connector road to FS land-treated under the County's IWM plan.
120	NWCB		Middle Sol Duc River	2065	Cooper Ranch Rd (county)	Y	8/15/2019	0.00 1	0.00 14		Herbicide Polaris	0.004		POBO	A major connector road to FS land-treated under the County's IWM plan.
123	NWCB	1A	Middle Sol Duc River	3100300		Y	5/2/2019	3.7	3.7		Manual		3.7	GERO	Except for the first few feet of this road, which had a bad GERO infestation, there was very little GERO.

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
638	NWCB	1A	Pysht River	3100300		Y	5/2/2019	7.6	5.6		Manual		5.6	CYSC GERO	Blockage around MP 3.7. We walked to what looked like the end and track log seems to confirm. Small amounts GERO only about 1000 feet past blockage, then nothing! Flagged areas that need herbicide treatment.
955	FS	2	Upper Sol Duc River	2978030		Y	8/20/2019	2.4	2.4		Herbicide Milestone	0.1		CYSC SEJA	
954	FS	1A	Upper Sol Duc River	2978025		N	8/20/2019	1.9	1.9		Herbicide Milestone	0.02		CYSC	
953	FS	1A	Upper Sol Duc River	2978015		N	8/20/2019	3.4	3.4		Herbicide Milestone	0.03		CYSC SEJA	
952	FS	2	Upper Sol Duc River	2978011		N	8/21/2019	0.8						None found.	Nothing found.
700	FS	1A	Upper Sol Duc River	2978000		Y	8/20/2019 8/21/2019	8.2	8.2		Herbicide Milestone Manual	0.3	4.08	CYSC	
155	FS	1A	South Fork Calawah	2932000		Y	7/22/2019 7/25/2019 8/19/2019	11.4	11.4		Herbicide Milestone Vastlan	8.7		CIVU CYSC GERO RUAR RULA	
121	NWCB	1A	Middle Sol Duc River	2923100		Y	8/19/2019 8/20/2019 8/26/2019	3.7	3.7		Herbicide Milestone Vastlan	31.1		CIVU CYSC DIFU DIPU GERO HYPE	

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
127	NWCB	1A	Middle Sol Duc River	2923090		N	8/28/2019	3	1		Herbicide Milestone Vastlan	0.1		DIPU <b>GERO</b>	
142	NWCB	1A	North Fork Calawah River	2923070		Y	8/15/2019	4.6	4.6		Herbicide Milestone Polaris Vastlan	5.5		CIVU PHAR RULA <b>SEJA TAVU</b>	
133	NWCB	1A	North Fork Calawah River	2923070	<b>Grindstone Pit</b>	Y	8/14/2019 8/15/2019	7	7		Herbicide Milestone	13.0		CIAR CIVU CYSC DIPU <b>GERO</b> HYPER LALA	
637	NWCB	1A	Middle Sol Duc River	2923070		Y	8/15/2019	5.8	5.8		Herbicide Milestone Polaris Vastlan	1.68		CIAR CIVU CYSC PHAR <b>SEJA</b>	
154	FS	1A	South Fork Calawah	2923000											
648	NWCB	1A	Bockman Creek	2903000		Y	7/31/2019 8/12/2019	19	19		Herbicide Milestone Vastlan	30.3		CIVU CYSC DIPU <b>GERO</b> HYPER <b>SEJA</b>	
645	NWCB	1A	Bockman Creek	2902000		Y	7/31/2019 8/12/2019	6.9	2.6		Herbicide Milestone Vastlan	4.3		CIVU CYSC <b>GERO</b> HYPER <b>SEJA</b>	
588	NWCB	1A	Bockman Creek	2902000	<b>Bockman Pit</b>	Y	7/31/2019	1.1	1.1		Herbicide Milestone Vastlan	9.9		CYSC DIPU <b>GERO</b> HYPER <b>SEJA</b>	
152	FS	1A	North Fork Calawah River	2900015	<b>Calawah Pit</b>										
156	FS	1A	South Fork Calawah	2900000											
136	FS NWCB	2	North Fork Calawah River	2900000		Y	7/23/2019 7/24/2019	38.4	38.4		Herbicide Milestone Vastlan	80.3		CIAR CIVU CYSC <b>GERO HIAU SEJA</b>	

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
165	NWCB	1A	Upper Sol Duc River	2900000	Bonidu Pit	Y	7/24/2019	0.5	0.5		Herbicide Vastlan	5		GERO	
602	NWCB	1A	Canyon Creek /Pats Creek	2878123			8/1/19	0.4	0.4		Herbicide Milestone Vastlan	.005		CYSC LALA	Very clean
20	NWCB	1A	Canyon Creek /Pats Creek	2878123	Ned Hill Quarry	N	8/1/2019	1	1		Herbicide Milestone Vastlan	2.8		CIAR CIVU CYSC LALA	Getting very clean. Trace amounts of broom. Peavine lurking on edges.
42	NWCB	1A	Canyon Creek /Pats Creek	2878120		N	8/6/2019	2	2		Herbicide Milestone Vastlan	8.5		DIPU GERO LALA	
41	NWCB	1A	Canyon Creek /Pats Creek	2878110		Y	8/5/2019 8/6/2019	2	2		Herbicide Milestone Vastlan	39.7		CIVU LALA	Substantial LALA.
605	NWCB	2	Canyon Creek /Pats Creek	2878109		N	8/1/2019	0.25	0.25		Herbicide Milestone Vastlan	0.01		CIVU LALA	
604	NWCB	2	Canyon Creek /Pats Creek	2878108		N	8/1/2019	0.2	0.2		Herbicide Milestone Vastlan	1.4		CIVU LALA	
606	NWCB	1A	Canyon Creek /Pats Creek	2878104		N	8/1/2019	0.3	0.3		Herbicide Milestone Vastlan	4.3		GERO LALA	GERO only at entrance. LALA only seedlings. Road ends .1 miles in.
603	NWCB	2	Canyon Creek /Pats Creek	2878102		N	8/1/2019	0.8	0.8		Herbicide Milestone Vastlan	1.4		CIVU LALA	
607	NWCB	2	Canyon Creek /Pats Creek	2878101		N	8/1/2019	0.3	0.3		Herbicide Milestone Vastlan	2.8		LALA	

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
29	NWCB	1A	Canyon Creek /Pats Creek	2878100		N	8/1/2019	1.5	1.5		Herbicide Milestone Vastlan	18.9		CIVU LALA	
905	NWCB	1A	Lower Gray Wolf River	2878100		N	8/1/2019	1.3	1.3		Herbicide Milestone Vastlan	14.2		CIVU GERO LALA SEJA	
40	NWCB	EDRR	Canyon Creek /Pats Creek	2878085		N	8/5/2019	1.4	1.4		Herbicide Milestone Vastlan	7.8		CIAR CIVU CLVU CYSC HYPE SEJA	No LALA present on road, but substantial CIVU.
39	NWCB	1A	Canyon Creek /Pats Creek	2878080		N	8/1/2019 8/5/2019	1.6	1.6		Herbicide Milestone Vastlan	10.7		CIVU CYSC LALA	
38	NWCB	1A	Canyon Creek /Pats Creek	2878060		Y	8/6/2019	2	2		Herbicide Milestone Vastlan	15.6		CIAR CIVU CLVU CYSC DIPU LALA	Very heavy patches of CLVU. Most of roadway infested.
26	NWCB	2	Canyon Creek /Pats Creek	2878000		N	8/6/2019 9/10/2019	3.2	3.2	1.6	Herbicide Milestone Vastlan Manual	12.8	3.2	AEPO CIAR CIVU CYSC LALA SEJA	Some heavy patches of LALA in this section especially between 060 and 101 spur. About 1 mi left of peavine; rest of road has been treated. Previously treated portion monitored for CIVU, LALA, and CIAR with 95 percent efficacy.
840	NWCB	1A	Canyon Creek /Pats Creek	2878000	Slab Camp / Deer Ridge TH	N	9/10/2019	3	0.1		Manual		0.1	CIVU	

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
913	NWCB	1A	McDonald Creek/Siebert Creek	2877052											
28	NWCB	1A	Canyon Creek /Pats Creek	2877040											
98	NWCB	2	McDonald Creek/Siebert Creek	2877000		Y	9/24/2019	7.8	0.2		Herbicide Milestone Vastlan Manual	9.0	0.2	CYSC <b>GERO</b> LALA	
99	NWCB	1A	McDonald Creek/Siebert Creek	2877000	<b>Pat's Prairie</b>	Y	9/24/2019	25	25		Herbicide Milestone	3.7		CIAR CIVU	
37	NWCB	1A	Canyon Creek /Pats Creek	2875070		N	8/7/2019	4	1		Herbicide Milestone Vastlan	4.8		<b>CEMO</b> CIAR CYSC <b>GERO</b>	
697	NWCB	1A	Canyon Creek /Pats Creek	2875070	<b>Juniper Meadow</b>	Y	8/7/2019	4	1.1		Herbicide Milestone	1.2		CIAR CIVU LEVU	
27	NWCB	1A	Canyon Creek /Pats Creek	2875020		N	9/10/2019	1.8	1.5		Herbicide Element 3A Milestone Vastlan	3.1		<b>CEMO</b> CIAR CIVU CYSC <b>GERO</b> HYPER LESU	Didn't treat 0.2 mi. No knotweed found.
25	NWCB	2	Canyon Creek /Pats Creek	2875000		N	9/10/2019	6.4	4		Manual		4	<b>SEJA</b>	
5	NWCB	1A	Canyon Creek /Pats Creek	2875000	<b>Canyon Pit</b>	Y	8/7/2019 9/10/2019	4	4	2	Herbicide Element 3A Milestone Vastlan	18.6		<b>CEMO</b> CIAR CIVU DACA HYPER	Surprising amount of seedlings. Previously treated area monitored for CEMO with 85 percent efficacy.
903	FS	2	Lower Gray Wolf River	2870155		N	7/30/2019	1.2	1.2		Herbicide Polaris	0.1		CIAR	

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
36	FS	1A	Lower Gray Wolf River	2870150		Y	7/29/2019	3.1	3.1		Herbicide Polaris Vastlan	4.8		CIAR CIVU CLVU LALA PHAR SEJA	
586	FS	1A	Lower Gray Wolf River	2870150	Armpit quarry										
10	NWCB	1A	Canyon Creek /Pats Creek	2870059	Cranberry Bog	Y	9/12/2019	6	6		Herbicide Milestone Polaris	29.9		CIAR CIVU GERO PHAR	
17	NWCB	2	Canyon Creek /Pats Creek	2870058		Y	9/12/2019	1	1		Herbicide Milestone	0.2		CLVU GERO HYPE	
11	NWCB	1A	Canyon Creek /Pats Creek	2870050		Y	9/16/2019 9/19/2019	8.5	8.5		Herbicide Milestone Vastlan Manual	79.7	5	CEMO CIAR CIVU CLVU GERO HYPE LALA SEJA	High priority for CEMO. GERO very dense toward Lower Caraco Quarry.
7	NWCB	1A	Canyon Creek /Pats Creek	2870050	Caraco Cat Unit 5	Y	9/16/2019	0.5	0.4		Herbicide Milestone Vastlan	1.6		CIAR CIVU DIPU	
23	NWCB	1A	Canyon Creek /Pats Creek	2870030		N	9/19/2019	3	3		Herbicide Milestone	0.3		CIAR CIVU HYPE RUAR RULA SEJA SYOF	Poached doe and fawn found on road. Wood theft evident. Road found not on map through wetland at MP 0.3.
24	NWCB	2	Canyon Creek /Pats Creek	2870000		Y	7/29/2019	7.2	7.2		Herbicide Milestone Transline	5.8		CEMO CIAR CIVU GERO HYPE SEJA	
19	NWCB	1A	Canyon Creek /Pats Creek	2870000	Lower Caraco Quarry	Y	9/19/2019	2	2		Herbicide Milestone Vastlan Manual	25.6	0.11	CIVU CYSC GERO SEJA	

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
21	NWCB	1A	Canyon Creek /Pats Creek	2870000	Upper Caraco Quarry	Y	7/29/2019	1.5	0.75		Herbicide Milestone	0.3		GERO	
96	FS NWCB	1A	Lower Gray Wolf River	2870000		Y	7/29/2019 7/30/2019 8/28/2019	13.5	13.5		Herbicide AquaMaster Milestone Polaris Transline	21.9		CEMO CIAR CIVU CYSC GERO HYPE LALA PHAR SEJA	
103	WCC	2	Middle Dungeness River	2870000		N	8/28/2019	12.1	12.1		Herbicide Vastlan	25		CIAR CIVU CYSC LALA	
162	NWCB	2	Upper Dungeness River	2870000	Camp Handy	Y	7/25/2019	10	8		Herbicide Transline	39.1		CIAR	
759	NWCB	2	Upper Dungeness River	2870000	Dungeness Trail	Y	7/17/2019	0.05	0.05		Manual		0.05	GERO	In parking lot at trailhead back of parking lot
760	NWCB	2	Upper Dungeness River	2870000	Heather Basin Trail	Y	7/25/2019	2	0.1		Manual			GERO	Herb Robert at stream crossing on trail. Appears to go up and down creek from there.
66	NWCB	1A	Jimmy-come-lately Creek	2855100		N	7/15/2019 7/16/2019 7/18/2019 7/23/2019	8.0	8.0		Herbicide Milestone Vastlan	47.5		CIAR CIVU CLVU GERO SEJA	
64	NWCB	1A	Jimmy-come-lately Creek	2855070		Y	7/17/2019 7/18/2019	3.8	3.8		Herbicide Milestone Vastlan	27.6		CEST CIAR CIVU CLVU CYSC GERO LALA ROCA RUAR SEJA	
60	NWCB	1A	Jimmy-come-lately Creek	2855070	Raccoon Pit	N	7/17/2019	1.5	1.5		Herbicide Milestone Vastlan	6.4		CIVU CYSC GERO LALA SEJA	

