



Cranberry Bog

Olympic Peninsula Cooperative Noxious Weed Control 2023 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
<https://www.clallamcountywa.gov/821/Noxious-Weed-Control>**

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EXECUTIVE SUMMARY

Project Goal:

The goal of this project is to protect the natural resources of Clallam and east 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, local weed control boards and nonprofit partners. This project compliments the efforts of local weed board programs, which include public education, survey and treatment of noxious weed infestations on county owned lands and seeking landowner compliance with RCW 17.10 on non-federal lands. Title II of the Secure Rural Schools Act (SRS), which was designed in part to promote cooperation and collaboration between federal and local governments, funds most of the project. Additional dollars from specific FS funds have augmented additional tasks added to a work plan.

2023 Project Goals:

1. Control weeds on areas scheduled for road decommissioning or forest management.
2. Control weeds in quarries and other rock sources.
3. Revisit previously controlled sites and perform necessary follow-up control work.
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. Identify and treat new populations

2023 Resources:

- Supervisor (up to 40 hours/week, 5 months)
- 1-2 Field crew (up to 40 hours/week, 5 months)

2023 Accomplishments:

- Examined **92.4** acres for invasive species, treated **78.6** weed-infested acres.
- Examined and treated for weeds **on 11** county roads adjacent to Forest Service lands, encompassing **47.6** road miles (funding provided by Clallam County Road Department)
- Inspected and treated high priority weeds in **3** FS rock sources; inspected and identified corrective actions for **13** private, **3** state and **21** county rock sources in regard to their potential to spread invasive weeds
- Seeded **0.5** acres along **9.7** road miles, **1** pit and **1** clear cut with a site-appropriate native seed mix provided by ONF.
- 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 control project. Since this program started, weed species diversity, infestation size and density are much reduced where treatments have occurred.

In 2023, staffing and vehicle issues limited the amount of work that we were able to accomplish on Forest Service land. We were also not able to access some of our treatment sites due to people camping at the end of spurs or excessive amounts of trash, including biowaste, on the sites. After consulting with the FS supervisory botanist, we chose to focus on the Jimmy-Come-Lately and Dungeness watersheds, since timber sales will occur there over the next few years.

Despite these challenges, we were able to get back to sites that were treated in 2022 to see the progress of our treatments and were able to visit and treat sites that had not been visited since 2021. We saw great progress on treating wild basil savory off FS2878 spurs. We also saw an increase in the amount of spotted jewelweed and wild basil savory on FS2850, which directly connect with Woods Rd. This highlights the need to visit many of these sites every year to evaluate the effectiveness and continue treatments so progress is not lost.

We were able to seed 0.5 acres, split between the Dungeness and the Sol Duc watersheds. We were excited to participate in reseeded sites we have been treating for years and hope there will be more opportunities for us to continue revegetation efforts on these sites.

PROJECT SUMMARY

Project Goal:

The goal of this project is to protect the natural resources of Forest Service (FS) lands in Clallam and east 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 2008 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 and habitat augmentation 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, led by different partners to match the need on the ground with available funding. Although the Forest Service has hired contractors for certain large scale projects, there have been no outside contractor projects for many years. Instead, the Forest Service has engaged the limited use of the Washington Conservation Corps for some larger projects. Additionally, ONF employs an invasive plant program coordinator whose responsibilities include crafting the annual work plan, coordinating weed control activities with weed boards and submitting internal reporting. There is also a small field crew directed by the FS coordinator. 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 was able to collaborate on projects with the FS where mutual areas of interest overlap such as the coastal portion of the Olympic Peninsula.

2023 Project Description:

This year's work focused on sites designated as high priority by the Forest Service, including roads within areas with timber harvests scheduled in the next 5 years and special botanical areas. This year's team consisted of an experienced weed board staff member with one seasonal technician who alternated between Forest Service projects and county work including county roadside weed control, over the course of the treatment season. Staff shortages and vehicle issues limited the number of Forest Service projects that could be completed in 2023.

In 2023, 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.

2023 Project Resources and Roles:

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

- **CNWCB**

- **Coordinator (up to 30 hours/week, for 5 months, licensed applicator):**

- Supervised and administered the project
 - Field treatments
 - 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 2024 field season
 - Provided non-forest rock source inventory, monitoring and reporting, as requested

- **Field team: 1-2 (with one being a licensed applicator), up to 30 hrs/week over 4 months,**

- Field treatments
 - Data collection, completing treatment forms, monitoring

2023 Project Accomplishments:

- Examined **92.4** acres for invasive species, treated **78.6** weed-infested acres.
- Examined and treated for weeds **on 11** county roads adjacent to Forest Service lands, encompassing **47.6** road miles (funding provided by Clallam County Road Department)
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- Seeded **0.5** acres along **9.7** road miles, **1** pit and **1** clear cut with a site-appropriate native seed mix provided by ONF.
- Compiled data and completed annual Project Report

2023 Treatments:

Staff shortages and vehicle issues during the field season limited our ability to treat as many acres as has been treated in the past. We focused on sites designated as high priority by the Forest Service, including areas scheduled for thinning operations, infrequent high priority species and special botanical areas. The discovery of new sites and/or new species continues to be infrequent. Often these new infestations are small and easily controlled validating the concept of early detection, rapid response. See *Post –Season Observations* for more detail.

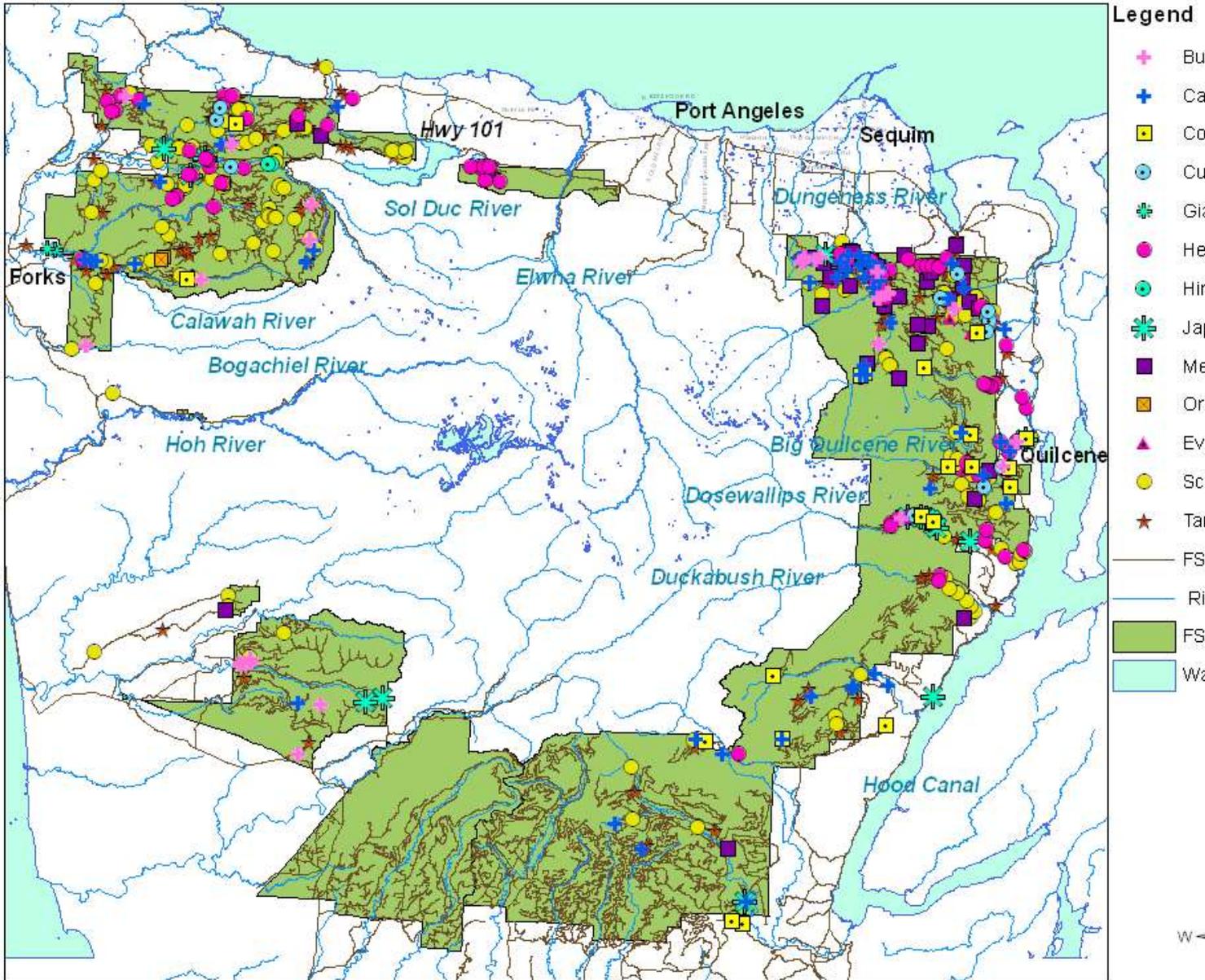
Appendix A provides detailed information about specific 2023 treatments. Ensuring that rock sources meet the Forest Service's "weed free" standard is a significant prevention tool that we have worked hard to encourage. See Appendix B for detail on the current "weed free" suitability of rock sources of which we have knowledge. Under the Clallam County Road Department's Integrated Weed Management (IWM) plan, the Clallam Noxious Weed Control Board (CCNWCB) crew treated county roads connected to ONF lands. This was a coordinated response to our ONF 2023 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. 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 2002-2023 Accomplishment Summary Table in Appendix D provides perspective on 2023 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. Manual treatments from 2002 and 2006 years have been consolidated and acres treated estimated. A focus on surveys corresponded to a number of new discoveries. For more detail see previous reports posted on our website for greater detail of any specific project season.