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 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	7/16/2019 7/18/2019 7/23/2019	2.9	2.9	2.9	Herbicide Milestone Vastlan	16.9		CIAR CLVU GERO PORE SEJA	Germinating GERO and SEJA found when monitoring but no PORE. Priority for PORE follow-up.
849	NWCB	1A	Snow Creek/Salmon River	2852150		Y	10/2/2019	3.5	3.5		Herbicide Milestone	6.8		CIAR CIVU GERO SEJA	Did not finish last 0.5 mi of road. It would be interesting to track GERO response to aminopyralid here. Tons of CLVU.
151	NWCB	1A	Snow Creek/Salmon River	2852090		Y	10/2/2019	2	2		Herbicide Milestone	3.9		GERO SEJA	Didn't finish about 0.05 mi on one side - ran out of water.
84	NWCB	1A	Jimmy-come-lately Creek	2850000		Y	7/22/2019	5.7	5.7	3.2	Herbicide Milestone Vastlan	37.8		CIAR CIVU GERO IMCA SEJA VIMI	Only monitored from int. with 2855 to MP 4.6. No jewelweed seen, but we did not look beyond road for the second patch manually treated in a marsh near endpoint.
844	NWCB	EDRR	Jimmy-come-lately Creek	2845200		N	9/23/2019	0.3	0.3		Manual		0.3	SEJA	Only treated for SEJA.
148	NWCB	2	Snow Creek/Salmon River	2845073		Y	10/8/2019	1.8	1.2		Manual		1.2	SEJA	
61	NWCB	1A	Jimmy-come-lately Creek	2845073	2845073 spur pit	Y	10/8/2019	1	1		Herbicide Element 3A Milestone Manual	0.8	0.1	CIAR CIVU CYSC GERO HYPE SEJA	Priority for SEJA, CYSC, and tiny bit of GERO.

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
147	NWCB	2	Snow Creek/Salmon River	2845070		Y	10/8/2019	3	1.5		Manual		1.5	SEJA	
845	NWCB	1A	Snow Creek/Salmon River	2845000		N	9/23/2019	10.8	5		Manual		5	SEJA	Only treated for SEJA.
914	NWCB	1A	Snow Creek/Salmon River	2840150		Y	10/8/2019	1.8	1.8		Herbicide Milestone Manual	0.9	1.8	CIAR HYPE LALA SEJA	Priority for SEJA. GERO patches at end and beginning of road.
57	NWCB	1A	Jimmy-come-lately Creek	2840080	Coho Pit	N	9/23/2019	1.9	0.52		Herbicide Milestone Vastlan Manual	0.1	0.001	CIAR HYPE LALA SEJA	
71	FS	2	Jimmy-come-lately Creek	2840071		Y	7/31/2019 8/13/2019 8/14/2019	9.6	9.6		Herbicide Milestone Polaris	4.1		CIAR CIVU CLVU CYSC GERO LALA PHAR SEJA	
70	FS	2	Jimmy-come-lately Creek	2840070		Y	7/31/2019 8/13/2019	4.1	4.1		Herbicide Milestone Polaris	1.3		CEMO CIAR CIVU CLVU CYSC GERO LALA PHAR SEJA	
78	FS	2	Jimmy-come-lately Creek	2840000		Y	8/8/2019	0.5	0.5		Herbicide Milestone Stinger	1.2		CYSC LALA	
77	NWCB	1A	Jimmy-come-lately Creek	2800362		N	9/30/2019	1	1		Herbicide Element 3A Milestone Manual	1.4	1	GERO SEJA	Pulled flowering SEJA.
67	NWCB	1A	Jimmy-come-lately Creek	2800360		N	9/30/2019	4.3	4.3		Herbicide Element 3A Milestone Manual	30	2	CIAR CIVU DIPU GERO SEJA	Pulled flowering SEJA. Stopped at DNR boundary.

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
59	NWCB	2	Jimmy-come-lately Creek	2800360	Luella LuLu quarry	N	9/30/2019	1						None found.	Nothing found.
671	NWCB	2	Middle Dungeness River	2800325		N	9/26/2019	1.2	1.2		Herbicide Element 3A Milestone	8.4		<b>CEMO CIAR CIVU LALA SEJA</b>	
667	NWCB	1A	Canyon Creek /Pats Creek	2800321		Y	9/26/2019	1	0.4		Herbicide Element 3A Milestone	21.7		<b>GERO LALA</b>	Priority for small patch of GERO.
668	NWCB	1A	Jimmy-come-lately Creek	2800321		N	9/26/2019	1.5	0.00 1		Manual		0.00 1	CIVU	
669	NWCB	1A	Canyon Creek /Pats Creek	2800320		Y	9/26/2019	3.4	3.4		Herbicide Element 3A Milestone Manual	13	3.4	<b>CEMO CIVU CLVU LAGA LALA SEJA</b>	Pulled flowering SEJA. Continue one more year for CEMO. LALA patchy. Two patches of LAGA near beginning of road.
670	NWCB	2	Jimmy-come-lately Creek	2800320		Y	9/26/2019	2	2		Herbicide Element 3A Milestone Manual	6.5	2	<b>CEMO CIAR CIVU CLVU SEJA</b>	Pulled flowering SEJA. Continue one more year for CEMO.
616	FS WCC	1A	Canyon Creek /Pats Creek	2800310	Schmits Knob	Y	8/12/2019 8/14/2019 8/26/2019 8/27/2019	18	18		Herbicide AquaMaster Milestone Stinger Vastlan	176.4		CIAR CIVU <b>CLVU</b> CYSC LALA PHAR	
910	NWCB	2	Middle Dungeness River	2800283		N	9/26/2019	0.4	0.00 001		Manual		0.00 001	CIAR <b>SEJA</b>	Only trace amounts of SEJA. CIAR not treated.
909	NWCB	1A	Middle Dungeness	2800280		N	9/26/2019	1						None found.	Nothing found.

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
			River												
675	NWCB	1A	Middle Dungeness River	2800250		Y	9/26/2019	2.2						GERO	Nothing found except small patch of GERO around MP 0.7; not treated. No knotweed found.
109	FS	1A	Middle Dungeness River	2800132		N	9/24/2019	1.4	1.4		Herbicide AquaMaster Milestone	1.2		CIAR CIVU CLVU SEJA	
108	FS	1A	Middle Dungeness River	2800130		N	9/24/2019	1.4	1.4		Herbicide AquaMaster Milestone	1.2		CIAR CIVU CLVU SEJA	
101	FS	1A	Middle Dungeness River	2800130	Lost Pit (aka Canine Pit)	Y	9/24/2019	5	5		Herbicide AquaMaster Stinger	3		CIAR CIVU CYSC LALA SEJA	
907	FS WCC	1A	Middle Dungeness River	2800120		Y	6/25/2019 8/1/2019 8/15/2019 8/29/2019 9/24/2019	7.4	7.4		Herbicide Milestone Stinger Vastlan			CIAR CIVU CLVU LALA SEJA	
194	FS	1A	Little Quilcene River	2800000	Bon Jon Quarry										
107	NWCB	2	Middle Dungeness River	2800000		Y	9/30/2019	4	0.5		Herbicide Element 3A Milestone Manual	2.2	0.5	CEMO CIAR SEJA	Pulled flowering SEJA. Revisit for CEMO followup treatments next year.
922	NWCB	1A	Upper Big Quilcene River	2760000		Y	9/25/2019	1.6	1.6		Herbicide Milestone Vastlan	39.1		CEMO CIVU CYSC DIPU GERO HYPE LALA SEJA	Lots of small lupine and California tea. Knapweed treated around MP 1.2. Consistently

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
															treated from MP 0.7-0.2.
766	NWCB	1A	Upper Big Quilcene River	2760000	Sink Lake	Y	9/25/2019	1	1		Herbicide Milestone Polaris Vastlan	3.4		CIAR PHAR	
292	NWCB	1A	Lower Big Quilcene River	2730200	Falls View CG										Ordered not to undertake due to hazard tree removal activity
202	NWCB	1A	Little Quilcene River	2700281		Y	9/25/2019	2	2		Herbicide Milestone Vastlan Manual	10.8	2	CIAR CIVU CLVU HISA SEJA	MP 0-0.4. Still some tansy left, possibly hawkweed too. Manually treated for tansy the whole way.
201	NWCB	1A	Little Quilcene River	2700280		Y	9/25/2019	1.8	1.8		Herbicide Milestone Vastlan	19.5		CIAR CIVU CLVU CYSC HISA SEJA	
296	NWCB	2	Lower Big Quilcene River	2700080		N	10/9/2019	0.5	0.5		Herbicide Milestone	0.4		GERO	
767	NWCB	1A	Lower Big Quilcene River	2700080	Lower Big Quilcene Trail	Y	10/9/2019	4	3		Herbicide Milestone Polaris	2.8		GERO SEJA TAVU	First mile of trail surveyed, until no more GERO sightings. Fairly heavy GERO on both upslope and downslope, especially along streams/stream beds. Priority for TAVU.

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
295	FS	1A	Lower Big Quilcene River	2620000											
319	FS	1A	Spencer Creek/Maple Creek	2610200	Seal Rock CG										
310	NWCB	1A	Lower Duckabush River	2510070	Collins CG										
459	FS	1A	Middle Quinault River	2190110											
458	FS	2	Middle Quinault River	2190000		Y	9/10/2019 9/11/2019	5.6	5.6		Herbicide Vastlan Manual	0.3	5.0	LAGA SEJA	
832	FS	1A	Middle Quinault River	2190000	Neptune quarry										
625	FS	1A	Middle Queets River	2180011		N	7/16/2019	1.7	1.7		Herbicide Vastlan	0.7		RULA	
611	FS	1A	Middle Queets River	2180011	Park Pit	Y	7/15/2019	3	3		Herbicide Vastlan	6.5		CYSC RUAR RULA SEJA	
624	FS	2	Middle Queets River	2180010		Y	7/16/2019	0.6	0.6		Herbicide Vastlan	4.6		GERO RULA SEJA	Lots of GERO and RULA seedlings.
621	FS	1A	Matheny Creek	2180000		Y	7/16/2019	1.2	1.2		Herbicide Vastlan	22.1		CIVU CYSC GERO RUAR RULA	
971	FS	1A	Middle Queets River	2170050											
775	FS	1A	Matheny Creek	2170030											

Ref #	Crew	2019 Priority	6th Field Watershed Name	Road #	Site Name	2020 Priority	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual Acres	Species	Comments
729	FS		Matheny Creek	2160080		Y	7/17/2019	2.4	2.4		Manual		2.4	CYSC SEJA	RULA present, but could not spray because of rain.
634	FS	2	Matheny Creek	2160000		Y	7/17/2019	13.7	13.7		Manual		13.7	CYSC SEJA	RULA and CIVU present, but could not spray because of rain.
826	FS	1A	Matheny Creek	2160000	Empire Quarry	Y	7/17/2019	0.5	0.5		Manual		0.5	CYSC RULA	
773	FS	1A	Salmon River	2140090	Carcass KV Project										
317	FS	1A	Salmon River	2140000	Carcass KV Project	Y	9/9/2019 9/10/2019 9/11/2019	15.2	15.2		Herbicide Vastlan Manual	30.6	8.2	CYSC RUAR RULA SEJA	
TOTALS								473	412	10		1209	87		

## 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 2019, **11** high priority FS rock sources were inspected and treated by **CNWCB**, another **3** 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 2019 crew and FS crew (Natalie, Shannon, Eli, and Tyler) after treating the Bonidu Pit.

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 **8** and certified 7 private rock sources; one failed to meet standard. Certifications are shown as *not current* if they were not updated this year. We treated all 26 county managed rock sources totaling 226 acres 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-5 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
<b>Forest Service Quarries</b>									
Armpit Quarry	<b>0.6</b>	28701500	2870-150	586	1A	CIVU LALA	8/15/18	DORMANT: Chemical –LALA much less <b>FS crew-nt treated</b>	
Bockman Pit	0.6	29020009	2902-000	588	1A	<b>CYSC DIPU GERO</b> HYPE SEJA	7/31/19	DORMANT: Chemical careful, GERO, no HIAU found this year	1.25
Bonidu Pit	6.3	290000037	2900-000	165	1A	<b>GERO</b>	7/24/19	Spoils, Storage, Extraction: Chemical-	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 <b>SEJA</b>	Treated in 2016	DORMANT: <b>Very clean-FS list, nt inspected</b>	
Calawah Pit	8.0	290001500	2900-000	152	1A	<b>CYSC</b> DIPU <b>GERO</b> HYPE ILAQ LALA PHAR RUAR RULA <b>SEJA</b>	7/23/18 9/18/18	Spoils, Storage, Extraction: <b>FS list</b> -nt inspected	
Canyon Pit	3.8	287500001.4	2875-000	5	1A	<b>CEMO</b> CIAR CIVU DACA HYPE	8/7/19 9/10/19	DORMANT: Chemical -not suitable- <b>almost ready!</b>	3.2
Coho Pit	1.0		2840-080	57	1A	CIAR HYPE LALA <b>SEJA</b>	9/23/19	DORMANT: Chemical very sm amount of weeds	0.8
Grindstone Pit	1.8	292307000.1	2923-070	133	1A	CIAR CIVU <b>CYSC</b> DIPU HYPE LALA PHAR	8/14/19 8/15/19	Spoils? Storage, Extraction Chemical Extraordinary amount of DIPU especially on berms and edges.	7
Empire Quarry	0.5	21600005.6	2160000	<b>826</b>	1A	CYSC RULA	7/17/2019	Chemical <b>FS crew assessment and rating N/A-</b>	0.5
Littleton Horsecamp stockpile	0.8	307100000.0	3017-000.3	173	2	<b>CYSC</b> HYPE LALA	Treated in 2016	DORMANT? Storage: Met standard A in prior yrs; minimal GERO and LALA along road	
Loop Quarry aka-spur (unnamed) Pit	1.0	284507300.9	2845-073	61	1A	CIAR CIVU <b>CYSC</b> <b>GERO</b> HYPE <b>SEJA</b>	10/8/2019	DORMANT: Chemical, manual Sm. amount of GERO	1
Louella Rock Pit	1.0	280036000.4	2800-351	58	2	<b>CEMO</b> HYPE	6/25/18	DORMANT: very clean	
Luella LuLu	0.6	290000360.9	2900-360			No weeds found	9/30/19	DORMANT: CLEAN!	0.0
Lost Pit (aka Canine Pit)	4.5	280013000.3	2800-130	101	1A	CIAR CIVU <b>CYSC</b> <b>(GERO past years)</b> HYPE LALA <b>SEJA</b>	9/24/2019	Storage, Extraction? Chemical <b>FS crew did not note GERO</b> rating N/A-	5.0
Lower Caraco Quarry	0.3	287000001.0	2870-000	19	1A	<b>CEMO</b> CIVU <b>CYSC</b> <b>GERO SEJA</b>	9/19/19	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	2	CIVU HYPE LALA RUAR	Treated in 2016	DORMANT? Storage met standard A in prior yr; trace amounts of weeds only	
Mystery Pit	N/A	2900200.?			2	<b>POBO</b>	Treated in 2014	Did not locate.	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Ned Hill Quarry (aka Sandstone Quarry)	1.0	287812500.5	2878-125	20	1A	CIAR CIVU <b>CYSC</b> LALA	8/1/19	DORMANT? Spoils, Storage, Extraction? Chemical-continued improvement, sm amount weeds present	1.0
Neptune Quarry	N/A	21900007.7?	2190000	832	1A			<b>No Information</b> <b>FS list-nt inspected</b>	
Park Pit	3.0	21800110.3	2180-011	611	1A	CYSC RUAR RULA <b>SEJA</b>	7/15/2019	<b>Chemical</b> <b>FS crew assessment and rating N/A</b>	3.0
Raccoon Pit	1.5	285507001.3	2855-070	60	1A	CIVU <b>CYSC GERO</b> LALA <b>SEJA</b>	7/17/19	DORMANT: Chemical Use caution; GERO is still present in significant quantities on "road" especially entrance, and on road to pit. Some CEST on road	1.5
Tom Creek Pit	11.0	293100000.2	2931-000	168	2	CIVU HYPE <b>TAVU</b>	Treated in 2016	Spoils, Storage: meets requirements-no CEMO or PHAR found	
<b>Unmarked Pit N/A</b>	<b>1</b>	<b>280012001.3</b>	<b>2800-120/ 2800-210</b>		<b>1A- within a 1A priority</b>	<b>LALA</b>	<b>Treated in 2017</b>	<b>DORMANT:</b> <b>Chemical-meets Standard B</b> <b>Very sm amounts of LALA</b>	
Unnamed Gravel Pit	2		Junction 2878 X 2870	32	2	<b>CEMO</b> CIAR CIVU <b>CYSC</b> HYPE LALA RULA	Treated in 2017	Chemical-Met standard B, but some caution because of very limited CEMO.	
Upper Caraco Pit	1.5		2870-000	21	1A	<b>GERO</b>	7/29/19	Chemical-trace amounts of weed at dormant road entrance only	1.5
Wolf Quarry 2	0.6	28401200.3	2840-120	62	2	HYPE	7/16/18	DORMANT: Met requirements-GERO down bank and not in pit	
<b>Private Quarries</b>									
A & A Rock	44.14	Private	Hwy 101 W			<b>CEMO</b> CIAR <b>CYSC</b> <b>GERO</b> LALA	11/27/19	Spoils, Storage, Extraction: Chemical-Meets Standard B-none in active quarry and storage areas. <b>CERTIFICATION CURRENT</b>	
Beaver Falls		Private	Hwy 113 near Beaver Lake			<b>CYSC</b> HYPE PHAR RUAR	Inspected in 2018	Storage, Extraction: Chemical-Meets Standard B <b>CERTIFICATION NOT CURRENT</b>	
Black Diamond Quarry (formerly called Holcomb)		Private	Black Diamond Rd.			CIAR CIVU DIPU <b>GERO</b> PHAR	6/3/19	Storage, Extraction: Chemical-Meets Standard C- in general clean-careful of material stored "outside" of pit-not clean. New access rd will help. <b>CERTIFICATION CURRENT</b>	
Blue Mountain		Private	Hwy 101 E, north side			<b>CEST</b> CIAR CIVU <b>COMA</b> <b>CYSC</b>	Inspected 2019	Partial dormant, Spoils, Storage, Extraction: This pit is improving, but needs additional treatment	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
								<b>NO</b> CERTIFICATION	
Davis Sand and Gravel		Private	Evans Rd.			CIAR CIVU <b>possibly COMA DACA DIFU</b>	Inspected in 2015	Overall in good shape, has some DIFU rosettes <b>CERTIFICATION NOT CURRENT</b>	
Elwha Rock Products		Private	Place Rd.			<b>CYSC POBO SEJA</b>	Inspected in 2017	Spoils, Storage, Extraction: <b>FAILED</b> -Standard D Soil disturbed, chipped rock placed on POBO infestations	
Green Crow	19.0	Private	Lower Elwha River Rd.			CIAR CIVU <b>CYSC GERO RUAR</b>	4/24/19	Storage, Extraction: Chemical-Meets Standard B <b>CERTIFICATION CURRENT</b>	
Haller Quarry	20?	Private	2 m south on River Rd. gate on left			<b>BUDA</b> CIAR CIVU <b>DIFU GERO LALA RUAR RULA</b>	6/3/19	Spoils, Storage, Extraction: Chemical-Meets Standard B <b>CERTIFICATION CURRENT</b>	
Hecklesville Quarry		Private	44 Heckle Rd.			CASE CIVU <b>CYSC DIPU LALA</b>	Inspected in 2018	Storage, Extraction: Chemical-Widespread, low density LALA, scattered CYSC in stored material. visited, but no formal inspection <b>CERTIFICATION NOT CURRENT</b>	
Hillcar-Fletcher Quarry	105.0	Private	Hwy 110			CIVU <b>CYSC GERO SEJA</b>	6/26/19 8/15/19	Spoils, Storage, Extraction Chemical-Meets Standard C Good condition- have checked this quarry for yrs-owner very co-operative. <b>CERTIFICATION CURRENT</b>	
Hoh Pit-Seton		Private No commercial rock avail.	Hoh Rd.			<b>CYSC LALA RUAR</b>	Inspected in 2018	Partially dormant, Spoils, Storage, Extraction <b>NO RATING</b> -3 stock piles only-	
Lakeside Place Rd Quarry		Private	Place Rd. on right			CIVU <b>CYSC DIPU HYPE LALA SEJA</b>	Inspected in 2016	Partial dormant? Storage, Extraction Chemical-might be able to isolate from considerable broom in back of pit <b>NO</b> CERTIFICATION	
Mystery Quillayute Pit		Private, possibly WSDOT	Quillayute Rd.			<b>CYSC PHAR SEJA</b>	Inspected in 2016	Floor of pit is pretty clean. Edges have scattered SEJA; CYSC is widespread around perimeter of pit. Isolated patches of PHAR <b>NO</b> CERTIFICATION	
Moriarity Rd Pit		Private; unknown	Moriarity Rd.			<b>CYSC HYPE PHAR RUAR RULA</b>	Inspected in 2016	RUAR, RULA, CYSC are all widespread throughout pit. HYPE is scattered, with a few isolated patches of PHAR <b>NO</b> CERTIFICATION	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Penny Creek Pit		Private	Penny Creek			<b>CYSC GERO IRPS LALA LEDR POBO RUAR PHAR SEJA TAVU</b>	9/29/18	Spoils, Storage, Extraction: Chemical-Meets Standard C- inspected, treated twice. Concern about POBO remains-where did LEDR go? CERTIFICATION <b>LIMITED NOT CURRENT</b>	
Princess Pit	Approx 40	Private	Princess Ln off Place Rd.			CIAR CIVU <b>CYSC DACA DIPU GERO LEVU RUAR RULA</b>	6/3/19	Storage, Extraction Chemical-Meets Standard B CERTIFICATION <b>CURRENT</b>	
Rayonier Pit		Private	Bogachiel Way			<b>CYSC RUAR RULA</b>	Inspected in 2016	Meets minimum requirements. CYSC is widespread around rim of pit and scattered on pit floor. RUAR/RULA scattered intermittently around edges. <b>NO</b> CERTIFICATION	
E Snider Quarry	24.86	Private	252 E Snider Rd.			CIVU DACA DIPU <b>GERO ILAQ LEVU RUAR</b>	6/3/19	Storage, Extraction: Chemical-Meets Standard B CERTIFICATION <b>CURRENT</b>	
Thorndyke Pit	Approx 40	Private	Hwy 104, Wahl Rd.			CIAR PHAR <b>SEJA</b>	Inspected in 2018	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 <b>NOT CURRENT</b>	
West Twin-La Farge	N/A	Private	Hwy 112 approx MP 39			CIVU sundry weeds	Inspected in 2018	Rock stockpiles inspection only, for ONP project-situated on property that did not belong to contractor requesting inspection. Material given a Standard B- <b>NO overall</b> CERTIFICATION	
<b>Clallam County Quarries</b>									
Blue Mountain Transfer Station	2.7	Clallam County	Blue Mountain Rd.			<b>CEMO COMA PORE</b>	9/11/19	Spoils: (At landfill transfer site) No treatment	0.0014
Blyn Pit	14.3	Clallam County	Woods Rd.			<b>BUDA CEMO COMA CYSC DIFU GERO IMCA LALA POBO POSA* RUAR SEJA</b>	5/2/19 5/30/19 9/5/19	Partially dormant, Spoils, Storage, some possible Extraction: Clean areas for material storage	14.3
Clallam Bay Storage	1.2	Clallam County	Frontier St.			<b>CYSC CIVU DIPU PHAR POBO</b>	9/18/19	Spoils, Storage Chemical, manual	1.3