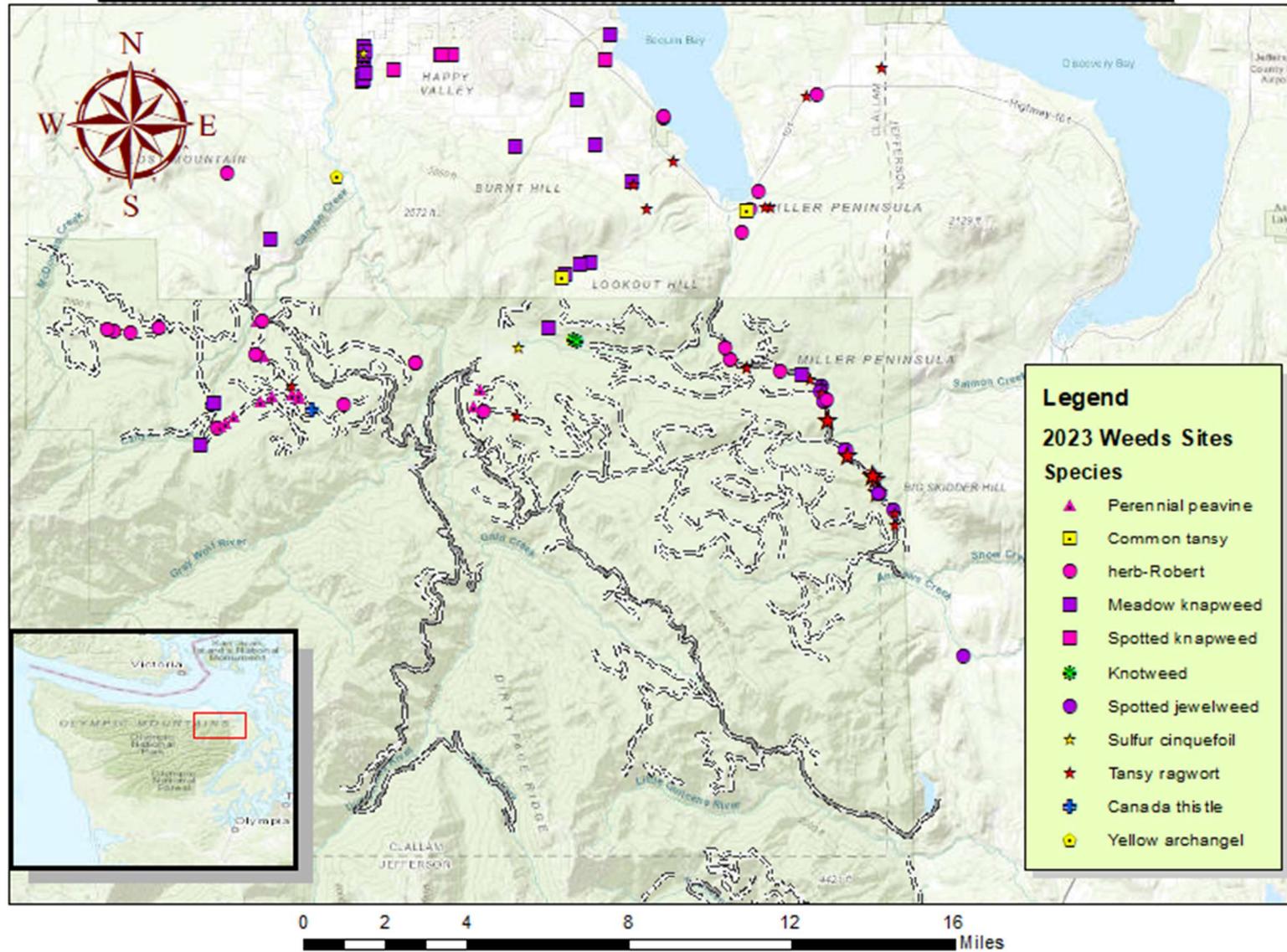
MAPS

- Five maps are shown—an original baseline *Overview of the Olympic National Forest*, two showing current weed sites in the Hood Canal District from north to south, and two showing seeding locations in Hood Canal North and Pacific West regions.
- The Overview Map shows baseline weed sites, documented from 2002- 2005.
- The 2023 activity maps show weed infestations encountered in 2023. Points displayed on the map were collected this year by the field crew, using either a Garmin 78 or a smart phone. 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.
- The seeding map for Hood Canal North shows locations along FS roads where seeds were distributed. A clear-cut adjacent to FS 2878-080 was seeded and the perimeter of that clear-cut is outlined. Technical issues prevented us from adding the seeding points along roads in the Pacific West region, but roads that we traveled and seeded along are highlighted.

Olympic National Forest Overview, with Baseline Weed Sites

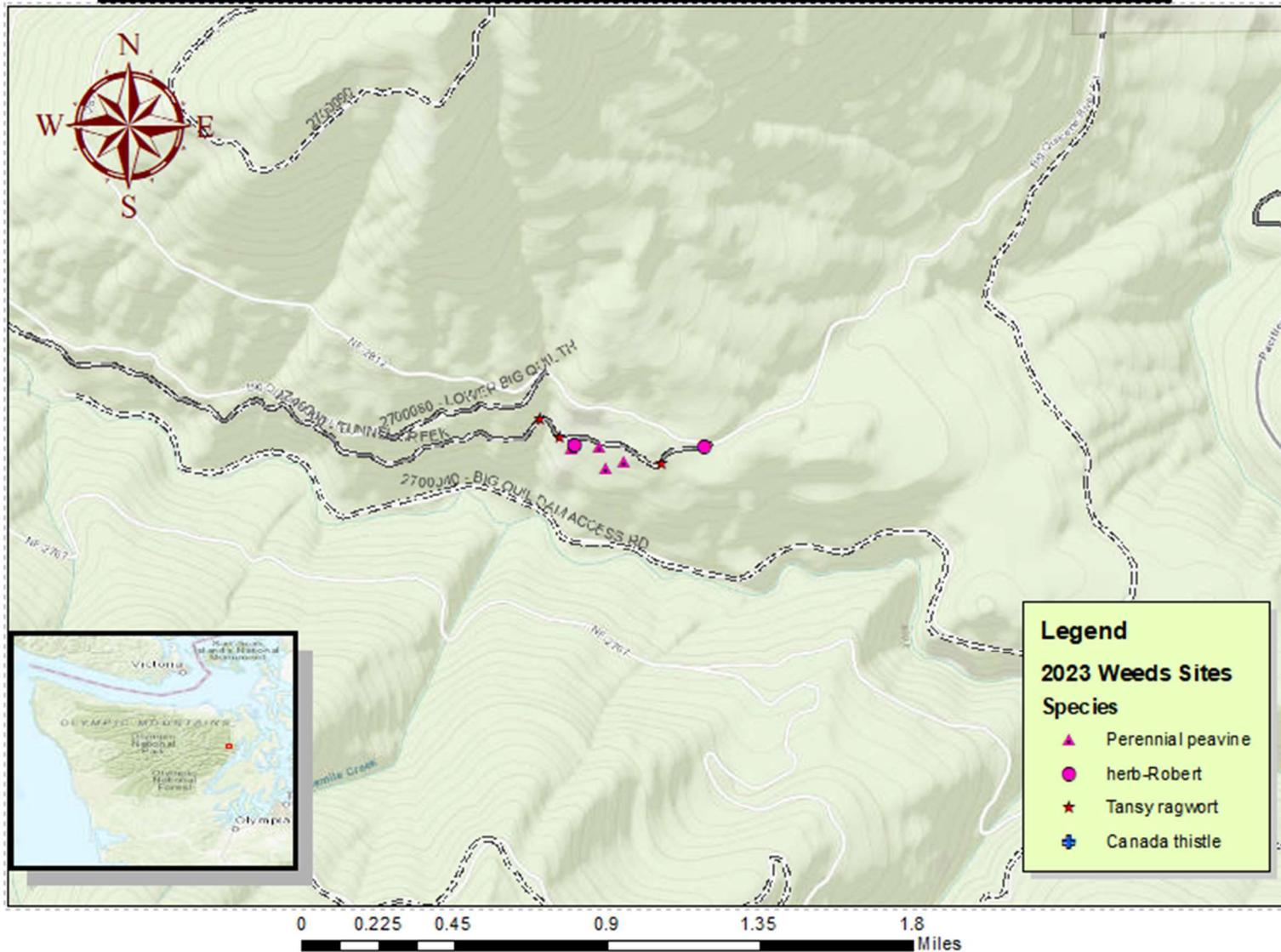


Hood Canal North 2023



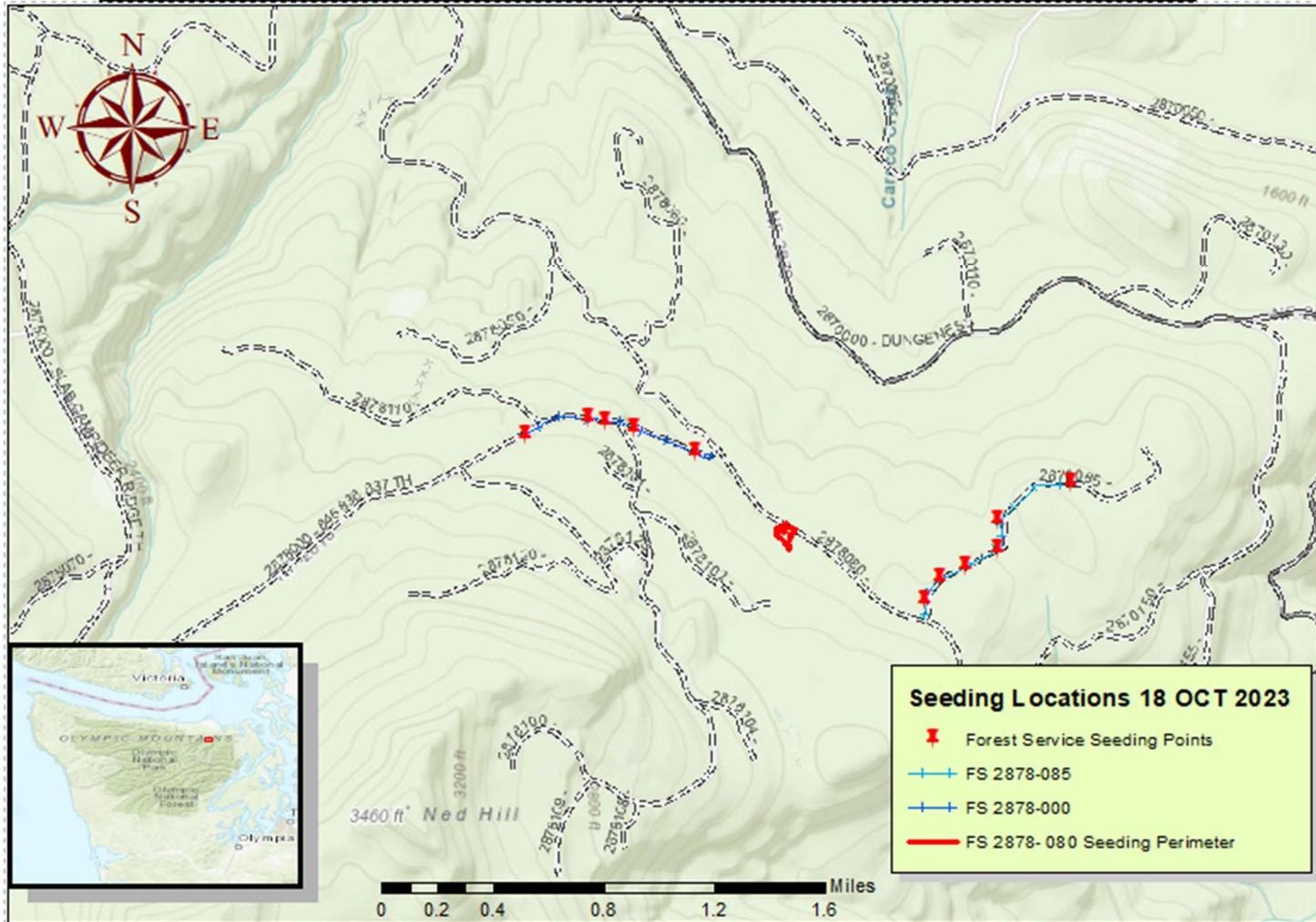
Service Layer
Credits: Sources:
Esri, HERE, Garmin.