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
District 1	N/A	Clallam County	Washington St.			<b>CEST COMA</b> LEVU* RUAR*	5/2/19	Storage: Manual	2.5
District 2	N/A	Clallam County	Lauridson Blvd.			<b>CIAR CIVU</b> <b>CYSC DALA</b> <b>GERO RUAR</b>	5/22/19	Storage: Manual	4.4
Forks Pit	3.8	Clallam County	Pit Ln.			<b>CYSC SEJA</b>	Surveyed 2019	Spoils, Storage: Chemical/Manual	
Herrick Gravel	6.6	Clallam County	Herrick Rd.			<b>CEMO CIAR CIVU</b> <b>CYSC GERO HIAU</b> RUAR	5/22/19 6/13/19	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.				Surveyed 2019	Dormant- <b>High warning! Adjacent to source of CAPY</b>	.25
Hoko-Ozette Rd MP4.5	1.2	Clallam County	Hoko-Ozette Rd. MP 4.5			<b>CYSC GERO HIAU</b> LEVU* RUAR* <b>SEJA</b>	6/18/19 8/8/19	Storage: Chemical-still not suitable for clean material storage	1.2
Hoko Ozette MP10	2.9	Clallam County	Hoko Ozette Rd MP10			CASE* CIAR CIVU RUAR* <b>SEJA</b> ,	8/8/19	Spoils, Storage, Chemical-clean areas for storage	1.5
Hoko-Ozette Pit MP13	1.5	Clallam County	Hoko-Ozette Rd. MP 13			CASE <b>CYSC</b> DIPU* <b>GERO</b> RUAR RULA <b>SEJA</b>	6/18/19	Storage Chemical-Clean areas for material storage	1.5
Hwy 101 Storage Yard	1.2	Clallam County	Intersection Old Oly Hwy Hwy 101			<b>BRRA* COMA</b> <b>GERO*</b>	4/1/19	Storage: Chemical-Clean areas for material storage	0.1
Kirner Pit	15.6	Clallam County	Kirner Rd.			<b>CEST CIAR CIVU</b> <b>COMA CYSC DIFU</b> <b>GERO LALA LUAR</b> RUAR* <b>SEJA</b> VIMA	3/29/19 5/1/19 5/23/19 7/9/19 9/23/19	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.			<b>CYSC LAGA</b> PHAR* RUAR* RULA* <b>SEJA</b>	5/13/19 8/15/19	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)			<b>CYSC MEAL</b> <b>POBO RUAR</b> <b>SEJA</b>	5/28/19 9/18/19	Spoils, Storage: Chemical/manual-Piles have been cleaned and a corridor to piles is ready.	11
Little River Pit	1.0	Clallam County	Little River Rd.			<b>CASE CEMO CIVU</b> <b>CYSC SEJA</b>	6/13/19 8/5/19	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.			<b>COMA SEJA</b>	7/23/19	Spoils-may be full already? Chemical/Manual	1.0
McInnes Pit	5.83	Clallam County	Vistas Dr.			<b>CAPY CEMO CEST CIAR CIIN* CIVU COMA DIFU PHAR* RUAR*</b>	1/14/19 4/2/19 7/1/19 9/23/19	Spoils: Chemical-High levels of infested materials	5.83
Morse Creek Pit	25.3	Clallam County	Mt Pleasant Rd.			<b>BARR CIAR CIVU COMA CYSC GERO POBO RUAR* TAVU</b>	3/29/19 5/21/19 10/14/19 10/30/19	Spoils, Storage, limited Extraction: Chemical/Manual	15.0
Piedmont Pit	2	Clallam County	East Beach/Piedmont Rd.			<b>CEMO CIAR* CIVU* CYSC GERO PHAR RUAR* SEJA</b>	6/4/19	Spoils, potential Storage: Chemical/Manual-better, but GERO at access corridor may be concerning	2
Place Pit	4.6	Clallam County	Place Rd.			<b>CIAR* GERO* SEJA*</b>	6/4/19	Spoils: Chemical-Not clean enough for storage	4.2
Quilayute Pit	13.5	Clallam County	Quilayute Rd.			<b>CIVU CYSC DIPU* PHAR* RUAR* SEJA</b>	5/13/19	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.			<b>CEMO* CIAR* CIVU* CYSC* DIFU GERO* PHAR POBO RUAR*</b>	5/6/19 5/21/19 7/8/19 10/14/19	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.			<b>CEMO CEST CIAR CIIN CIVU DALA* DIFU PHAR</b>	4/17/19 5/2/19 7/31/19	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.			<b>CASE* CIAR* CIVU* CYSC GERO PHAR* POBO RUAR* RULA* SEJA</b>	6/18/19 8/8/19	Spoils, Storage: Chemical-not clean enough for safe storage of clean materials	1.25
Whitcomb-Dimmel Pit	5.83	Clallam County	Whitcomb-Dimmel Rd			<b>CYSC DIPU* PHAR POBO RUAR SEJA</b>	5/29/19	Spoils, Storage Chemical/Manual-piles have been cleaned, there is area for clean storage, clean access	6.5
<b>State Quarries</b>									
Alpaca Quarry	Not known	DNR	Follow FS Rd 2850, at fork, take left instead of following to FS			<b>BUDA CIAR CYSC GERO RUAR</b>	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	

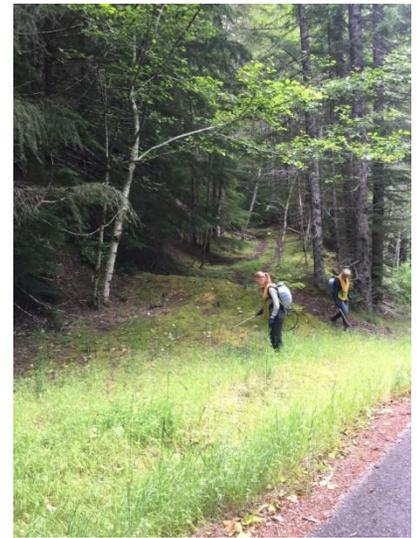
Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
			2855					CERTIFICATION <b>NOT</b> CURRENT	
Baby Bear	2.0 est.	DNR	Hwy 101 near MP 208			No weeds found	5/7/19	Storage, Extraction: Chemical-Meets Standard A- CERTIFICATION <b>CURRENT</b>	
Fitzgerald Pit	Not known	DNR	Norris Rd			CIAR <b>CYSC GERO</b>	Inspected in 2016	Storage, Extraction: Quarry looks fine, but the roads leading to it are infested CERTIFICATION <b>NOT</b> CURRENT	
Jimmy-Come-Lately Pit	Not known	DNR	On FS Rd 2850, at fork, take left			<b>BUDA</b> CIAR <b>CYSC GERO</b> RUAR	Inspected in 2016	Storage, Extraction: Met requirements; weeds indicated are just outside of pit CERTIFICATION <b>NOT</b> CURRENT	
Littleton Pit	78.43	DNR	Hwy 101 west of Heckle Rd.			CIVU <b>CYSC GERO</b> LEVU PHAR-all outside pit area	5/7/19	Storage, Excavation: Chemical-Meets Standard B Quite clean. CERTIFICATION <b>CURRENT</b>	
Little River	Situated on 587.71	DNR	Little River Rd			CIVU <b>CEST SEJA</b>	10/9/18	Storage, Excavation: Chemical/manual-Meets Standard C-CEST control, but must be monitored and retreated. <b>CEMO found on road.</b> CERTIFICATION <b>NOT</b> <b>CURRENT</b>	
Loop Tavern Pit	24.58	DNR	Hwy 101 between Forks and Beaver MP 209.5			No weeds found	5/7/19	Storage, Excavation: Chemical-Meets Standard A CERTIFICATION <b>CURRENT</b>	
Mary Clark	170.2	DNR	Mary Clark Rd .5 miles			<b>CYSC LAGA</b> PHAR <b>POBO</b> RUAR	5/7/19	Partial Dormant-spoils, Storage, Extraction: Chemical-Meets Standard B CERTIFICATION <b>CURRENT</b>	
Place Pit	Not known	DNR	Place Rd			<b>CYSC</b>	Inspected in 2016	Spoils, Storage, Extraction: Not suitable at this time: CYSC is too difficult to isolate. In process of treating. <b>NO</b> CERTIFICATION	
Unnamed Pit	1.5 est.	DNR	Hwy 101 E of Wisen Cr Rd			CIAR CIVU <b>CYSC</b> <b>POBO</b> LALA <b>SEJA</b>	9/13/18	Dormant?-Spoils, Storage, possible Extraction: <b>No treatment in 2019.</b> 2017 Chemical <b>POBO</b> treated by CNWCB <b>NO</b> CERTIFICATION	

## 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 2019 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 2019 Project List worked well for herb Robert treatments but should continue to explore methods to control large herb Robert infestations in the long term.

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.



Treating orange hawkweed on 2900-000

### 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. However, a significant site of yellow hawkweed recently discovered on Palo Alto Rd in Clallam County was disconcerting. That site will be treated under Clallam's roadside weed management plan. Spotted jewelweed is an infrequent species, but there has not been treatment on Jefferson County roads though Snow Creek Rd appears to be a major source. Anderson Lake Rd in Jefferson County may be the source for European hawkweed on Forest Service land within Jefferson County as well. It would be advisable to make a request to Jefferson County Road Department for treatment of these sites. 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. Assess 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- Canada thistle in Juniper Meadow is almost gone, there is less every year. Camp Handy and associated meadows along Heather Creek should be assessed again next year. A new Canada thistle site farther up has been discovered by BCH. Herb Robert was discovered for the first time in the wilderness along Heather Creek Trail. This area is a priority for next year! The Caraco unit had very little Canada thistle this year and could be skipped 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/Snow Creek Rd jewelweed is an example. Notify us as soon as possible to request Clallam County connector roads so they may be added to our 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**

<b>Ref #</b>	<b>Priority</b>	<b>6th Field Watershed Name</b>	<b>Road #</b>	<b>Site Name</b>	<b>Species</b>	<b>Comments</b>
453		Lower Duckabush River	2510065			do with Collins and other Duckabush treatmt
310	2	Lower Duckabush River	2510070	<b>Collins CG</b>	GERO	Not treated in 2018 or 2019
768	2	Lower Dosewallips River	2610000	<b>Lower Dosewallips River</b>	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	<b>Elkhorn CG</b>	GERO	Not treated in 2018 or 2019
653	2	Lower Big Quilcene River	2650000	<b>Rocky Brook Rd</b>	PORE	Very small site found in 2018
590	2	Lower Big Quilcene River	2700040	<b>PT Muni WS caretakers cabin and road</b>		Follow-up , not treated in 2019
201	2	Little Quilcene River	2700280		<b>HISU</b>	hawkweed close to eliminated
202	2	Little Quilcene River	2700281		<b>HISU</b>	hawkweed close to eliminated
291	2	Lower Big Quilcene River	2740000	<b>Tunnel Cr</b>		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	<b>Schmits Knob</b>		Needs follow up, joint project?
59	2	Jimmy-come-lately Creek	2800360		HICA	Dense patch of unknown non-native hawkweed
162	2	Upper Dungeness River	2870000	<b>Camp Handy, Heather Cr.</b>	GERO	Follow up new herb Robert site
10	1	Canyon Creek /Pats Creek	2870059	<b>Cranberry Bog</b>	PHAR	Making good progress
99	1A	McDonald Creek/Siebert Creek	2877000	<b>Pat's Prairie</b>	CIAR,	Good progress
168	2	Upper Sol Duc River	2931000	<b>Tom Creek Pit</b>		Important rock source, nt checked since2017
157	2	South Fork Calawah	2932000	<b>Elk Quarry</b>		Have never been to this rock source
193?		Upper Sol Duc River	3040000	<b>Mt Muller Trail</b>	HIAU	Reported by Jim Knape, near Jasmine's meadow-solicit BCH for assistance?
118	2	Middle Sol Duc River	3040800	<b>Snider Work Center</b>	POBO	High priority in previous years
173	2	Upper Sol Duc River	3071000	<b>Littleton Horse Camp gravel pit</b>		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 2019 FS crew treatments, although known and noted in appendix A-Project List, have not been included in information contained in the 2019 columns.

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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 Woods Rd	8	5.0	8,499		CIAR CYSC SEJA	4	2	SEJA	1.7					2	4.2	CEMO CIVU CYSC GERO LALA RUAR SEJA	0.9	1.8	CIVU CLVU CYSC HYPE LALA SEJA	
CR5331 Palo Alto Rd	6	8.2				6	1.03	CEMO GERO SEJA	7.5					13.55	26.3	CEMO CIAR CYSC GERO HYPE PORE SEJA	7.8	14	CEMO CIAR HYPE SEJA	
CR4361 Taylor Cut- off Rd	3								2.6					2.6			2.6			
CR4360 Lost Mountain Rd	3								2.6					3.9			3.9	1.04	CEMO SEJA	
CR3057 Big Quilcene River Rd	1	1.9	3	0.1	SEJA				1.9											
CR3039 Penny Creek Rd	2	1.1	4,959	0.1	GERO	4	0.5	SEJA	1.4											
CR2515 Rocky Brook Rd	1	0.4							0											
CR2500 Dosewallips Rd	4	25.1	35,074		CYSC, GERO				7.6											

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
CR2274 Duckabush Rd	1							3.8												
CR2071 W Snider Rd	4	2	15	0.2	SEJA	1	3	CIAR CYSC GERO LALA POBO	1.5											
CR2065 Cooper Ranch Rd	1																0	0.0014	POBO	
CR2036 Mary Clark Rd	3								5	6	GERO POBO				15.2	2.77	CYSC HYPE PHAR SEJA			
CR5006 Jimmy Come Lately Rd	3								1.2						1			1.2	1	CEMO CIAR CIVU CYSC GERO HYPE LALA POBO PORE RUAR RULA SEJA
3116000	4	10				3.5	3.1	CIAR GERO RUDI		0.1	CIVU CYSC HYPE SEJA TAVU									
3100420	1	0.6																		
3100400	1	2.9																		
3100300	4	5				2	3.5	GERO									5.8	9.3	CYSC GERO	
3071015	1	0.6																		
3071000	6	3.4	60		CYSC	1						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		CEMO CYSC SEJA	2.8	5.1	CYSC	3.6			7.8	0.5	CIVU CYSC HYPE SEJA	5.6	3.2	CEMO 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									

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
3050011	4	1.5				2.5	5.1	CIVU GERO HYPE	2.9											
3050000	5	3.8	2		SEJA	18	18	CIAR CIVU GERO HIAU HYPE LEVU LALA	20.2											
3040900	1	0.5								11.7			CYSC GEROHIAU LEVU							
3040800	8	0.5	54,70 9	1.9	ARMI GERO ILAQ POCU	2.5	17	CIAR CIVU CYSC GERO LALA POBO RUDI SEJA	1	82.3			CIVU CIAR GERO HIAU HYPE ILAQ LALA PRLA SEJA	21	8.3	CIVU CIAR CYSC GERO LALA PHAR POBO RUAR				
3040595	3	4	373		CIVU SEJA	4	1	GERO SEJA												
3040200	1	1								4.1			CIVU GERO ILAQ POBO RUDI							
3040115	3	1	95	0.1	GERO				0.7											
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	35,13 6	1.3	CYSC GERO SEJA	67	23.4	CEMO 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																		

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
3006011	1	1.2							38.4		<b>CEMO CIAR CIVU GERO HYPE ILAQ LALA PHAR RUDI SEJA</b>									
3006000	3	8			2	1	CYSC	6.5												
3000800	1											2.8	0.1	<b>GERO</b>						
3000591	1								0.3	2.5	<b>CIVU GERO HYPE, RUDI RULA SEJA</b>									
3000401	1	1																		
3000400	1	2.2								0.3	<b>CIVU DIPU GERO</b>									
3000395	1	0.2																		
3000370	2								0.8			0.4	0.7	<b>CIVU DIPU LEVU SEJA</b>						
3000330	1								2.2											
3000300	5	3.5							3.5	0.07	<b>CIVU CYSC GERO SEJA</b>	5.3	9.4	<b>CIVU CYSC GERO HYPE SEJA</b>						
3000260	1	0.7								0.7	<b>CIVU CYSC SEJA</b>									
3000250	4	10	10	1.2		8	2.7		3.8	0.7	<b>CIVU CYSC GERO SEJA</b>	6.9	5	<b>CIVU CYSC GERO HYPE LALA</b>						
3000220	1	2.8																		
3000215	5	3.6				1	2	<b>GERO</b>	0.6	0.1	<b>GERO</b>	0.6	0.3	<b>GERO CYSC</b>						
3000200	9	70	6	0.2		30	26.6	<b>CIVU CYSC GERO SEJA</b>	18.8			16.9 6	73.6 4	<b>CIVU CYSC DIPU GERO LALA</b>						
3000011	1	1								0.4	<b>CYSC GERO</b>									

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
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3000000	9	92	883,098	1	CYSC CIVU GERO RULA SEJA	39	32	CEMO 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	3	0.7																1	2.4	CYSC SEJA
2978025	3	0.3																0.8	1.9	CYSC
2978015	3	1.6	18		CYSC													1.4	3.36	CYSC SEJA
2978011	3	0.4																0.4		
2978000	4	4.7	3,604		CYSC SEJA							4.6	2.2	CYSC				3	8.16	CYSC
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	7	15	2,153	0.3	LEVU CYSC	11		CYSC GERO SEJA	5									3.7	11.44	CIVU CYSC GERO RUAR RULA
2931200	1	2.5																		
2931190	1	1.7							5.2	CIVU GERO HYPE LAGA RUDI RULA SEJA										

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2931000	5	12	1				<b>SEJA</b>	12.3			2.4	5.04	<b>CEMO CIVU CYSC HYPE PHAR</b>							
2929070	6	3	525		6	2	<b>GERO RULA</b>	6.3			3.3	0.25	<b>GERO RULA</b>							
2929000	8	10			13	1	<b>CIVU CYSC GERO HIAU</b>	15.4	18	<b>CEMO CIVU CYSC LALA</b>	17	11.1 5	<b>CIVU CIAR CYSC GERO HYPE LALA PHAR RUAR</b>							
2923100	4	0.2							6.12	<b>GERO DIPU HYPE RUDI RULA</b>				1.7	2.75	<b>CIVU CYSC DIFU DIPU GERO</b>	1.5	3.7	<b>CIVU CYSC DIFU DIPU GERO HYPE</b>	
2923095	2							0.2	13.4	<b>CIAR CIVU CYSC DIPU GERO HYRA LALA LEVU PHAR</b>				1.2	0					
2923090	3							1.2						1.2	0.8	<b>DIPU GERO</b>	1.2	1.01	<b>DIPU GERO</b>	
2923077	2				16	2.15	<b>CYSC SEJA</b>	2.6	0.2	<b>CYSC HYPE TAVU SEJA</b>										
2923074	1							0.8	1	<b>CYSC HYPE TAVU SEJA</b>										
2923073	1							0.8	0.1	<b>CYSC HYPE SEJA</b>										
2923072	1							0.8	0.01	<b>CIVU</b>										
2923070	11	5	2		9	8.6	<b>CIAR CIVU CYSC GERO HYPE RUDI SEJA</b>	6			5.2	2.3	<b>CIVU CYSC HYPE LALA PHAR</b>	9.9	16.6 3	<b>CIAR CIVU CYSC DIPU HYPE LALA LEVU PHAR RUAR RULA SEJA TAVU</b>	5.2	17.4	<b>CIAR CIVU CYSC DIPU GERO HYPE LALA PHAR RULA SEJA TAVU</b>	
2923060	3	1			3	0.15	<b>CIAR CYSC GERO</b>	4.6	0.02	<b>CIAR CYSC HYPE</b>										
2923020	1							1.2	1.06	<b>CIVU CYSC PHAR</b>										

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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				5.6	3.20 1	CYSC GERO HYPE LALA PHAR POBO SEJA			
2922250	2							2.6	3	CIVU CYSC GEROSEJA	1.3	2.8	CEMO 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										
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						

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2912060	3	2.8	3				SEJA	7	20	CIAR CIVU CYSC GERO HYPE SEJA										
2903000	5	7	78				CYSC SEJA				0.4	0.5	CYSC GERO	13.6	28.5 5	CIAR CIVU CYSC DIPU GERO HYPE SEJA	6.8	19	CIVU CYSC DIPU GERO HYPE SEJA	
2902375	1	0.8							1	CIAR CYSC GERO HYPE										
2902300	1	0.6																		
2902000	8	2.91	4,175	0.2			CYSC SEJA				9.2	1	CIAR CIVU CYSC SEJA	6.7	8.1	CASE CIAR CIVU CYSC DIPU GERO HIAU HYPE LEVU RULA RUAR SEJA	3.4	3.7	CIVU CYSC GERO HYPE	
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							
2900810	1								2.6	3.1	CYSC GERO ILAQ									
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																		

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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	13	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	10.2	38.94	CIAR CIVU CYSC GERO HIAU 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	CEMO CIAR CYSC GERO SEJA	5.5	20.2	CIAR CIVU CYSC DIPU GERO HIAU HYPE HYRA LALA LEVU PHAR RULA SEJA	2.9	8.5	CIVU GERO HYPE CIAR						
2878120	11	1	2,170		CYSC	2	2	LALA	1.4	4.5	CIAR CIVU GERO HYPE LALA	2.6	3.5	CIVU CYSC GERO LALA	2	3.3	CIVU CYSC GERO LALA	1	2	DIPU GERO LALA
2878110	5	1				1	1	LALA	1	2	CIAR CIVU CYSC LALA	0.9	2.9	CIVU LALA				0.75	2	CIVU LALA
2878109	5	0.27								0.3	CIVU CYSC LALA	0.25	1	LALA	0.5	1.5	CIVU CYSC LALA	0.25	0.25	CIVU LALA
2878108	5	0.13								0.2	CEMO CIVU CYSC LALA	0.1	0.2	CIVU CIAR CYSC LALA	0.2	1.4	LALA	0.1	0.2	CIVU LALA
2878104	2											0.2	0.02	GERO				0.2	0.3	GERO LALA
2878102	5	0.4										0.4	1.5	CIVU LALA	0.8	2.2	CIVU LALA	0.4	0.8	CIVU LALA
2878101	4											0.1	0.4	CIVU LALA	0.2	0.58	CIVU LALA	0.1	0.3	LALA
2878100	2														1.7	7.3	CIAR CIVU CEMO LALA SEJA	1.6	2.8	CIVU GERO LALA SEJA

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2878085	4	1				1	1	CIAR CIVU GERO	1									0.7	1.4	CIAR CIVU CLVU CYSC HYPE SEJA
2878080	5	1.5				1	0.5	CIAR LALA	1	0.2	CIAR CIVU GEROLALA SEJA				0.8		CIVU CYSC LALA	0.8	1.6	CIVU CYSC LALA
2878060	5	0.5	127		CYSC	1	0.5	CIAR LALA	1	0.01	CIAR CIVU SEJA				0.6			0.75	2	CIAR CIVU CLVU CYSC DIPU LALA
2878050	8	0.6								0.3	CIAR CYSC SEJA	1.2	2.5	CEMO CIAR CIVU GERO HYPE LALA SEJA	0.1	0.5	CIVU LALA			
2878000	15	4	2,971	0.2	CYSC	20	13	CEMO CIAR CYSC GERO LALA SEJA	16	0.3	CIAR CYSC SEJA	9.8	26.9	AEPO CIAR CIVU GERO HYPE LALA	2.1	5.4	AEPO CEMO CIAR CIVU GEROLALA SEJA	2	3.3	AEPOCIAR CIVUCYSC LALA SEJA
2877100	2	0.5																		
2877090	1														1.4	0.00 1				
2877052	3	0.29							1	12.6	CIAR CIVU GERO LALA SEJA				0.6	0.5	CIVU CIAR CYSC DIPU GERO LEVU RULA SEJA			
2877050	2	2.65													0.9	0.00 1	CIVU, DIPU			
2877040	6	2.5				1	0.2	CEMO CIAR CIVU SEJA	2.1			2.2	2.2	CIAR CIVU CYSC GERO RUAR	1.1	4	CEMO CIAR CIVU CYSC GERO HICA			
2877000	10	5				20	13.4	CEMO CIAR CIVU CYSC LALA SEJA	24.3			4.2	22.5	CIAR CIVU GERO HYPE RUAR SEJA	4	20.9	CIAR CIVU CYSC DIPU GERO HYPE LEVU SEJA	3.4	25.2	CIAR CIVU CYSC GERO LALA

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2875090	1	0.1							1.8	CIAR CIVU CYSC GERO SEJA										
2875070	8	2.5			1	0.5	CIAR CYSC	3.6	15.8	CIAR CIVU CYSC HYPE LALA SEJA	1.8	0.51	CIAR CYSC SEJA	3.6	14	CEMO CIAR CIVU CYSC GERO HYPE LEVU SEJA	1.8	1	CEMO CIAR CYSC GERO	
2875020	10	0.5	6		1	0.5	CIAR CYSC POBO	1.6			1.8	0.02	CIAR CIVU POBO	5.3	2.7	CEMO CIAR CIVU GERO LALA PHAR POBO	0.6	1.5	CEMO CIAR CIVU CYSC GERO HYPE LESU	
2875000	15	12	268	0.4	23	10.8	CEBI CEMO CIAR CIVU LALA	17.7	0.9	CEMO CIAR GERO SEJA	6.5	16.2 6	CEMO CEJA CIAR CIVU CYSC GERO LALA SEJA	3.6	14.1	CEMO CIAR CIVU CYSC DIPU GERO HYPE ILAQ LALA SEJA	2	8	CEMO CIAR CIVU DACA HYPE SEJA	
2870270	2	3.5		0.28	3.5	3.2	CEMO CIVU HYPE SEJA		1.6	CEMO CIAR CIVU CYSC PHAR SEJA										
2870250	1				1	1.5	CEBI CEMO		13	CEMO CIAR CIVU CYSC GERO HYPE LALA SEJA										
2870230	5	4	38	0.3	4	0.4	CIAR CIVU HYPE SEJA				1.4	2.5	CIAR GERO HYPE	0.1						
2870150	7	0.5			1	3	LALA	0.7			0.5	0.2	CIVU LALA SEJA		1.3	CIAR CIVU LALA SEJA	1.3	3.12	CIAR CIVU CLVU LALA PHAR SEJA	
2870130	2	1	1	0.1			CYSC													
2870110	3	0.5	729				CYSC				0.5	5.1	CIAR CIVU LALA							
2870059	12	3	19,52 9		1		CEMO CIAR CIVU CYSC GERO SEJA	1.2	0.1	CEMO SEJA	0.8	15.3	CIAR CIVU CYSC GERO HYPE PHAR	1	3.3	CIAR CIVU CYSC GERO				
2870058	10	3		2.55	8	6.5	CIAR GERO PHAR	5.6	0.1	CYSC					1.2	CEMO CIAR CIVU GERO	0.3	1	CLVU GERO HYPE	

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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	CEMO SEJA	3	8.9	CEMO 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	CEMO CIAR CIVU	2.5	3.1	CIAR CIVU CYSC GERO PHAR SEJA	0	0.7	CIAR CIVU						
2870053	8					2	1.7	CEMO CIAR CIVU	4.7	4.8	CEMO CIAR CIVU CYSC DACA GERO HYPE LEVU SEJA TAVU	3	3.5	CEMO CIAR CIVU HYPE						
2870052	2								1.6	10.3	CEMO CIAR CIVU CYSC HYPE LEVU PHAR SEJA				2.6					
2870050	16	16	110	0.8	CEMO CIAR CIVU CYSC GERO HYPE LALA SEJA	13	10.5	CIAR CIVU GERO LEVU PHAR RUDI SEJA	11.2	15.3	CEMO CIAR CIVU GERO HYPE LALA SEJA	7.9	13.8	CEMO CIAR CIVU GERO HYPE LALA PHAR SEJA	2.8	4.4	CEMO CIAR CIVU GERO HYPE LALA	2.8	8.9	CEMO CIAR CIVU CLVU GERO HYPE LALA SEJA
2870030	10	5	78		CEMO CYSC SEJA	4	3.5	CEMO CIAR CYSC SEJA	5.6	0.3	CIAR CIVU HYPE				1.9	2.6	CEMO, CIAR, CIVU, HYPE, SEJA	1.5	3	CIAR CIVU HYPE RUAR RULA SEJA SYOF
2870000	16	143	3,853	3.13	CEMO CYSC SEJA	256	21.7	CEMO CIAR CIVU CYSC GERO HYPE LALA LEVU SEJA	52.3	14.9	CEMO CIAR CIVU CYSC DACA GERO HYPE LALA LEVU PHAR SEJA	25.3 5	36.6	CEMO CIAR CIVU DACA GERO HYPE LALA SEJA	1.1	11.9	CEMO CIAR CIVU CYSC DACA GERO HYPE LALA SEJA	12.1	35.57	CEMO CIAR CIVU CYSC GERO HYPE LALA PHAR SEJA