Hood Canal South



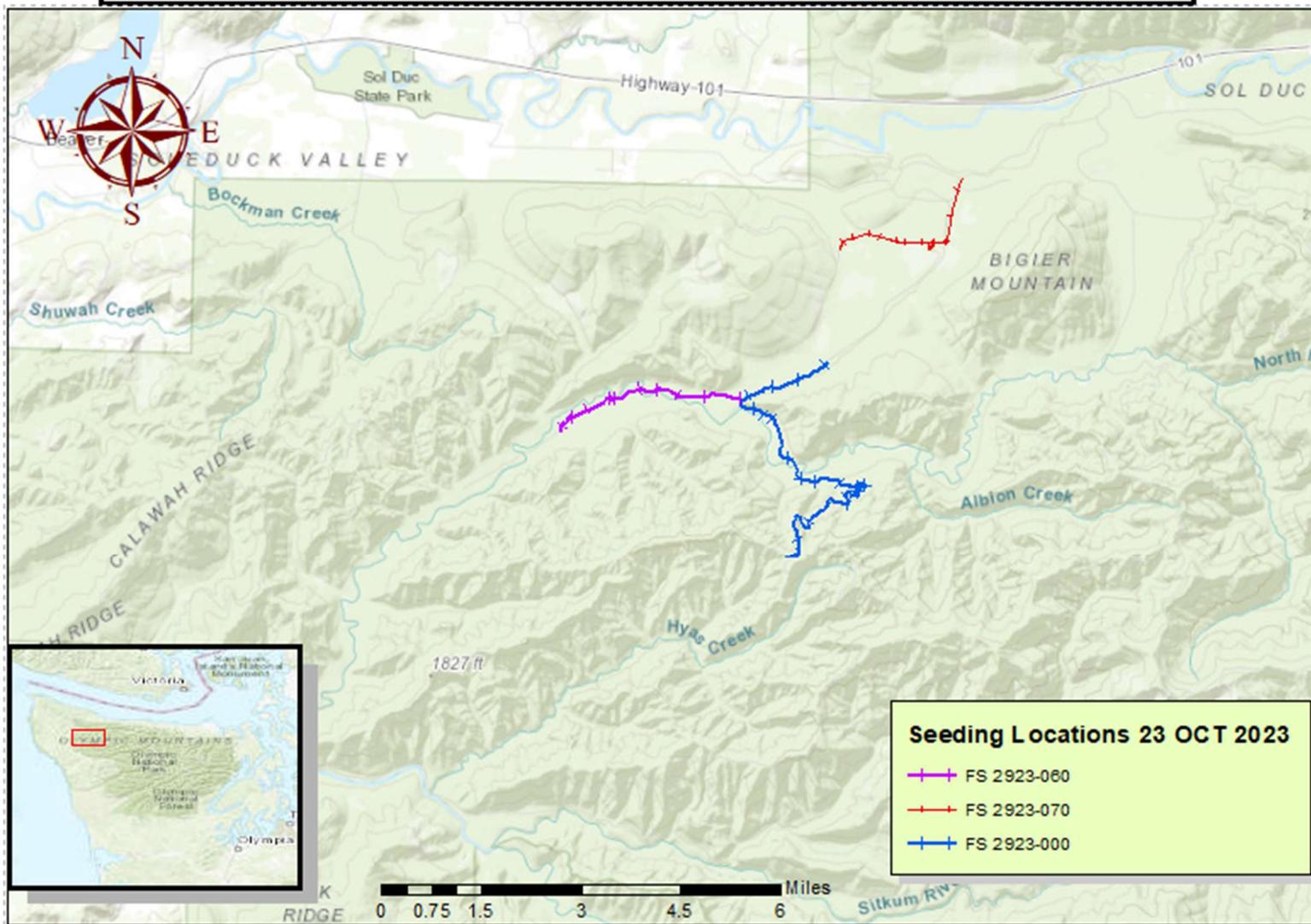
Service Layer
Credits: Sources:
Esri, HERE, Garmin,

Hood Canal North Seeding



Service Layer
Credits: Sources:
Esri, HERE, Garmin,

Pacific West Seeding



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 which identifies high priority sites based on known problems or anticipated needs. This planning includes anticipating the potential for weed invasion during road decommissioning, thinning, or other forest health and maintenance activities. This year, the NWCB crew treated 16 high priority sites, 2 additional lower priority ones, for a total of **18** projects.

We saw encouraging results from our late season wild basil savory treatments in 2022. In 2022, FS 2878-085 and FS 2878-060 were potential hot spots for wild basil savory to infest the surrounding forests and roads in the Canyon Creek/Pat's Creek watershed. They were both treated in late August 2022 with 1.5% Element 3A and 0.125% Milestone. When these sites were revisited in July and August 2023, infestations had been significantly reduced, with 78% less herbicide used on 2878-085 and 53% less herbicide used on 2878-060 in 2023 when compared to 2022. This data, in conjunction with treatments on County roads in 2023 that showed that treatments earlier in the growing season (May) resulted in some plants surviving, allows us to build a treatment protocol for this species. In the past, FS roads in east Jefferson County, where wild basil savory is common, were primarily treated in May and June, with the crew working in the Pacific West region treating herb Robert later in the season. Based on these results, we should consider flipping this timeline. It will be interesting to see how the infestations will look in 2024. It appears that wild basil savory spreads by seeds, but we don't know how long the seed bank remains viable. There is much that we still need to learn about this weed, but it is exciting that progress is being made.



FS 2878-085 on August 24, 2022. A large wild basil savory infestation can be seen in the middle of the two-track road.



FS 2878-085 on August 24, 2023. Very little wild basil savory was found and the infestation along the middle of the road was practically gone.

Herb Robert continues to be the most treated weed species on FS lands. We were able to survey and treat the FS2877 road system, which was last treated in 2021. Herb Robert had taken advantage of our absence and was able to recolonize areas treated. It is a reminder that even missing a treatment for one year can lead to a major re-infestation. Another weed we focused on in 2023 was spotted jewelweed. This is an uncommon weed for east Clallam County and we would like to prevent it from getting established in that portion of the county. There are robust populations on Jefferson County roads, such as Snow Creek Rd and Lords Lake Loop Rd, which connect to FS roads. Three populations were recorded in 2021 on the portion of FS 2850 closest to Woods Rd (reference #84), with approximately 200 plants removed. In 2022, crews surveyed the road and did not find any infestations, though that may have been the result of the crew lead not being familiar with the plant. In 2023, we found two infestations of spotted jewelweed in reference #84, but we also surveyed and treated the rest of FS 2850 (reference #501), where we found 7 more infestations of spotted jewelweed, with over 2,700 plants manually removed. FS 2850 will be a high priority for us as we try to prevent spotted jewelweed from establishing in east Clallam County.



Large spotted jewelweed infestation on FS 2850000.

We were excited to be able to assist FS crews in reseeding areas that had been treated. We hope this can continue into the future and may include a member of our crew assisting in planting efforts. We did notice that we had a difficult time finding appropriate areas to seed, especially in the Pacific West region. Many of our treatments consist of spraying herb Robert that is creeping off the road into the surrounding forest. It would be helpful if we had a seed mix for reseeding shady understory locations, though we know that the species available for seeding mixes is limited since there are a limited number native species that can be successfully grown and harvested for seed increase.

A serious problem that we dealt with in 2023 were members of the public living on FS roads, especially at the end of small spur roads. These individuals are often wary of our crew, so we did not treat those roads for safety reasons. We have implemented a new protocol for small, dead-end spur roads that we must survey the entire road to ensure that no one was living there before treatment. We also encountered large amounts of trash strewn the entire length of FS 2800-320, including biowastes such as human feces. We will not be treating that road system or any location where large amounts of trash are being dumped. We cannot know what is in that trash or if a member of the public intent on dumping will come across our crew. We know that the FS Invasive Plant Program is advocating for stronger law enforcement presence on FS lands and we hope that regional authorities will prioritize hiring LE rangers to patrol Olympic National Forest.

Invasive Weed Populations:

- We treated 12 different invasive plant species. The most commonly recorded invasive species were herb Robert (found at 9 sites), wild basil savory (8 sites), tansy ragwort (7 sites), and Canada thistle (7 sites).
- Spotted jewelweed was found on FS 2850. The infestations seem to be starting on Jefferson County roads and spreading north on FS 2850. We are trying to prevent it from getting on Woods Rd and further into Clallam County.
- No new invasive species were found in the Forest Service this year, though we did not survey many sites this year.
- Wild basil savory seems to respond well to our late season treatments of 1.5% Element 3A and 0.125% Milestone, with 0.5% surfactant (Competitor). We will continue to monitor these sites to see if there is a robust seed bank or if reinfestation occurs.
- The County Crew treated FS 2740 in September of 2023. The road edge was thick with herb Robert and wild basil savory, though most of the herb Robert was at the vegetative stage and not yet flowering. We later learned that this site had been treated late last year with a rate of Milestone at 0.25%, twice the normal rate. We were quite impressed by the results of this treatment.
- We surveyed and/or treated 11 county roads (89.0 acres and 53.5 acres, respectively) at major access routes to Forest Service lands. Wild basil savory is now found on 8 County roads, an increase from the two known infested roads in 2022. Five of the roads (Cooper Ranch Rd, Little River Rd, Olympic Hot Springs Rd, Palo Alto Rd and Woods Rd) either lead directly into Forest Service lands or into Olympic National Park lands adjacent to FS lands. Wild basil savory has also been found along Olympic Hot Springs Rd within Olympic National Park.

Survey, Treatment and Monitoring

- Difficulty hiring seasonal help, the loss of a full-time staff member and vehicle issues during the treatment season hampered our efforts to treat weeds on FS lands.
- Clallam County NWCB and Jefferson County NWCB began collaborating on treating Jefferson County roads that contain wild chervil, a weed that is rare in Clallam County and has not been found on FS land. We are excited to be working together and hope to expand this partnership in the future.
- Due to staff shortages, we were not able to coordinate our weed control efforts with the work of the 10,000 Years Institute and were only able to partner with the Forest Service crew once. We hope to be able to work more closely with our partners in the future to ensure that high priority sites are treated.