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		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					
2860120	2	1.6							10.4	CEMO CIAR CIVU HYPE SEJA															
2860011	2	1	2,708						25.6	CEMO 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	7	2.4							1.1					1.1	4.4	CIAR CIVU CYSC GERO HYPE SEJA	3.8	14.6	CEMO CIAR CIVU CYSC GERO LALA SEJA	1.2	8.02	CIAR CIVU CLVU GERO SEJA			
2855070	13	5	5497	0.52		3	5	CEBI CEMO CYSC SEJA	4.4					1.5	2.3	CEBI CIVA,CIVU CYSC GERO HYPE LALA SEJA	2.6	9.5	CEBI CEST CIAR CIVU CYSC GERO HYPE LALA RUAR SEJA	1.5	5.3	CEST CIAR CIVU CLVU CYSC GEROLALA ROCA RUAR SEJA			
2855032	5	1.6	1					RULA						2		CEMO GERO HYPE SEJA	0.9	1.3	CIAR CIVU HYPE SEJA	0.8	1.66	CEMO 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			7.2	1.8	CEMO CIVU CYSC GERO HYPE RUAR SEJA						
2855000	15	10	51,947	0.4		11	2.2	CEBI CEMO CIVU CYSC GERO SEJA	1.3					5.2	6.6	CIAR CIVU GERO HYPE SEJA	5.3	15.5	CEMO CIAR CIVU CLVU GERO HYPE PORE SEJA	0.35	2.9	CIAR CLVU GERO PORE SEJA			
2852150	4	1.29	25					CYSC										0		CIVU CYSC GERO RUAR SEJA	0.8	3.5	CIAR CIVU GERO SEJA		

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2852090	3	10	3,362		CIAR CYSC GERO SEJA				3								0.3	2	GERO SEJA	
2852000	6	5	47,605	0.3	CEMO CIAR GERO RULA SEJA	2	1	CEMO	5.5											
2851090	2	1																		
2851080	2	4	1,660		CYSC SEJA TAVU				3.9	CEMO 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	13	22	67,334	0.6	CYSC GERO RULA SEJA				14.6		7.5	6.2	CIAR CIVU CYSC GERO ILAQ HYPE SEJA	10.7	12.9	CIAR CIVU CLVU CYSC GERO HYPE IMCA SEJA	2.8	5.7	CIAR CIVU GERO IMCA SEJA VIMI	
2845200	4	0.28												0.6	0.1	CIAR SEJA	0.3	0.3	SEJA	
2845150	3	0.2							9.3	CIVU SEJA				0.4	1	CIAR CYSC GERO LALA SEJA				
2845120	4	2	84		CYSC SEJA	2	1.9	CIVU CYSC SEJA						3.4	3.4	CIAR CIVU CLVU GERO HYPE SEJA				
2845090	3	1	12		CYSC SEJA									0.5	0	CIVU GERO SEJA				

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2845073	9	1				1.5	2	CYSC	2.8			0.9		CIAR CIVU CYSC LALA SEJA	2.7	9.4	CIAR CIVU CLVU CYSC DIPU GERO HYPE LALA SEJA	0.9	2.2	CIAR CIVU CYSC GERO HYPE SEJA
2845070	8	6	1,860		CYSC	6	4	CEMO CIAR CIVU CYSC SEJA	4.6			1.5			3	5.2	CEMO CIAR CIVU CLVU CYSC GERO HYPE SEJA	1.5	1.5	SEJA
2845040	3	0.3	160		SEJA					4.19				CEMO CIAR CIVU CYSC DACA DIPU HYPE SEJA	5.9	11.2	CIAR CIVU CLVU GERO HYPE SEJA			
2845000	9	5	12,378	0.7	SEJA	10			5.4	0.9	CIAR CIVU HYPE SEJA	5.4			12.1	14.9	CIAR CIVU CLVU GERO HYPE SEJA	5.4	10.8	SEJA
2840150	4	1	1		SEJA										1.2	2.3	CEMO CIVU, DIPU GERO HYPE, SEJA	0.6	1.8	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	CEMO CIVU CLVU GERO HYPE SEJA			
2840084	1	0.25																		
2840080	6	0.9	1		RULA				0.3	1.1	CIVU GERO HYPE SEJA	1.4	2	CIVU SEJA	1.6	2.91	CIAR, CIVU CYSC GERO HYPE LALA SEJA	0	0.52	CIAR HYPE LALA SEJA
2840071	5	2	36		BOOF SEJA				3.2						2	5	CEMO CIAR CIVU CYSC GERO LALA SEJA	2	9.6	CIAR CIVU CLVU CYSC GERO LALA PHAR SEJA

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006			2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2840070	5	4	5,753						1	CIAR CIVU LALA SEJA	1.5	5	CIAR CIVU GERO SEJ	2.3	4.7	CIAR CIVU GERO SEJA	1.7	4.08	CEMO CIAR CIVU CLVU CYSC GERO LALA PHAR SEJA
2840037	1													1	2.2	CEMO 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	CEMO 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	10	11	10,010		10			1.8	2.5	CEMO CIAR CIVU GERO SEJA	4.9	0.25	CIVU CYSC GERO SEJA	0.5	0.85	CIVU CYSC LALA GERO SEJA	0.2	0.48	CYSC LALA
2830034	1	0.33							7.5	CEMO CIAR CIVU HYPE SEJA									
2830032	1	1							5.5	CIAR CYSC GERO HYPE LEVU SEJA SYOF									
2830030	1	2																	
2830000	4	10	1,250		11	0.2	SEJA												
2820000	6	4	2,274	0.2	8	2	SEJA	6.3			2.5	6	CEMO CIAR CIVU GERO HYPE LALA SEJA						
2810070	1	0.61																	

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006			2007-2009			2010-12			2013-2015			2016-2018			2019			
		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
2810000	2	8	10,190				CYSC SEJA		17	CEMO CIAR CIVU GERO HYPE LALA SEJA										
2800362	2													0.4	0.8	CIAR CIVU GERO SEJA	0.4	1	GERO SEJA	
2800360	2													2.2	7.3	CEMO CIAR CIVU DIPU GERO HI sp HYPE RULA SEJA	1.7	4.25	CIAR CIVU DIPU GEROSEJA	
2800353	2													1.2	1.5	CEMO, CIVU, HYPE			CEMO	
2800351	11				4.5	3	CEMO CYSC	2.4			1	5.5	CEMO CIAR CIVU HYPE	2.4	2.6	CEMO CIAR, CIVU, HYPE SEJA				
2800350	6				3	4	CEMO CIAR CIVU	0.3			1	2	CEMO CIAR GERO LALA SEJA	0	0.5	CEMO CIVU HYPE				
2800325	3		1											0.6	1.2	CIAR CIVU LALA	0.6	1.2	CEMO CIAR CIVU LALA SEJA	
2800321	3		1											2.5	1	CIVU CIAR GERO LALA	1.2	0.35	CIVU GERO LALA	
2800320	3		1											2.6	5.2	CEMO CIAR CIVU CLVU HYPE LAGA LALA SEJA	2.6	5.4	CEMO CIAR CIVU CLVU HYPE LAGA LALA SEJA	
2800310	4	1	4,655	0.2			CYSC		3.2	CEMO CIAR CIVU GERO HYPE SEJA										
2800290	2	1	2				CYSC SEJA		1.5	CEMO CIAR CIVU HYPE SEJA										
2800270	1	1	310				CYSC SEJA													

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006			2007-2009			2010-12			2013-2015			2016-2018			2019			
		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
2800262	1	0.6																		
2800260	1	1.2																		
2800250	6	5	92	0.1	SEJA						2.2	1	CIAR CIVU GERO SEJA				1.1	0	GERO	
2800240	1	0.8																		
2800220	1	1.2																		
2800210	1	0.4																		
2800145	1	0.3																		
2800132	5	1	463	0.1	CEBI CEMO	1					0.6	0.6	CIAR CIVU SEJA	0.6	0.5	CEMO CIAR CIVU SEJA	0.6	1.4	CIAR CIVU CLVU SEJA	
2800130	5					2	1.3	CEBI SEJA			1.5	7.1	CEMO CEST CIAR CYSC GERO HYPE LALA SEJA	0.6	6.2	CEMO CIAR CIVU CYSC HYPE LALA SEJA	0.6	6.4	CIAR CIVU CLVU CYSC LALA SEJA	
2800120	2													1.6	3.8	CIAR CIVU HYPE LALA SEJA	3	7.44	CIAR CIVU CLVU LALA SEJA	
2800060	1	1																		
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				

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2800000	15	89	70,321	1	<b>CEMO CIAR CIVU CYSC GERO SEJA</b>	87	88.8	<b>CEBI CEMO CIAR CIVU CYSC DIPU GERO ILAQ LALA SEJA</b>	31.6			30.5	6.2	<b>SURVEYED ONLY CIAR CIVU CYSC LALA SEJA</b>	3	2	<b>CEMO</b>	2	0.5	<b>CEMO CIAR SEJA</b>
2760000	3									24.8	<b>CIAR CIVU GERO HYPE SEJA</b>	0	2	PHAR		3	CIAR PHAR	0.6	1.6	<b>CEMO CIVU CYSC DIPU GERO HYPE LALA SEJA</b>
2750020	1	1.5								4	<b>CIAR CIVU CYSC DIPU HYPE LALA PHAR SEJA</b>									
2750000	3	5				5	8	<b>CIAR CIVU CYSC LALA SEJA</b>	5											
2740110	1					1.5	1	<b>CEMO CIAR CIVU CYSC SEJA</b>												
2740075	2	0.5				0.5	1	<b>CEMO CIAR CIVU CYSC SEJA</b>		18	<b>CIAR CIVU HYPE LALA SEJA</b>									
2740072	4	1	200	0.1	CEBI	1	1	<b>CEMO CIAR CIVU CYSC SEJA</b>												
2740070	3	4				3	1	<b>CEMO CIAR CIVU CYSC SEJA</b>												
2740060	4	9	33	0.2	CYSC	9	1	<b>CEMO CIAR CIVU CYSC SEJA</b>												
2740000	9	21				25	3.6	<b>CEBI CEMO CIAR CIVU CYSC SEJA</b>	2.4			2.7	15.6	<b>CIAR GERO HYPE LALA SEJA</b>	11.6	32.1	<b>CEMO CIAR CIVU CYSC DACA DIPU GERO HYPE ILAQ LALA RULA SEJA VETH</b>			

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2730000	1													4.2	8.4	CIAR CIVU GERO LALA RUAR RULA SEJA CLVU*				
2730300	10	1	934			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	19,62 1			2	4	CIVU GERO SEJA	1.6	8	CEMO CIAR CIVU DIPU GERO HYPE LALA SEJA	0	5.5	CIVU CIAR GERO HYPE ILAQ SEJA	0.1	19.5 1	CIVU CLVU GERO HEHE HYPE ILAQ LEVU 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	146,4 00					CYSC SEJA TAVU							3.6	5.2	GERO SEJA			
2700330	2	1							1	4	GERO HYPE ILAQ SEJA									
2700281	3													0.9	2	CIAR CIVU CYSC HISU SEJA	0.5	2	CIAR CIVU CLVU HISA SEJA	
2700280	4													1.2	3.9	CEMO CIAR CIVU DIPU HISA HYPE LALA SEJA	0.6	1.8	CIAR CIVU CLVU CYSC HISA SEJA	
2700140	1	1.2																		
2700100	1	4.6								0.3	SEJA									
2700090	1	1.99																		

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006			2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2700080	6				1	2	CIAR CIVU CYSC <b>GERO</b> LALA <b>SEJA</b>	1.6			0.9	4.2	CIAR <b>GERO</b> HYPE LALA <b>SEJA</b>				0.1	0.5	<b>GERO</b>
2700040	8				4	11.2	BORA, CIVU CYSC <b>GERO</b> HEHE <b>HIAU</b> ILAQ LALA <b>LAGA PHAR</b> PRLA <b>SEJA</b>	15.1			12.5	50.3	<b>AEPO ARMI</b> CASE CIAR CIVU <b>GERO</b> HEHE <b>HIAU</b> HYPE ILAQ <b>LAGA LALA</b> PHAR PRLA <b>SEJA SYOF</b> VIMI	4.1	21.0 5	CIAR CIVU CYSC DIPU <b>GERO</b> HEHE <b>HIAU</b> <b>LAGA LALA</b> LEVU <b>SEJA</b> VETH			
2700000	13	37	4,201		21	15.1	<b>CEMO</b> CIAR CIVU CYSC <b>GERO LALA</b> <b>SEJA</b>	26.9	0.7	<b>GERO HYPE</b> LALA <b>SEJA</b>	17.9	18.2	CIAR CIVU CYSC <b>GERO</b> HYPE LALA PHAR <b>POBO</b> <b>SEJA VIMI</b>	1.7	1.55	CIAR CIVU CYSC <b>GERO</b> HYPE LALA RUAR <b>SEJA</b>			
2650090	2	1.68								<b>AEPO</b> CASE CIAR CIVU CYSC DACA <b>GERO HIAU</b> HYPE ILAQ <b>LAGA LALA</b> SEJA SYOF VIMI	46.6								
2650050	2	0.9								<b>CEMO</b> CIAR CIVU CYSC <b>GERO HYPE</b> LALA <b>POSA</b> <b>SEJA</b>	39.2								
2650000	6	15	2				<b>ARMI</b>	2.7					CIAR HYPE <b>SEJA</b>	3.8	9	CIAR CIVU <b>GERO</b> HYPE ILAQ <b>PORE</b> RUAR RULA <b>SEJA</b>			
2620060	1							2.8											