Data Collection/Mapping

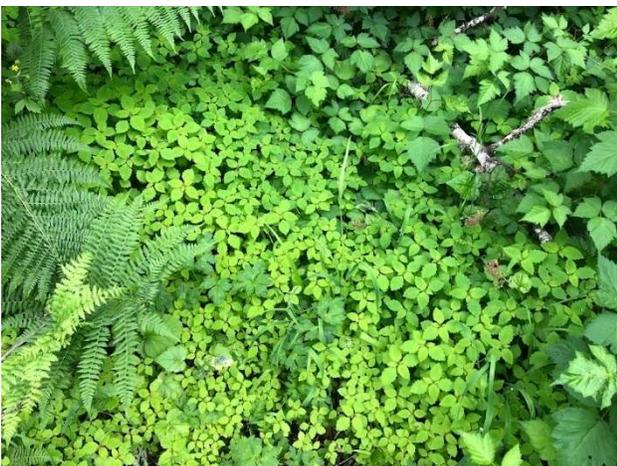
- The pre-and post-season meetings between the FS and Weed Boards continue to be essential. Thank you!
- We collected points for all regulated weeds, even if they had been found in previous years. We hope to develop a shared comprehensive digitized map that allows all weed control practitioners to see all sites to better isolate source areas and anticipate possible weed threats nearby regardless of jurisdiction.



Meghan, our seasonal technician, seeding treated areas in the Dungeness watershed.



Wild basil savory monoculture along FS 2740. The road also contained vast amounts of herb Robert and everlasting peavine.



Spotted jewelweed infestation along FS 2850, near intersection with FS2850-090.



Sundew at Cranberry Bog – a reminder of the biodiversity that we are trying to protect.

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 and the general weed control program county-wide amplifies invasive species control efforts and ensures 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.

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.



A clearcut along FS 2878-080 that was seeded with the native grass and forb mix.

Specific recommendations for next year are listed below.

Program Development

- 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.
- We appreciate the expansion of the priority categories for treatments, though instead of 1A, 1 and 2, we would recommend 1A, 2 and Z.
- Create a database available to all participants on best practices for treating different weeds. There has been staff turnover for many of the partner organizations and having a database to reference and add to will help maintain the knowledge base that has accumulated over the years.
- Create a table or database that lists the weeds that have been found on each treatment site. The table in Appendix D of this report could be used as a template. With so much staff turnover, it would be useful to have all that knowledge in one place.
- Identify projects that would benefit from volunteer participation.

Survey and Treatment

- Prioritize treatments in east Jefferson County. Many of these sites are very weedy and are conduits for weeds to get into the backcountry or spread onto the Clallam County road system.
- Continue to focus on infrequent, high priority species.
- Prioritize more surveys in the vicinity of known wild basil savory sites, particularly in the Rocky Brook and Canyon Creek/Pats Creek areas.
- Prioritize roads in east Jefferson County that contain spotted jewelweed.

Documentation

- Review how to fill out FACTS sheets during the pre-season meeting.
- Work toward a shared infestation map and point collection protocol.
- Work toward sharing treatment efficacy between partner organizations.



Spotted jewelweed on FS 2850-000, just north of the intersection with FS 2850-090, on June 14, 2024.



The same infestation on July 6, 2024. The jewelweed was treated with a mix of 1.5% Vastlan and 0.125% Milestone, with 1% surfactant. There were still small jewelweed hidden amongst the ferns and other vegetation that had to be manually removed.

2023 PROTOCOLS

1. Team and Project Dates

This year's treatments were focused on areas that were going to experience selective thinning within 1 to 5 years. This allowed us to focus our limited staff on the highest priority areas. Treatments were performed by Clallam County Noxious Weed Control Board staff consisting in various combinations of Christina St John (coordinator), Allison Frick (lead inspector), Meghan Fallon (seasonal field technicians) and Joe Oakes (weed specialist). Fieldwork began in mid-June and continued through the end of September. Seeding occurred in mid-October.

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 2023. 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, or as part of a systematic effort to monitor all Forest Service land through surveys.

- 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. The road width was included in the calculation only when weed growth in the road itself (as opposed to shoulder) required treatment.

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

- b. Trailheads, campground parking areas, and rock sources 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 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, (or treated on-site), when encountered.
- e. Herbicide treatments were applied based on guidelines established in the 2008 EIS which allow the use of 10 different herbicides.
- f. A legal notice listing all sites under consideration for herbicide treatment (see Appendix I) was published on the Olympic National Forest website (<https://www.fs.usda.gov/alerts/olympic/alerts-notices/?aid=72453>). Herbicide applications by Clallam County NWCB were carried out between June 13th and August 30th.
- g. 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.



Meghan manually removing a huge flowering tansy ragwort plant on FS 2800-320.

- h. Foliar herbicide applications were made using 0.125% Milestone (aminopyralid), 1.5% Element 3A, Garlon 3A or 1.5% Vastlan (all triclopyr), 0.5% Transline (clopyralid), or 1.0% Polaris (imazapyr) and 0.5-1% Competitor (surfactant) and 0.25% Blazon (marker dye).
- i. On-site notices 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.

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 rock sources 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. A current sample of this 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”. A sample form is included in Appendix J. In 2023, the County’s rock survey form was utilized.

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.

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.
- 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 UTM, statute feet.
- c. Crew is directed to take waypoints on GPS units for significant events or sites, new weed locations, or to document named locations such as quarries.
- d. 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 a state-issued phone in the iForm WSDA database app. Beginning in 2018 sites containing weed species that were regulated in Clallam or Jefferson under Washington State weed law, were documented in iForm every year instead of just the first time the infestation was found.
- e. New layers are produced post-season showing where treatment occurred. Waypoints were downloaded in the office and converted into shape files through the Minnesota DNR public domain software DNRGarmin version 6.1.0.6 or by using ArcGISOnline.

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 2022 treatments by acreage, date and species. It is a comprehensive account of work accomplished by Clallam Noxious Weed Control Board in 2023.
- b. **Appendix B** is summary of current rock source inspections, treatments and readiness.
- 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 State Rural School Act, Title II funded 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 2023, and weed species treated. The master list is followed by a table summarizing yearly accomplishments by crew since 2002. These summary tables have been revised in 2023 as described in the narrative. 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 (Common Names, Botanical Names, and associated Plant Codes) reported and subsequently entered into the NRIS Terra database over the lifetime of this project.
- g. **Appendix G** gives control recommendations for each invasive species that has been identified during the course of this project.
- h. **Appendix H** shows the 2023 Washington State Noxious Weed List, which is updated annually according to WAC Chapter 16-750. Under RCW Chapter 17.10 all non-federal landowners (and excluding tribes) 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 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.



Unnamed gravel pit off FS 2870-000 (Reference #32).

APPENDIX A: 2023 PROJECT LIST ACTIONS

The following 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). The list had three categories, Priority 1A, 1, 2, or no priority – some sites suitable for survey were identified, but not prioritized. This table only shows sites that were 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 and have been added. Clallam County roads that directly lead to Forest Service land are highly ranked and treated for regulated or high priority weeds under our roadside Integrated Weed Management Plan. County roads adjacent to or directly leading to FS lands and associated weed treatment details have been included at the beginning of the table to show the extent of our coordinated effort. We show a FS priority (1A or 2) for a county road when it was so designated in the FS annual work plan in our area.

The table is sorted by FS road number; smallest to largest. It shows the acreage treated, each date the Clallam County 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. In total, the Clallam County Noxious Weed Control Board surveyed **94.2** and treated **78.6 acres**, manually or chemically.

County road treatments that complement weed control efforts on Forest Service lands but were conducted through separate funding provided by Clallam’s Road Department are listed using the FS four-digit road number (when known). Listed below are County-owned roads that intersect with FS roads or provide entry into Olympic National Forest. In 2023, we surveyed **89 acres** over **11 county roads** and treated **13 species** over **53.5 acres** on **8 county roads**. An additional **115 acres** within **18 county pits** were also treated (additional details are provided in Appendix B). Weed treatments on County-owned roads underscore our cooperative efforts with ONF staff to protect Forest Service lands from noxious weed invasion.

In the table below, cells in the project’s priority (set by FS) are color coded. Priority 1A sites for CNWCB are **dark yellow**, Priority 2 sites are **light yellow**, non-prioritized or survey are **green**. Sites assigned to FS but worked on by CCNWCB staff are shaded in **blue**. The CNWCB treated a total of **18** projects. We treated **16 Priority 1A** projects. We treated an additional **2 Priority 2** projects. CCNWCB partnered with the FS crew to treat 1 Priority 1A site (Cranberry Bog). The FS crew completed the treatment form for that project. The table summarizes each visit to a specific project this year. In cases where projects required more than one trip to complete, the work has been summarized.

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 Weed Board crew or FS in prior years. Our *Comments* column notes high priority species not previously mentioned or not found this year, as well as general weed comments, treatment locations and priority suggestions.

We continue to focus on sites with infrequent, high priority weeds in addition to sites that may be soon decommissioned or are in the planning stages for forestry maintenance or habitat restoration activities. The *2024 Priority* column reflects crew suggestions based on field observations and should be considered in preparing next year’s project list.

2023 Project Activity Summary

Ref #	Crew	2023 Priority	6th Field Watershed Name	FS Road #	Site Name	2024 Priority	Date Treated	Acres Examined	Acres Treated	Method	Manual	Total (oz)	Species	Comments
660 661	NWCB	1A	North Fork Calawah River	2036	Mary Clark Road (county)		8/29/2023	11.9	11.9	M	11.9		JAVU	Fewer plants than last year
120 135 169	NWCB	1A	Middle Sol Duc River North Fork Calawah River Upper Sol Duc River	2065	Cooper Ranch Road (county)		6/13/2023 8/29/2023	1.5	1.5	H		2.62	CLVU CYSC DIPU JAVU	Only known site for wild basil savory on west side of Clallam County. August was retreatment of CLVU.
	NWCB			2021	Bear Creek Rd (county)		9/6/2023	5.1	0					Survey – no priority weeds found
	NWCB			4177	Blue Mountain Rd (county)		5/30/2023	12.7	0					Survey – no priority weeds found
	NWCB			3050	Little River Rd (county)		8/14/2023 8/22/2023 8/28/2023 9/11/2023	11.1	11.1	M/ H	0.01	16.64	CEMO, CLVU, CYSC, HYPE, JAVU, LALA, RUAR	Found multiple new infestations of wild basil savory
	NWCB			3038	Olympic Hot Springs Rd (county)		6/12/2023	5.0	5.0	H		7.28	CEMO, CLVU, CYSC	First year finding wild basil savory on road; multiple populations

Ref #	Crew	2023 Priority	6th Field Watershed Name	FS Road #	Site Name	2024 Priority	Date Treated	Acres Examined	Acres Treated	Method	Manual	Total (oz)	Species	Comments
	NWCB			9221	Joyce Piedmont Rd/East Beach (county)		10/17/2023	1.8	0					Survey – no priority weeds found
	NWCB			4360	Lost Mountain Rd (county)		7/5/2023	12.6	1.7	H		2.08	CEMO, CYSC, JAVU	
	NWCB			5006	Jimmy-Come-Lately Rd (county)		8/21/2023 9/5/2023	5.1	2.5	H		0.66	CEMO, POBO	
	NWCB			5331	Palo Alto Rd (county)		8/16/2023 8/21/2023	18.3	15.9	M/ H	6.3	13.0	CEMO, CLVU, GERO, JAVU, LALA, TAVU	First year finding wild basil savory infestations on road; found near DNR and FS roads
	NWCB			5695	Woods Rd (county)		8/8/2023	3.9	3.9	H		82.16	GERO, CLVU, JAVU, RUAR, COAR, DIPU	Heavy infestations of herb Robert; wild basil savory infestations are expanding
	NWCB			5714	Chicken Coop Rd (county)									
	NWCB			DNR # PA-2000 and spurs	Burnt Hill (DNR)									
				Total Clallam County Rd adj to FS				89.0	53.5		18.2	124.5		

Ref #	Crew	2023 Priority	6th Field Watershed Name	FS Road #	Site Name	2024 Priority	Date Treated	Acres Examined	Acres Treated	Method	Manual	Total (oz)	Species	Comments
			FS Projects											
291	NWCB	1A	Lower Big Quilcene River	2740000		Y	8/23/2023 ¹ 8/24/2023 ²	12.1	12.1	H/ M	0.1	39.5	CIAR, CLVU , CYSC, DIPU, GERO , HYPE, JAVU , LALA	¹ MP:0.0-0.3, Very dense infestation of GERO and CLVU in the first 0.1 mi of road; ² MP:0.3-0.4, Decommissioned road at MP 0.3 has heavy GERO and LALA infestation
669	NWCB	1A	Canyon Creek /Pats Creek	2800320			8/30/2023	6.2	6.2	H/ M	5.5	11.9	CIVU, CLVU , GERO , HYPE LALA, LEVU, JAVU	Trash strewn across the entire length of road
501	NWCB	2	Snow Creek/ Salmon River	2850000		Y	9/21/2023 ¹ 9/25/2023 ² 9/28/2023 ³	17.1	17.1	M	17.1		IMCA , JAVU	¹ MP 4.5 – 4.6, two large patches of IMCA ² MP 2.4 – 4.6, a couple of large IMCA patches ³ MP 0 – 2.4, -020 spur has CLVU
84	NWCB	1A	Jimmy-come-lately Creek	2850000		Y	6/14/2023 ¹ 6/15/2023 ² 7/06/2023 ³ 9/21/2023 ⁴	14.1	10.2	H/ M	1.5	22.3	CEMO , CIAR, CIVU, CLVU , DIPU, GERO , IMCA , JAVU	¹ Milepost 4.6-4.8 ² Milepost 4.8-5.3 ³ Milepost 4.6-7.4 ⁴ Retreatment
32	NWCB	1A	Canyon Creek /Pats Creek	2870000	unnamed gravel pit	Y	8/2/2023	2.4	2.4	H		6.72	CIAR, GERO , LALA	
17	NWCB	1A	Canyon Creek /Pats Creek	2870058		Y	8/16/2023	1.2	0.7	H		5.2	CLVU , GERO , HYPE	Past intersection with 059 spur, large GERO infestation creeping into forest.

Ref #	Crew	2023 Priority	6th Field Watershed Name	FS Road #	Site Name	2024 Priority	Date Treated	Acres Examined	Acres Treated	Method	Manual	Total (oz)	Species	Comments
18	NWCB	2	Canyon Creek/Pats Creek	2870059			8/16/2023	1	0.6	H		2.38	HYPE, GERO	
10	NWCB and FS crew	1A	Canyon Creek/Pats Creek	2870059	Cranberry Bog	Y	8/16/2023							FS crew completed treatment sheet for this project.
5	NWCB	1A	Canyon Creek /Pats Creek	2875000	Canyon Pit	Y	7/11/2023	2.5	2.5	H		23.4	CEMO, CIAR, HYPE	
98	NWCB	1A	McDonald Creek/Siebert Creek	2877000			7/18/2023 ¹ 7/27/2023 ²	17	8	H		24.42	GERO, HYPE, LALA	¹ MP 0.0-4.6 ² MP 0.0-2.5 retreatment
100	NWCB	1A	McDonald Creek/Siebert Creek	2877100			7/27/2023	0.4	0.4	H/M	0.01	0.54	CIVU, DIPU, LEVU	
26	NWCB	1A	Canyon Creek /Pats Creek	2878000		Y	7/11/2023 ¹ 7/17/2023 ²	9.7	9.7	H		15.54	CEMO, CIAR, CIVU, CYSC, GERO, JAVU, LALA	¹ MP 0.8 – 4.0 ² MP 0.0 – 0.8
38	NWCB	1A	Canyon Creek /Pats Creek	2878060		Y	7/17/2023	1.8	1.8	H		15.6	CLVU	Very dense, esp. in middle of road and left side
39	NWCB	1A	Canyon Creek /Pats Creek	2878080		Y	8/2/2023	3.0	3.0	H/M	3	3.12	CIAR, CIVU, CLVU, LEVU	Clearings have lots of CIAR/CIVU. Would be a good place to put native thistles. * ¹ ST year CLVU found on road*
40	NWCB	1A	Canyon Creek /Pats Creek	2878085		Y	8/2/2023 ¹ 8/22/2023 ²	3.4	3.4	H		6.24	CIAR, CIVU, CLVU, GERO, LEVU	¹ MP 0.0-0.2; CLVU so much better than last year! ² MP 0.3-0.7

Ref #	Crew	2023 Priority	6th Field Watershed Name	FS Road #	Site Name	2024 Priority	Date Treated	Acres Examined	Acres Treated	Method	Manual	Total (oz)	Species	Comments
604	NWCB	1A	Canyon Creek /Pats Creek	2878108		N	8/22/2023	0.5	0.5	H		0.22	LALA, LEVU	Looks pretty good!
			Total for FS projects					92.4	78.6			177.08		

(= 1.38 gallons)

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 **90** rock sources or storage locations across Clallam and Jefferson Counties.

In 2023, 3 high priority FS rock sources were inspected and 2 were treated by CCNWCB. Staffing shortages prevented us from completing inspections and treatments of most pits assigned to us. 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.

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 results 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. In the private sector, we inspected and certified **13 private rock sources**; several pits have mitigation precautions in place. We surveyed **21** and treated **18 county managed rock sources** and storage areas totaling **115 acres**. Some county sources would still need to be used with caution. DNR has begun the long process of bringing their rock sources up to speed in advance of forestry projects – **3 DNR-held pits** were inspected and certified this year. DNR’s Tavern Loop pit was not certified weed-free 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 the 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 the weed-free certification rating is unknown to us. **Orange** indicates the pit 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.** Two quarries with **red font** have not been located in a number of years.