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
		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
2620056	5	0.76	24		<b>CEMO</b>			1.6	6.6	CIAR CIVU HYPE <b>SEJA</b>	3.6	2.2	<b>CEMO</b> CIAR CYSC HYPE <b>SEJA</b>							
2620053	2	1.3							3.1	CIAR CIVU CYSC HYPE <b>SEJA</b>										
2620051	3	0.89						1.6	1	CIVU HYPE <b>SEJA</b>										
2620050	5	2.8						4			2.2	3.2	CIAR CYSC HYPE <b>SEJA</b>	2.1	10.2	CIAR CIVU DIPU HYPE <b>SEJA</b>				
2620043	1	0.7							0.3	HYPE <b>SEJA</b>										
2620036	1							0.6	3.8	CIAR CIVU HYPE <b>SEJA</b>										
2620035	1							1.2												
2620030	1	9.7							1	CIAR CIVU CYSC HYPE <b>SEJA</b>										
2620000	10	35	39,46 4		CIVU CYSC <b>GERO</b> RULA <b>SEJA</b>	12		8.6	2.6	CIAR CIVU CYSC <b>GERO</b> HYPE <b>SEJA</b>	22.3	19.8	CIAR CIVU CYSC DIPU <b>GERO</b> HYPE RUAR <b>SEJA</b>	5.1	8.7	CIAR CIVU CYSC <b>GERO</b> HYPE ILAQ PHAR <b>PORE</b> RUAR RULA <b>SEJA</b>				
2610200	12	11	3,676	0.2	CYSC <b>GERO</b> HEHE RUDI <b>SEJA</b>	4	5	CYSC <b>SEJA</b>	1.2		0	3	CYSC <b>GERO</b> HEHE HYPE LALA RUAR <b>SEJA</b>							
2610050	2					1	1		15.9	CIAR CIVU CYSC <b>GERO</b> HYPE <b>SEJA</b>	0	1.75	<b>GERO</b> <b>SEJA</b>							
2610040	6	1	3,000		<b>SEJA</b>	1	2	CIAR CYSC <b>GERO</b> <b>SEJA</b>	1	4.1	CIVU CYSC <b>GERO</b> HYPE LALA <b>SEJA</b>	1	3	CIAR <b>GERO</b> <b>SEJA</b>	0.4	3.5	<b>GERO</b> HYPE <b>SEJA</b>			
2610012	2	0.85	397	0.2	<b>GERO</b>			0.5												

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2015			2016-2018			2019		
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2610010	3								4	GERO	3.3	44.4	COAR GERO HYPE ILAQ SEJA							
2610000	13	20	6,570	0.1	CEMO CIAR CIVU CYSC GERO RULA SEJA	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	GERO	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									
2510000	9	40	53	0.53	CEMO 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						CIAR CYSC GERO POBO SEJA	19	3.8		10.8		CIAR CIVU CYSC GERO HYPE LALA SEJA	2.5	1.6	CIAR CIVU GERO HYPE POBO SEJA			
2190220	1		251		COTO POCU					11.7	GERO HYPE SEJA									

ROAD	No. Years Visited	Survey, manual, minimal herbicide 2002-2006			2007-2009			2010-12			2013-2015			2016-2018			2019			
		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
2190200	3	4		0.1	POCU	38	1.7	CIVU CYSC DIPU POBO SEJA												
2190170	1	2																		
2190000	3	14				10											2.1	5.64	LAGA SEJA	
2100000	2	8	50		SEJA															
2071000	1								1	5	GERO LALA POCU RUDI									
<b>TOTALS</b>		<b>1467.2</b>	<b>2,618,720</b>	<b>26.7</b>		<b>1151.1</b>	<b>592.1</b>		<b>760.9</b>	<b>913.7</b>		<b>587.3</b>	<b>891.2</b>		<b>153.4</b>	<b>339.4</b>		<b>86.0</b>	<b>203.2</b>	

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.

2002-2019 ACCOMPLISHMENT SUMMARY TABLES													
Acres Treated by Crew-rounded to the nearest whole number													
CREW <sup>A</sup>	'02-'06 <sup>1</sup> manual/ baseline	2007-2008	2009	2010	2011	2012	2013	'14	2015	2016	2017	2018	2019
NWCB manual	8.61	55	27	21	33	33	7	10	30	51	30	42*	40
NWCB chemical		131	195	316	286	338	360	248	259	245	162	204	217
<b>NWCB total</b>	8.61 <sup>1</sup>	246 <sup>2</sup>	222 <sup>2</sup>	337 <sup>2</sup>	319	371	367	258	289	296	192	204	217
OCC-manual	None	412 <sup>2</sup>	78 <sup>2</sup>	-	-	-	-	--	-	-	-	-	-
WCC <sup>5</sup> manual	58.83	22	54			2	7						with FS below
chemical				None	38	26	8	15	23	0 <sup>6</sup>			
<b>WCC total</b>	58.83 <sup>1</sup>	22 <sup>2</sup>	54 <sup>2</sup>		38 <sup>2</sup>	28 <sup>2</sup>	15	15	23	0 <sup>6</sup>	N/A	N/A	N/A
FS+WCC crew							4					90	178
Chain Gang	38.68 <sup>1</sup>	9 <sup>1</sup>	7 <sup>1</sup>	0.16 <sup>1</sup>	6 <sup>2</sup>	25 <sup>1</sup>	5	None	None	NA	<b>N/A</b>	None	N/A
<b>TOTAL Acres Treated</b>	106.12 <sup>1</sup>	689 <sup>2</sup>	<b>361</b>	<b>337</b>	<b>338</b>	<b>372</b>	418	273	312	296		294	395

<sup>A</sup>Crew 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	2019
<b>New Sites/Total</b>	<b>122</b>	<b>497/619</b>	<b>147/766</b>	<b>74/840</b>	<b>147/986</b>	<b>12/998</b>	<b>1/999</b>	<b>3/1002</b>	<b>29/1031</b>	<b>56/1,060</b>	<b>22/1082</b>	<b>63/1145</b>	<b>12/1157</b>	<b>25/1182</b>	<b>52/1287</b>	<b>88/1375</b>	<b>15/1392</b>	<b>23/1415</b>

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	2019
<b>Miles of Roads Surveyed/Treated</b>	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	N/A	N/A
<b>Acres Surveyed/Treated</b>	233 <sup>3</sup>	851 <sup>3</sup>	321 <sup>3</sup>	137 <sup>3</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Miles of Roads Surveyed</b>	N/A	N/A	N/A	N/A	391	369	423	299	222	237	309	149	359	125	95	<b>64</b>	<b>90</b>	<b>114</b>
<b>Acres Surveyed<sup>6</sup></b>	N/A	N/A	N/A	N/A	947 <sup>4</sup>	894 <sup>4</sup>	1,025 <sup>4</sup>	724 <sup>4</sup>	626 <sup>5</sup>	575 <sup>5</sup>	613 <sup>5</sup>	776 <sup>5</sup>	483 <sup>5</sup>	438 <sup>5</sup>	342	<b>240</b>	<b>240</b>	<b>268</b>

1. Only manual treatments were allowed during 2002-2006. Acreage was estimated based on reported number of plants pulled; 1000=one/tenth acre. NWCB directive was to locate and document as many infestations as possible. For the Chain Gang reporting inconsistencies were difficult to reconcile with FS protocols.

2. "Acres Treated" include chemical and manual treatment and are taken from the FACTS forms filled out by crew. \*The figure of **337 acres** reported for the **OCC** crew in 2007 is **considerably inflated**, due to a change, and subsequent misunderstanding of newly instituted FS reporting protocols. It is shown here as reported.

3. Derived from miles surveyed/treated, but not used in the estimate of acres in the top table.

4. Derived from miles surveyed-Recorded as a separate value from 2006 to 2009. Previously combined in miles treated/surveyed and acres treated/surveyed

5. Taken from FACTS sheets—"Area Examined for Weeds"-from 2010-2106. This addition to the sheet gives perspective to infestation density and area covered.

6. In 2016, WCC worked alongside the NWCB. These acres have been accounted for in the "Acres Treated" section for NWCB

\*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 2002-2019: A PERSPECTIVE

- **Focus:** 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. With completion of a new EIS, herbicide treatments expanded and the focus shifted from survey to control. 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. With 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. 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 mixed purposes, sometimes weed control. Their efforts were not always coordinated with the Weed Control program. When provided, their data has been incorporated into our report. Since the FS has directly managed a small weed crew based in Olympia.
- **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. The Chain Gangs reporting preference has been number of weeds pulled, based on an estimated plants pulled/hr.
- 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. Weed infestations are significantly reduced, re-introduction of native plants has begun, some treatments are now needed 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 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*
- In 2019 remote habitat areas were a focus. *County roadside treatments and prevention measures are coordinated to maximize protection of Forest Service lands-these treatments shown in report map.*

## 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)*

**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 third season of an integrated weed management (IWM) plan for Clallam County's road department. CCNWCB treated 211 miles of county roads for a broad array of invasive species (35) which pose a direct threat to adjacent Forest Service land. We also treated 226 acres within 26 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; considerable work was accomplished under these plans as well. Italian thistle, the first recorded site in WA state, discovered and treated last year has been contained. Additionally, with significant help from volunteers, we planted two pilot sites with nearly 5000 pollinator friendly plants complimentary to and consistent with native plant restoration goals by the Forest Service.

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 an informal 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.



Clallam NWCB actively controls roadside infestations such as this sulfur cinquefoil site, protecting FS lands.

<b>Clallam County 2019 Snapshot</b>	
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, <b>Italian thistle (class A weed)</b>
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	379
Educational Events	19
Public Contacts (Phone Calls, Walk-Ins, Emails)	1,082
Web-Site Hits	2001
Volunteer Weed Events	6-680hrs
Area of Weeds Controlled by Weed Board Staff	11,769 individual plants removed from multiple private properties and many thousands more from county managed lands.

**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.

Prior to 2013, a portion of Title II funding was used to supplement the Jefferson County Noxious Weed Control (JCNWCB) program. In 2013 the Jefferson County Commissioners granted the JCNWCB request for assessment based funding. Since that time, the 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. Because of this disconnect, there is no snapshot of Jefferson County weed status and control efforts. 10,000 Years Institute, a non-profit, independently leads most Jefferson County weed control projects in the far west portion of the county.

**APPENDIX F: WEED SPECIES REPORTED 2002-2019  
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 has been found on Palo Alto Rd in Clallam County

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 moncktonii</i>	CEMO6
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>Lamium 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
cutleaf 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.
CEMO6	meadow knapweed	<i>Centaurea moncktonii</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 <sup>nd</sup> 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 <sup>nd</sup> 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, triclopyr or imazapyr recommended

## APPENDIX H: 2019 STATE WEED LIST

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

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

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

### Class A Weeds Eradication is required

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

purple starthistle	<i>Centaurea calcitrapa</i>
reed sweetgrass	<i>Glyceria maxima</i>
ricefield bulrush	<i>Schoenoplectus mucronatus</i>
sage, clary	<i>Salvia sclarea</i>
sage, Mediterranean	<i>Salvia aethiopis</i>
silverleaf nightshade	<i>Solanum elaeagnifolium</i>
small-flowered jewelweed	<i>Impatiens parviflora</i>
Spanish broom	<i>Spartium junceum</i>
Syrian beancaper	<i>Zygophyllum fabago</i>
Texas blueweed	<i>Helianthus ciliaris</i>
thistle, Italian	<i>Carduus pycnocephalus</i>
thistle, milk	<i>Silybum marianum</i>
thistle, slenderflower	<i>Carduus tenuiflorus</i>
variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>
wild four-o'clock	<i>Mirabilis nyctaginea</i>

### Class B Weeds

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

hoary alyssum	<i>Berteroia 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>Rhaponticum repens</i>
knawweed, spotted	<i>Centaurea stoebe</i>
knotweed, Bohemian	<i>Polygonum x bohemicum</i>
knotweed, giant	<i>Polygonum sachalinense</i>
knotweed, Himalayan	<i>Persicaria wallichii</i>
knotweed, Japanese	<i>Polygonum cuspidatum</i>
kochia	<i>Bassia scoparia</i>
lesser celandine	<i>Ficaria verna</i>
loosestrife, garden	<i>Lysimachia vulgaris</i>
loosestrife, purple	<i>Lythrum salicaria</i>
loosestrife, wand	<i>Lythrum virgatum</i>
Malta starthistle	<i>Centaurea melitensis</i>
parrotfeather	<i>Myriophyllum aquaticum</i>
perennial pepperweed	<i>Lepidium latifolium</i>
poison hemlock	<i>Conium maculatum</i>
policeman's helmet	<i>Impatiens glandulifera</i>
puncturevine	<i>Tribulus terrestris</i>
Ravenna grass	<i>Saccharum ravennae</i>
rush skeletonweed	<i>Chondrilla juncea</i>
saltcedar	<i>Tamarix ramosissima</i>
Scotch broom	<i>Cytisus scoparius</i>
shiny geranium	<i>Geranium lucidum</i>
spurge flax	<i>Thymelaea passerina</i>
spurge laurel	<i>Daphne laureola</i>
spurge, leafy	<i>Euphorbia virgata</i>
spurge, myrtle	<i>Euphorbia myrsinites</i>
sulfur cinquefoil	<i>Potentilla recta</i>
tansy ragwort	<i>Jacobaea vulgaris</i>
thistle, musk	<i>Carduus nutans</i>
thistle, plumeless	<i>Carduus acanthoides</i>
thistle, Scotch	<i>Onopordum acanthium</i>
velvetleaf	<i>Abutilon theophrasti</i>
water primrose	<i>Ludwigia hexapetala</i>
white bryony	<i>Bryonia alba</i>
wild chervil	<i>Anthriscus sylvestris</i>
yellow archangel	<i>Lamium galeobdolon</i>
yellow floatingheart	<i>Nymphoides peltata</i>
yellow nutsedge	<i>Cyperus esculentus</i>
yellow starthistle	<i>Centaurea solstitialis</i>