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Forest Service Quarries									
Armpit Quarry	0.6	28701500	2870-150	586	1A	CIVU, LALA	Treated in 2018	CCNWCB unable to survey and treat this year	
Bockman Pit	2	29020009	2902-000	588	1A	CIVU, CYSC, DIPU, GERO , LEVU, COAR, JAVU		Assigned to Forest Service crew; 2023 Status Unknown	
Bonidu Pit	6.3	290000037	2900-000	165	1A	CIVU, CYSC, DIPU, GERO , HYPE, JAVU, RUAR	Treated in 2022	CCNWCB unable to survey and treat this year	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Bon Jon Quarry	1.2	260000004	2600-000	194	2	CIVU, LALA, JAVU	Treated in 2016	Assigned to Forest Service crew; 2023 Status Unknown	
Calawah Pit	8.0	290001500	2900-000	152	1A	CYSC, GERO, RULA	Treated in 2020	CCNWCB unable to survey and treat this year	
Canyon Pit	3.8	287500001.4	2875-000	5	1A	CEMO, CIAR	7/11/2023	Chemical treatment for CEMO, CIAR and HYPE. Large amounts of CEMO flowering.	2.5
Coho Pit	1.0		2840-080	57	1A	CIAR, HYPE, LALA, JAVU	Treated in 2019	Assigned to Forest Service crew; 2023 Status Unknown	
Grindstone Pit	7	292307000.1	2923-070	133	1A	CIVU, DIPU, CYSC	5/17/2023	Inspected and meets weed-free standard B. DNR installed gate at top and bottom of pit. No treatment was necessary.	
Empire Quarry	0.5	21600005.6	2160000	826	1	CYSC, RULA	Treated in 2019	Assigned to Forest Service crew; 2023 Status Unknown	
Littleton Horsecamp stockpile	0.8	307100000.0	3017-000.3	173		CYSC, HYPE, LALA	Treated in 2016	Unknown for 2023; project not assigned for work	
Loop Quarry aka-spur (unnamed) Pit	1.0	284507300.9	2845-073	61	1	DIPU, CIAR, CYSC, JAVU		CCNWCB unable to survey and treat this year	
Louella Rock Pit	1.0	280036000.4	2800-351	58	2	CEMO, CIAR, CYSC	Treated in 2021	CCNWCB unable to survey and treat this year	
Luella LuLu	0.6	290000360.9	2900-360		2	No weeds found	Inspected 2020	CCNWCB unable to survey and treat this year	
Lost Pit (aka Canine Pit)	4.5	280013000.3	2800-130	101	1A	CIAR, CIVU, CYSC, GERO, LALA, JAVU	Treated 2020	Assigned to Forest Service crew; 2023 Status Unknown	
Lower Caraco Quarry	0.3	287000001.0	2870-000	19	1A	CEMO, CIAR, CIVU, GERO, JAVU	Treated in 2022	CCNWCB unable to survey and treat this year; had large infestation of GERO in 2022	
Mt Muller TH Gravel Pile	0.8	307100000.3	3071-000	612		CIVU, HYPE, LALA, RUAR,	Treated 2016	Unknown for 2023; project not assigned for work	
Mystery Pit	N/A	2900200.?			2	POBO	Treated in 2014	Unknown for 2023; project not assigned for work	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Ned Hill Quarry (aka Sandstone Quarry)	1.0	287812500.5	2878-125	20	1A	CIAR, CIVU, CYSC, LALA,	Treated in 2022	CCNWCB unable to survey and treat this year	
Neptune Quarry	N/A	21900007.7?	2190000	832	1A	RULA, RUAR9, CIVU, LEVU.	Treated in 2015	Assigned to Forest Service crew; 2023 Status Unknown	
Park Pit	3.0	21800110.3	2180-011	611	1A	CYSC, RULA, JAVU	Treated in 2020	Assigned to Forest Service crew; 2023 Status Unknown	
Raccoon Pit	1.5	285507001.3	2855-070	60	1	CIVU, GERO (see note), LALA, JAVU	Treated in 2022	CCNWCB unable to survey and treat this year	
Tom Creek Pit	11.0	293100000.2	2931-000	168		CYSC, DIPU, PHAR	Treated in 2020	Unknown for 2023; project not assigned for work	
Unmarked Pit N/A	1	280012001.3	2800-120/ 2800-210			LALA	Treated in 2017	Unknown for 2023; project not assigned for work	
Unnamed Gravel Pit	2		Junction 2878 X 2870	32	1A	CIAR, CYSC, HYPE, LALA	08/2/2023	Chemical Treatment. Treated LALA, CIAR and GERO	2.4
Upper Caraco Pit	1.5		2870-000	21	1A	GERO, LEVU	Treated in 2021	CCNWCB unable to survey and treat this year	
Wolf Quarry 2	0.6	28401200.3	2840-120	62	1A	GERO	Treated in 2022	CCNWCB unable to survey and treat this year	
Private Quarries									
A & A Rock	44.14	Private	Hwy 101 W			CEMO, CIAR, CYSC, GERO, LALA	5/16/2023	Meets Standard B CERTIFICATION CURRENT	
Beaver Falls	approx. 20	Private	Hwy 113 near Beaver Lake			HYPE, JAVU, PHAR, RUAR	6/7/2023	Meets Standard B CERTIFICATION CURRENT	
Black Diamond Quarry (formerly called Holcomb)	19	Private	Black Diamond Rd.			CIVU, CYSC, LEVU	6/7/2023	Meets Standard B CERTIFICATION CURRENT	
Blake Sand and Gravel	63	Private	Cays Rd			CIAR, CIVU, TAVU, RUAR	Inspected in 2021	NO CERTIFICATION in 2023	
Discovery Bay (Scarsella)	41.46	Private	Hwy 101 E, north side			CYSC, GERO	Inspected in 2022	NO CERTIFICATION in 2023	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Davis Sand and Gravel	47.7	Private	Evans Rd.			CIAR, CIVU, DIFU, RUAR	Inspected in 2021	NO CERTIFICATION in 2023	
Elwha Rock Products		Private	Place Rd.			CYSC, JAVU POBO	Inspected in 2017	NO CERTIFICATION in 2023	
Floe Pit	50.2	Private	Hwy 101, MP 210.5			CYSC, GERO	Inspected in 2022	In 2022, GERO along access road and CYSC above old quarry. NO CERTIFICATION in 2023	
Glacier Pit (Also called Herrick Rd pit)	5.1	Private	Glacier Rd.			CYSC, GERO	6/7/2023	Storage, Extraction. Meets Standard B CERTIFICATION CURRENT	
Elwha Gravel Pit	22.5	Private	Lower Elwha River Rd.			CIVU, CYSC, DIPU, LEVU	6/27/2023	Storage, Extraction. Very Clean! Meets Standard B CERTIFICATION CURRENT	
Haller Quarry	94	Private	2 m south on River Rd. gate on left			BUDA, CIAR, DIFU	6/28/2023	Access road from River Rd to pit. Meets Standard B CERTIFICATION CURRENT	
Hanson Pit	29.9	Private	Hwy 101, west of Indian Creek crossing			CIAR, DIPU, LEVU	6/28/2023	CERTIFICATION CURRENT	
Hecklesville Quarry	5	Private	44 Heckle Rd.			CASE, CIVU, CYSC, DIPU, LALA	Inspected in 2018	NO CERTIFICATION in 2023	
Hillcar-Fletcher Quarry	105	Private	Hwy 110			CIVU, CYSC, GERO, LAGA, RUAR, JAVU	6/13/2023	Meets Standard B CERTIFICATION CURRENT	
Hoh Pit-Seton	81	Private No commercial rock avail.	Hoh Rd.			CYSC, LALA, RUAR	Inspected in 2021	NO CERTIFICATION in 2023	
Lakeside Place Rd Quarry		Private	Place Rd. on right			CIVU, CYSC, DIPU, HYPE, LALA, JAVU	Inspected in 2016	NO CERTIFICATION in 2023	
Mystery Quillayute Pit		Private, possibly WSDOT	Quillayute Rd.			CYSC, PHAR, JAVU	Inspected in 2016	NO CERTIFICATION in 2023	
Moriarity Rd Pit		Private; unknown	Moriarity Rd.			CYSC, HYPE, PHAR, RUAR, RULA	Inspected in 2016	NO CERTIFICATION in 2023	
Penny Creek Pit	approx. 30	Private	Penny Creek			CYSC, GERO, IRPS, LALA, LEDR, POBO, RUAR, PHAR, JAVU, TAVU	Inspected in 2018	NO CERTIFICATION in 2023	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Port Orchard Sand and Gravel (aka Shine Pit)	104	Private	Wahl Lake Rd			BUDA, CYSC, JAVU, LUAR, TUFA	Inspected in 2022	Extraction European Coltsfoot (<i>Tussilago farfara</i>) found near one rock pile. NO CERTIFICATION in 2023	
Princess Pit	59.9	Private	Princess Ln off Place Rd.			CIAR, CYSC, DIPU	6/28/2023	Storage, Extraction. This is a busy pit with a constant turnover of material Meets Standard B CERTIFICATION CURRENT	
Rayonier Pit		Private	Bogachiel Way			CYSC, RUAR, RULA	Inspected in 2016	NO CERTIFICATION in 2023	
Schneider Pit	8	Private	1653 Towne Rd			CEMO, COMA, DIFU, RUAR	6/30/22	Storage, waste material. This pit is primarily accepting used material to fill in pit. COMA and CEMO scattered across pit, some progress made in treatment. Meet Standard C only for storing and accepting spoils CERTIFICATION CURRENT	
E Snider Quarry	23.5	Private	252 E Snider Rd.			CIVU, DIPU, GERO, ILAQ, LEVU	6/7/2023	Storage, Extraction. Pit looks clean! Meets Standard B CERTIFICATION CURRENT	
Thorndyke Pit	Approx 40	Private	Hwy 104, Wahl Rd.			COMA, CYSC, FABO, JAVU	10/9/2023	Spoils, Storage, Extraction. Meets Standard C (6 month) through May 2024 CERTIFICATION CURRENT	
West Twin-La Farge	N/A	Private	Hwy 112 approx MP 39			CIVU, sundry weeds	Inspected in 2018	NO CERTIFICATION in 2023	
Clallam County Quarries									
Blue Mountain Transfer Station	2.7	Clallam County	Blue Mountain Rd.			CEMO, CIAR, CIVU, CYSC, PHAR	Treated in 2022	Spoils (landfill transfer site); CCNWCB did not treat this year	
Blyn Pit	18.6	Clallam County	Woods Rd.			BUDA, CEMO, COAR, COMA, CYSC, DIFU, DIPU, GERO, JAVU, LALA, LUAR, RUAR, VETH	2/2/2023 3/22/2023 4/14/2023 4/24/2023 5/24/2023 10/4/2023	Partially dormant, Spoils, Storage, some possible extraction. Clean areas for material storage. Manual and chemical treatments	18