**Class C Weeds**

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

**Class C Weeds continued**

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

To 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](mailto:noxiousweeds@agr.wa.gov)  
 Website: <http://www.nwcb.wa.gov>

**Washington State Department of Agriculture**

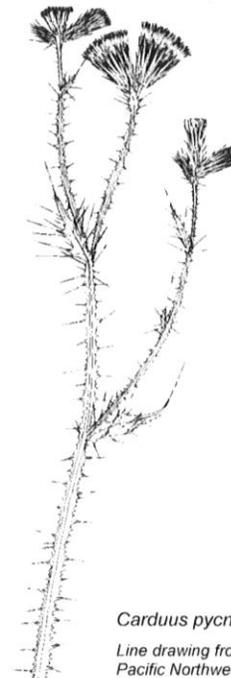
21 North First Avenue #103  
 Yakima, WA 98902  
 (509) 225-2604

**Clallam County Noxious Weed Control Board**

223 E 4<sup>th</sup> St., Suite 15  
 Port Angeles WA 98362  
 Website: <http://www.clallam.net/weed>  
 (360) 417-2442

**2019**

**Washington State  
 Noxious Weed List**



*Carduus pycnocephalus*  
 Line drawing from Vascular Plants of Pacific Northwest, vol 5

Italian thistle is a class A noxious weed that is rare in Washington State. Italian thistle is strongly spiny with small, spiny clusters of purple flowers (2-5); leaves often have faint white veins.

**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 22 – November 1, 2019. 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**, 2190200 spur; **Bockman Creek Watershed**, 2902,2903 Rds and spurs; Bockman pit; **Calawah River Watershed**, 2932 Rd and associated spurs; **Canyon Creek /Pats Creek Watershed**, 28,2870,2875,2877, 2878, Rds and spurs; Cranberry Bog, Juniper Meadow, Slab Camp/Deer Ridge TH, Schmits Knob meadow, 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**, 2620, 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 and 2620 Rds 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, and 2870 Rds and spurs; Lost Pit; **Middle Queets River Watershed**, 2170 and 2180 Rds and spurs; Park pit; **Middle Quinault River Watershed**, 2190 Rds and spurs; Neptune pit; **Middle Sol Duc River Watershed**, 2923 and 31 Rd and spurs; **North Fork Calawah Watershed**, 29,2922,2923 Rds and spurs; Calawah and Grindstone Pits; **Pysht River Watershed**, 31 Rd and spurs; **Salmon River Watershed**, 2140 Rd and spurs; Salamander Pit; **Sam's River Watershed**, 2180 Rd and spurs; **Spencer Creek / Maple Creek Watershed**, Seal Rock CG; **Snow Creek/Salmon River Watershed**, 2840,2845,2850, 2852 Rds and spurs; **South Fork Calawah Watershed**, 29, 2922,2923,2932,2952 Rds and spurs, Klahanie CG; **Upper Big Quilcene River Watershed**, 27, 2740, 2750, and 2760 Rds and spurs; Sink Lake; Upper Big Quilcene trail; **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.

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

# **NOTICE**

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

\_\_\_\_\_, 20\_\_ to  
control weeds, which threaten native vegetation and habitat in this area:

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

Targeted Weed Species include, but are not limited to:

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

**FOR MORE INFORMATION CONTACT:**

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

**This sign can be removed one month after listed treatment dates.**

# APPENDIX J: PROJECT FORMS

- FACTS Manual/Herbicide Treatment Data Form-front side

## 2019 FACTS Invasive Plant Treatment Data Form

General Activity Fields

Ref #: <b>66</b>	Document only one area represented by one Ref # per FACTS form.	<b>Admin Use Only</b> Activity Unit FACTS ID#: _____ Name: _____ Activity Subunit #: _____ Name: _____
------------------	---	--

Region	Forest	District (circle one)*	6 <sup>th</sup> Field Watershed Name	Owner	Workforce** (and Number of People in Crew)
06	09	PAC-N (05) <b>HC-N (02)</b> PAC-S (03) HC-S (01)	<b>Jimmy Come Lately</b>	FS	<b>NWCB</b> ( <b>3</b> ) # people
Method Code	Equipment Code:	Job Code:	Treatment Location and Comments:		
<b>700</b> Herbicide	(circle one) 711 hand sprayer <b>712</b> backpack sprayer 713 hack & squirt 716 injector 721 mobile ground sprayer 000 other		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 -  <b>2855-100</b> <b>MP 1.1-0.3</b>  Was entire area represented by the Ref# treated for weeds? Yes / <b>No</b> → 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

Should this area be a high priority for follow-up treatments next year? Yes / **No** (circle one)  
 Is this area a good candidate for post-treatment seeding? **Yes** No (circle one)

### Site/Inventory Fields

Date of Treatment	Acres examined	Application Site (circle one)	Licensed Applicator: Name and License #
<b>7/15/19</b>	<b>2.4</b>	<b>Road edge/ROW</b> Riparian Campground Forest Rock source Trailhead Admin Site Other:	<b>Cathy Lucera 56527, Natalie Beatty, 96874</b>
<b>Total Manual Infested Area Treated:</b> Do not lump plants together.			acres

Weeds Treated (Use PLANTS code; include common name too if uncommon weed)	Infested Area Treated (IAT)	% cover in IAT (Use cover classes 1 - 9 listed below)	Comments
<b>GERO</b>	<b>2.4</b> acres	<b>5</b>	
<b>SESA</b>	<b>0.25</b> acres	<b>1</b>	
<b>CLUU</b>	<b>0.5</b> acres	<b>4</b>	
<b>CIVU</b>	<b>0.25</b> acres	<b>1</b>	
	acres		

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

- FACTS Manual/Herbicide Treatment Data Form-back side

Daily Log

Tank Mix 1

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:
7/15/19	1:00pm	4:50pm	65	52mph	W	100%	
Total Volume of Mix Applied	UOM	Mix (ounces herbicide per 1 gallon water)	Dilutant	Applicators Names			
6	Gallons	1. 0.17 oz/ gal 2. oz/ gal	Water	Cathy Lucero, Natalie Beatty, Tyler Clouse			
Herbicide Product Name	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):	
1. Milestone	1 oz	0.125%	Competitor	3.75 oz	0.5%	1.2	
2.	oz	%	Blazon Blue	1.88 oz	0.25%	Area treated in Riparian Reserves: 0	
	oz	%		oz	%	Area Treated within 5 feet of Standing Water: 0	

Tank Mix 2 (For use when more than one tank mix is used to treat the infestation).

Total Volume of Mix Applied	UOM	Mix (ounces herbicide per 1 gallon water)	Dilutant	Applicators Names			
20	Gallons	1. 0.17 oz/ gal 2. 1.25 oz/ gal	Water	Cathy Lucero, Natalie Beatty, Tyler Clouse			
Herbicide Product Name	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):	
1. Milestone	3.33 oz	0.125%	Competitor	12.5 oz	0.5%	1.2	
2. Vastlan	25 oz	1%	Blazon Blue	6.25 oz	0.25%	Area treated in Riparian Reserves: 0.8	
	oz	%		oz	%	Area Treated within 5 feet of Standing Water: 0.002	

(From front page) Ref #: \_\_\_\_\_  
 2019 FACTS Invasive Plant Treatment Data Form  
 Page 2 of 2 modified by clb 04/25/2019

Notes:

EPA #s for commonly used herbicides: Milestone: 62719-519  
 Aquaneat: 228-365 Aquamaster: 534-343 Polaris: 228-534  
 Vastlan: 62719-687 Stinger: 62719-73 Transline: 62719-259

**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 is 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*

9/23/2019

Signature

Date

Name of Rock Source: Coho Pit

**Narrative of Pit Location** (include, at minimum, road number and milepost ): 2840-080-0.2 miles. Ref # 57

**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:** 9/23/19

**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. 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.**

**Name of Rock Source:** Coho Pit **Date inspected:** 9/23/2019

Species present:

Species Code	Common Name	Infested Area (acres)	Cover Class	Comments
SEJA	Tansy ragwort	0.001	8	Tiny patch, treated on lower right side
CIAR	Canada thistle	0.5	2	Scattered around the perimeter
LALA	Everlasting peavine	0.1	2	Scattered throughout back
HYPE	St. Johnswort	0.05	1	Sparsely scattered on lower right side
Do not record tolerate species in this table.				

**DON'T FORGET TO FILL OUT THIS SECTION!**

Estimated size of pit: 1.9 acres  
 (1 acre = 43560 ft<sup>2</sup>, or approximately 209 ft x 209 feet. 1/10 acre = 4356 ft<sup>2</sup>, or 66 ft x 66 ft, or approximately 435 ft x 10 ft)

Percent of pit occupied by invasive plants 2 %  
 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? 2018

<b>Cover Class and Infested Area (acres)</b> columns are filled out exactly the same way as on the FACTS form.	Cover Classes: 1 = Trace, 2 = 1 – 3%, 3 = 3 – 5%, 4 = 5 – 10%, 5 = 10 – 25%,
	6 = 25 – 50%, 7 = 50 – 75%, 8 = 75 – 95%, 9 = 95 – 100% Note: Cover classes are meant to be approximations only. DO NOT spend more than a few moments determining

**Name of Rock Source:** Coho Pit

**Date inspected** 9/23/19

**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!

# Rock Pit Inspection: Coho Pit

Clallam County  
2840080 road, MP 0.3

Date of Inspection: \_\_\_\_\_ (include year)

Approx 1.9 acres



## 2019 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
CEMO6	<i>Centaurea moncktonii</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
DALA11	<i>Daphne laureola</i>	spurge laurel	1
DIFU2	<i>Dipsacus fullonum</i>	Fuller's teasel	1
GELU	<i>Geranium lucidum</i>	shinning geranium	1
GERO	<i>Geranium robertianum</i>	herb Robert, stinky Bob	1
HEMA17	<i>Heracleum mantegazzianum</i>	giant hogweed	1
<b>HIAU</b>	<b><i>Hieracium aurantiacum</i></b>	<b>orange hawkweed</b>	<b>1</b>
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
<b>SEJA</b>	<b><i>Senecio jacobaea</i></b>	<b>tansy ragwort</b>	<b>1</b>
SILAA3	<i>Silene latifolia</i> ssp. <i>alba</i>	bladder campion	1
SYOF	<i>Symphytum officinale</i>	common comfrey	1
TUFA	<i>Tussilago farfara</i>	European coltsfoot	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
<b>CIAR4</b>	<b><i>Cirsium arvense</i></b>	<b>Canada thistle</b>	<b>2</b>
CIVU	<i>Cirsium vulgare</i>	Bull thistle	2
COAR4	<i>Convolvulus arvensis</i>	field bindweed	2
<b>CYSC4</b>	<b><i>Cytisus scoparius</i></b>	<b>Scot's broom</b>	<b>2</b>
DACA6	<i>Daucus carota</i>	Queen Anne's lace	2
HEHE	<i>Hedera helix</i>	English ivy	2
<b>HYPE</b>	<b><i>Hypericum perforatum</i></b>	<b>common St. Johnswort</b>	<b>2</b>
ILAQ80	<i>Ilex aquifolium</i>	English holly	2
<b>LALA4</b>	<b><i>Lathyrus latifolius</i></b>	<b>everlasting peavine</b>	<b>2</b>
PHAR3	<i>Phalaris arundinacea</i>	reed canarygrass (including ribbon grass)	2
PRLA5	<i>Prunus laurocerasus</i>	English laurel	2
RUAR9	<b><i>Rubus armeniacus</i></b>	<b>Himalayan blackberry</b>	<b>2</b>
RULA	<b><i>Rubus laciniatus</i></b>	<b>cutleaf blackberry</b>	<b>2</b>
TAVU	<i>Tanacetum vulgare</i>	common tansy	2
<b>DIPU</b>	<b><i>Digitalis purpurea</i></b>	<b>purple foxglove</b>	<b>Tolerate</b>
<b>HYRA3</b>	<b><i>Hypochaeris radicata</i></b>	<b>hairy catsear</b>	<b>Tolerate</b>
LEVU	<i>Leucanthemum vulgare</i>	oxeye daisy	Tolerate
<b>LOPE80</b>	<b><i>Lotus pedunculatus</i></b>	<b>big trefoil</b>	<b>Tolerate</b>
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: 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.  $128 \text{ oz.} \div 8 \text{ oz.} = 16$ .  
 $16 \times 100 \text{ sq. ft.} = 1,600 \text{ sq. ft.}$

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 and the fact that there are 128 ounces in a gallon.