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Clallam Bay Storage	3.0	Clallam County	Frontier St.			CIVU, DIPU, RUAR	10/5/2023	Surveyed, no target species found	
District 1	3.7	Clallam County	Washington St.			CEST, CIVU, RUAR, CIAR, HYPE,	3/03/22 6/01/22	CCNWCB did not survey or treat this year	
District 2	4.7	Clallam County	Lauridson Blvd.			CIAR, CIVU, CYSC, GERO, RUAR	5/1/2023	Storage, Manual and Chemical treatments for general weed control	2
Forks Pit	10.0	Clallam County	Pit Ln.			CYSC, JAVU, POBO	7/30/2023 10/5/2023	Large infestation of JAVU removed; need to continue to remove CYSC	8
Herrick Gravel	11.8	Clallam County	Herrick Rd.			CEMO, CIAR, CIVU, CYSC, DIPU, GERO, HYPE, LALA, RUAR	7/7/2023 8/17/2023 8/22/2023	Extraction, Spoils, Storage. Chemical treatments. CEMO populations reduced but still present.	6
Hogback Pit	1.7	Clallam County	Off Cays Rd. on Hogback Rd.			TAVU	10/12/2023	Dormant. WARNING – ADJACENT TO INFESTATIONS OF ITALIAN THISTLE (CAPY)	0.1
Hoko-Ozette Rd MP 4.5	1.4	Clallam County	Hoko-Ozette Rd. MP 4.5			GERO, CYSC, JAVU	6/27/2023	Storage Manual and chemical treatments; Looks much better than previous year	1.4
Hoko-Ozette Rd MP 10	2.9	Clallam County	Hoko Ozette Rd MP 10			GERO, JAVU	Treated in 2022	CCNWCB did not survey or treat this year	
Hoko-Ozette Rd MP 13	1.5	Clallam County	Hoko-Ozette Rd. MP 13			GERO, JAVU	9/13/2023	Surveyed, no target species found	
Hwy 101 Storage Yard	1.2	Clallam County	Intersection Old Olympic Hwy Hwy 101			CEMO, CIVU, COMA, CYSC, RUAR	2/9/2023 10/3/2023	Storage; Manual and chemical treatments; Clean areas for material storage	4
Joyce/ Piedmont Pit	5.5	Clallam County	Joyce/Piedmont Rd			CEMO, CIAR, CIVU, CYSC, DIPU, GERO, RUAR, JAVU	8/28/2023	Storage; Manual treatment this year; Clean areas for material storage	2
Kirner Pit	39.24	Clallam County	Kirner Rd.			ARMI, CEMO, CEST, CIIN, CIVU, COMA, CYSC, EULA, LUAR, RUAR, VIMI	1/25/2023 3/6/2023 3/30/2023 4/13/2023 7/24/2023 10/18/2023	Spoils, Storage, Extraction Manual and chemical treatments. Piles have been kept clean in advance of use. Most weeds along perimeter. Chemical and manual treatments,	37
La Push Ballard Pit	3.0	Clallam County	Ballard Rd.			CIAR, CYSC, JAVU, LALA, RUAR, RULA	10/2/2023	Spoils, Storage Survey only this year – had been recently mowed during visit and unable to treat.	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Lake Creek Pit (Bedrock Pit)	15.1	Clallam County	Hwy 101 (Co. Forks Shop)			CIAR, CIVU CYSC, JAVU RUAR, RULA	4/25/2023 7/30/2023 10/13/2023	Spoils, Storage. Manual and Chemical Treatments. Piles have been cleaned. Clean areas for material storage. JAVU along southern perimeter much improved.	15.1
Little River Pit	1.0	Clallam County	Little River Rd.			CEMO , CIAR	8/14/2023	Spoils Survey only this year. Gated.	
Lower Elwha-Elwha Pit	1.0	Clallam County	Lower Elwha Rd.			ARMI, CIVU, CYSC, RUAR	6/21/2023	Chemical treatments for blackberry and Scotch broom	2.35
McInnes Pit	5.5	Clallam County	Vistas Dr.			ANCA, BRRA, CAPY, CEMO , CIAR, CIIN, CIVU, COMA, CYSC , DIFU, GERO , FOVU, RUAR	1/27/2023 3/7/2023 3/29/2023 5/30/2023 8/16/2023	Spoils Chemical and Manual Treatments. Persistent COMA issues; No CAPY found this year. NEEDS MORE WORK	5.5
Morse Creek Pit	33.4	Clallam County	Mt Pleasant Rd.			CEST , CIAR, CIIN, CIVU, COMA CYSC , DIPU, GERO , RUAR	3/22/2023 4/14/2023 5/15/2023 5/24/2023 9/18/2023	Spoils, storage, limited extraction Manual and chemical treatments Piles clean	33
Place Pit	4.9	Clallam County	Place Rd.			CIAR, CIVU, CYSC, DIFU , DIPU, GERO , PHAR, RUAR	2/10/22 9/19/22	CCNWCB did not survey or treat this year	
Quillayute Pit	13.5	Clallam County	Quillayute Rd.			CYSC , DIPU, HYPE, JAVU, RUAR	7/26/2023 10/23/2023	Spoils, Storage, Extraction. Manual and chemical treatments. Treatments have been successful and much cleaner than previous years	20.75
Ranger Pit	48.6	Clallam County	Place Rd.			BUDA, CEMO , CIAR CIVU , COAR, CYSC DIFU, GERO , JAVU, LALA, LUAR, PHAR RUAR, RULA, VIMA	3/20/2023	Spoils, Storage, Extraction Manual and chemical treatments. Piles have been cleaned and there is area for clean storage and clean access	0.75
Sequim Storage Yard	2.1	Clallam County	Washington St.			BRRA, CEMO , CEST , CIAR, CIIN, CIVU, CYSC, DALA, DIFU , PHAR, RUAR	3/22/2023	Spoils, Storage. Manual and chemical treatments. Piles not clean enough for safe storage	0.01
Umbrella Creek Pit	5.5	Clallam County	Hoko-Ozette Rd.			GERO, JAVU , RUAR, RULA	8/02/22	CCNWCB did not survey or treat this year	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Whitcomb-Diimmel Pit	10.8	Clallam County	Whitcomb-Dimmel Rd			CIVU, CYSC , DIPU, JAVU, HYPE, POBO , RUAR	4/19/2023 4/25/2023 7/26/2023 9/6/2023	Spoils, Storage. Manuel and chemical treatments. Piles have been cleaned, there is area for clean storage and clean access. JAVU infestations along roadside perimeter	9
State (DNR) Quarries									
Alpaca Quarry	5	DNR	Follow FS Rd 2850, at fork, take left instead of following to FS 2855			BUDA , CIAR, CYSC, GERO , RUAR	Inspected in 2021	Previously met standard A NO CERTIFICATION in 2023	
Baby Bear	1.5 open face 156.87	DNR	Hwy 101 near MP 208			CYSC , DIPU	4/26/2023	Storage, Extraction Small amount of CYSC germination Standard B CERTIFICATION CURRENT	
Fitzgerald Pit	Not known	DNR	Norris Rd			CIAR, CYSC , GERO , RUAR	Inspected in 2022	Previously met standard B NO CERTIFICATION in 2023	
Jimmy-Come-Lately Pit	11.3	DNR	On FS Rd 2850, at fork, take left			CIAR, CYSC , DIPU, GERO , JAVU, RUAR		Previously met standard B NO CERTIFICATION in 2023	
Littleton Pit	78.43	DNR	Hwy 101 west of Heckle Rd.			CYSC , GERO , LEVU, ARIT	4/26/2023	Storage, Excavation, Italian arum found on pullout along access road; GERO much reduced Standard B CERTIFICATION CURRENT	
Little River	587.71	DNR	Little River Rd			CEMO (on adj rd), JAVU	Inspected in 2021	NO CERTIFICATION in 2023	
Loop Tavern Pit	24.58	DNR	Hwy 101 between Forks and Beaver MP 209.5			CYSC , GERO	4/26/2023	Storage, Excavation Portion of pit to be excavated had contaminated topsoil with CYSC germinating Standard D NO CERTIFICATION IN 2023	
Mary Clark	170.2	DNR	Mary Clark Rd .5 miles			CYSC , JAVU, PHAR, RUAR,	4/26/2023	Storage, Excavation Yearly treatments having positive effects, still some CSYC and GERO on perimeter; Still not gated Standard C CERTIFICATION CURRENT	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Known Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Place Pit	Not known	DNR	Place Rd			CYSC	Inspected in 2016	Previously known as unsuitable NO CERTIFICATION in 2023	
Pyramid Pit	0.75	DNR	East Beach OL-PA-S-4000			CIVU	Inspected in 2020	NO CERTIFICATION in 2023	
Unnamed Pit	1.5 est.	DNR	Hwy 101 E of Wisen Cr Rd			CIAR, CIVU, CYSC, JAVU, POBO, LALA	Inspected in 2018	NO CERTIFICATION in 2023	
Winfield Pit (north and south)		DNR	Clearwater (Jefferson Co)			CYSC, JAVU	Inspected in 2020	NO CERTIFICATION in 2023	

APPENDIX C: POTENTIAL SURVEY AND TREATMENT SITES

The 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 2023 Project Action table in Appendix A and can inform the project list for next year. While crew felt many sites needed follow up, this characteristic has been further highlighted in the “Comments” section.

Future work should continue to focus on priority species with limited distribution in the forest. Spotted jewelweed should be prioritized to prevent invasion into east Clallam County. Herb Robert, while common, is one of the most problematic species to completely eradicate and continues to be a top priority because of its ability to rapidly spread into uninfested areas and degrade wildland habitat. Herbicide treatments utilizing aminopyralid are still showing good results for treating present infestations and appears to slow the growth rate of plants the following year. Wild basil savory has demonstrated an ability to spread rapidly and the scope of its range has increased at an alarming rate in just the last couple of years. This species should continue to be a priority wherever it is encountered and experimenting with aminopyralid rates should be continued in 2025. We will continue to document our treatment sites and methods for wild basil savory.

General Recommendations:

- **Herb Robert:** Aminopyralid has been working well in suppressing new germination after mature stands of herb Robert have been treated. This, hopefully, allows us to visit sites only once during the treatment season, rather than two or three times. In 2023 we saw positive results from the soil residual on FS2740, where a 0.25% solution of aminopyralid was used later in the season.
- **Wild basil savory:** We have seen this species spread quickly and is now found on 8 County roads. On FS 2620 and 2740, wild basil savory, along with herb Robert, is leaving the roadsides and spreading into the surrounding forests, especially in areas where slumping has occurred. We saw a lot of progress on wild basil savory control in 2023, and will shift our strategy to treat wild basil savory in the late summer and early fall. Patches of wild basil savory have been found on DNR lands and we have noticed that County roads with DNR access tend to have wild basil savory. We should make an effort to encourage and coordinate with DNR to ensure that these infestations are surveyed and treated.
- **Everlasting peavine:** We found an immense patch of everlasting peavine on what appears to be a decommissioned road off of FS 2740, though there is no evidence of a road, decommissioned or otherwise, on the map. This plant has the ability to quickly take over abandoned areas with a little bit of sun and it should be a priority to treat it in areas that are being scheduled for decommissioning.
- **Botanical Areas/Wetlands/Special sites:** In 2023, we visited Cranberry Bog and found that the water was inaccessible that late in the season. We would like to visit this site earlier in the year. There were still infestations of thistle and herb Robert, as well as reed canary grass.
- **Rock Sources:** Keep pits as a priority. Many people camp or dump material in them, so they are prime locations for new weeds to invade. We will attempt to be better at completing pit surveys for all FS pits visited. This will allow us to more accurately monitor the status of these pits over the years and will make it easier for them to be utilized if necessary.
- **Identify high-priority cross-boundary projects:** 2023 was our first year collaborating with Jefferson County treating wild chervil on east Jefferson County roads. We’re excited about this partnership and hope to continue it and expand to treat other high priority species, such as spotted jewelweed and wild basil savory.
- **Surveys:** We did not have any time for surveys in 2023 but hope to pick this up again in 2024.
- **Specific Roads:** In addition to the sites listed in Appendix A that were recommended as continued priorities, the crew recommended the following roads as priorities for 2024:

Ref #	6th Field Watershed Name	Road #	Site Name	Species	Comments
84	Jimmy-come-lately Creek	2850-000		CLVU, IMCA	This will be the route for spotted jewelweed infesting eastern Clallam County. The infestation is just a few miles from Woods Rd.
501	Snow Creek/Salmon River	2850-000		IMCA	Large patches of spotted jewelweed. See above.
291	Lower Big Quilcene River	2740-000		CLVU, GERO	Very large patches of wild basil savory and herb Robert along road. There is a private pit near the entrance of this road, so it should be made a priority to clean up these road systems.

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. For common name equivalent of Forest Service weed species plant codes, see Appendix F. To make room for new data while preserving this important program history, accomplishments on each road have been grouped and condensed into four year blocks, except the first years of work, when survey and manual control were the primary focus. This table has been reorganized for the years encompassing 2002-2018, noting how many times a road had been surveyed in each time frame. Infestations on adjacent county roads, where known, have been included. Roads that have been closed are highlighted in yellow. More roads may have been closed since our last update. **Species newly noted in 2023 were italicized.** 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. Treated roads and other statistics from FS crew treatments have not been included in information contained in the 2020, 2021 and 2022 columns.

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
SR101		18	3		GERO <i>HICA</i> JAVU	4	CYSC POBO POSA	4	CEST JAVU	4	HISA <i>HICA</i> JAVU	3	80		CLVU CYSC <i>HICA</i> HIAU HICE PHAR RUAR JAVU			
CR5695 Woods Rd		19	3		CIAR CYSC JAVU	4	JAVU	4	CEMO CIVU CYSC GERO JAVU	4	CEMO CIVU CYSC GERO JAVU LALA RUAR VIMA	4	5.9	12.46	CIVU CLVU CYSC DIPU GERO HYPE JAVU LALA RUAR	0.8	3.9	CLVU, COAR, DIPU, GERO, JAVU, RUAR
CR5331 Palo Alto Rd	7.8	19	3		CIAR CIVU CYSC GERO JAVU LALA	4	CIAR CIVU CYSC GERO JAVU LALA	4	CEMO CYSC GERO LALA JAVU	4	CEMO CIAR CYSC GERO HYPE LALA PHAR PORE JAVU	4	16.5	26.4	BRSY CEMO CEMO2 CIAR CIVU GERO CIIN CYSC HYPE JAVU LALA PHAR RUAR	8.7	15.9	CEMO, CLVU, GERO, JAVU, LALA, TAVU

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
CR4361 Taylor Cut-off Rd	2.6	18	3		CIAR CYSC	4	CYSC	4	CYSC	4	BUDA COMA CYSC	3	2.6	5.2	BUDA CYSC			
CR4360 Lost Mountain Rd	5.1	18	3		CIAR CIVU CYSC JAVU	4	CIAR CYSC JAVU	4	CEMO CIAR CYSC JAVU	4	CEMO CIAR CYSC GERO JAVU	4	10.3	13.7	CEMO CIAR CIIN CYSC GERO HYPE JAVU LALA RUAR	5.2	1.7	CEMO, CYSC, JAVU
CR4177 Blue Mountain Rd	5.4	19	3		CYSC JAVU	4	CYSC JAVU	4	CYSC JAVU	4	CEMO CYSC JAVU PORE	4	6.4	12.3	CEMO CEMO2 CYSC DIFU HIAU JAVU POBO PORE RAUR	7	0	Survey – no priority weeds found
CR3050 Little River Rd	6.8	19	3		CEMO	4	CEMO CYSC GERO	4	CEMO GERO	4	CEMO CIAR CIVU CYSC GERO HYPE LALA RUAR	4	14	20.6	CEMO CIAR CIVU CYSC GERO HYPE JAVU LALA RUAR	7.2	11.1	CEMO, CLVU, CYSC, HYPE, JAVU, LALA, RUAR
CR3038 Olympic Hot Springs Rd	1.5	19	3		CEMO CYSC GERO PORE	4	CEMO CYSC GERO	4	CEMO CYSC GERO	4	CEMO CYSC GERO RUAR	4	2.5	3	CEMO, CYSC DIPU GERO LALA RUAR	2.2	5.0	CEMO, CLVU, CYSC
CR9221 Joyce/ Piedmont East Beach Rd	4.5	18	3		CEMO CYSC GERO LALA JAVU	4	CEMO CYSC GERO LALA JAVU	4	CEMO CYSC GERO LALA JAVU	4	CEMO CYSC GERO LALA JAVU	4	6	9.2	CEMO CIAR CYSC, DIPU GERO JAVU	1	0	Survey – no priority weeds found

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022			2023			
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
CR3057 Big Quilcene River Rd		1	1.9	3	JAVU			2		0		0						
CR3039 Penny Creek Rd		10	2	4,959	GERO	4	JAVU	4		3		2						
CR2515 Rocky Brook Rd	0.4	10	0.4			1		3		2		2						
CR2500 Dosewallips Rd		4		35,074	CYSC, GERO	4		4		0		0						
CR2274 Duckabush Rd		9	2			2		2		2		1						
CR2071 W Snider Rd	0.2	10	2		JAVU	2	CIAR CYSC GERO LALA POBO	2		2		2	0.02		CYSC			
CR 2021 Bear Cr Rd	3	6				2		0		0		4	4.1	6.5	CYSC JAVU	2.1	0	Survey – no priority weeds found

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023			
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
CR2065 Cooper Ranch Rd	5.6	11	2			2		2		2		4	6.4	13.3	CLVU, CYSC DIPU GERO JAVU POBO RUAR	0.4	1.5	CLVU, CYSC, DIPU, JAVU	
CR2036 Mary Clark Rd	7.6	19	3			4		4	CYSC GERO POBO JAVU	4	CYSC HYPE PHAR JAVU	4	9.5	22.2	CYSC CIAR CIVU DIPU HYPE JAVU RUAR	7.6	11.9	JAVU	
CR5006 Jimmy Come Lately Rd	0.25	6	1			1		1		1		3	0.25	.5	CEMO CIAR CIVU CYSC GERO HYPE JAVU LALA POBO PORE RUAR RULA	1.6	2.5	CEMO, POBO	
3116200	5.0	0				0		0		0		0							
3116000	5.0	5	3			1	CIAR GERO RUDI	1	CIVU CYSC HYPE JAVU TAVU	0		0							
3100420		1	1			0		0		0		0							

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3100400	2.8	1	1			0		0		0		0						
3100700	3.3	0	0			0		0		0		0						
3100400	2.8	0	0			0		0		0		0						
3100300	5.8	6	2			1	GERO	0		0		3	5.8	14.2		CYSC DIPU GERO HYPE RULA		
3071015		1	1			0		0		0		0						
3071000	0.5	6	2	60	CYSC	1		2	CYSC CYSC GERO HYPE LALA JAVU	1	CYSC GERO LALA RUAR	00	4	.5		HIAU		
Mt Muller #882	4	1	0			0		0		0		2						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3068200	2.4	3	3	815	CYSC	0		0		0		0						
3068190	5.6	2	2			0		0				0						
3068000	5.6	9	3	521	CEMO CYSC JAVU	2	CYSC	2	CIVU CYSC HYPE JAVU	2	CEMO CIVU	0						
3067000	3.6	3	2	1,402	CYSC JAVU	0		1	CYSC GERO			0						
3050150	1.1	1	0			1	GERO CYSC	0		0		0						
3050011	1.4	4	1			2	CIVU GERO HYPE	1	CYSC GERO HIAU LEVU	0		0						
3050000	0.6	5	1	2	JAVU	2	CIAR CIVU GERO HIAU HYPE LEVU LALA	2	CYSC GERO HIAU ILAQ LEVU PRLA JAVU	0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3040900	0.2	2	0			1	CYSC GERO HIAU LEVU	0		0		1	0.2	0.5	CYSC DIPU GERO PHAR RUAR RULA			
3040800	0	10	1	54,709	ARMI GERO ILAQ POBO	4	CIAR CIVU CYSC GERO LALA POBO RUDI JAVU	3	CIVU CIAR GERO HIAU HYPE ILAQ LALA POBO PRLA JAVU	0		2	0	2	AEPO CYSC GERO ILAQ LALA POBO RUAR			
3040595	1.9	3	2	373	CIVU JAVU	1	GERO JAVU	0		0		0						
3040200	0.3	1	1			1	CIVU GERO ILAQ POBO RUDI	0		0		0						
3040115	0.7	3	2	95	GERO	0		1		0		0						
3040100	0.6	3	1	8	CYSC JAVU	1		1	CIVU DIPU HYPE JAVU VU	0		0						
3040025		3	3	1	RUDI	0		0		0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022			2023			
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3040012	.31	2	1	2	CYSC	1	CIVU DIPU HYPE JAVU	0		0		0						
3040011	0.6	2	2			0		0		0		0						
3040000 (portions)	21	14	4	35,136	CYSC GERO JAVU	4	CEMO CIAR CIVU CYSC GERO JAVU LALA	4	CEMO CIAR CIVU CYSC GERO HYPE ILAQ JAVU LALA PHAR RUAR	2	CIAR CIVU CYSC GERO JAVU LALA	0						
3006300	4.1	1	1			0		0		0		0						
3006011	1.2	2	1			1	CEMO CIAR CIVU GERO HYPE ILAQ JAVU LALA PHAR RUDI	0		0		0						
3006000	1.7	3	1			1	CYSC	1	CIVU GERO HYPE JAVU RULA RUAR	0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3000800	1.8	1	0			0		1	GERO	0		0						
3000591	0.3	2	0			1	CIVU GERO HYPE JAVU RUDI RULA	1	CIVU GERO DIPU	0		0						
3000401		1	1			0		0		0		0						
3000400	2.3	1	1			1	CIVU DIPU GERO	0				0						
3000395	.2	1	1			0		0		0		0						
3000370	.4	2	0			0		2	CIVU CYSC DIPU GERO JAVU LEVU			0						
3000330	1.1	1	0			0		1	CIVU CYSC JAVU	0		0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3000300	3.5	4	1			0		3	CIVU CYSC GERO JAVU	0		0						
3000260	0.7	2	1			1	CIVU CYSC JAVU	0		0		0						
3000250	6.9	5	1	10	CYSC	1	CIVU CYSC GERO JAVU	3	CIVU CYSC GERO HYPE LALA			0						
3000220	2.8	1	1			0		0		0		0						
3000215	0.6	5	2			1	GERO	2	CYSC GERO			0						
3000200	8.46	9	2	6	JAVU	3	CIVU CYSC GERO JAVU LALA	4	CIVU CYSC DIPU GERO LALA	0		0						
3000011		1	1			1	CYSC GERO	0		0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022			2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated
3000000		10	3	883,098	CYSC CIVU GERO JAVU RULA	2	CEMO CIAR CIVU CYSC GERO LALA JAVU	4	CIAR CIVU CYSC GERO HYPE JAVU LALA RUAR RULA	0		0					
2978085	1.1	2	2			0		0		0		0					
2978040	.3	3	2			1	CIAR CIVU CYSC GERO HYPE LALA RUDI RULA	0		0		0					
2978035	.1	2	2			0		0		0		0					
2978030	.7	3	2			0		0		0		1	1	2.4		CYSC JAVU	
2978025	.3	3	2			0		0		0		1	08	1.9		CYSC	

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species						
2978015	1.6	3	2	18	CYSC	0		0		0		1	1.4	3.36	CYSC JAVU			
2978011	0.4	3	2			0		0		0		1	.4					
2978000	3	4	2	3,604	CYSC JAVU	0		1	CYSC	0		1	3	8.16	CYSC			
2952000	2	1	0			0		1	CIVU CYSC	0		0						
2932070	0.9	1	1	12	CYSC	0		0		0		0						
2932050	0.3	1	1			0			CIVU CYSC	0		0						
2932040	0.4	1	1			0		0		0		0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2932035	0.2	1	1			0		0		0		0						
2932031	0.5	1	1			0		0		0		0						
2932030	1.5	3	2			1	CYSC	0		0		0						
2932000	11.8	7	3	2,153	LEVU CYSC	2	CYSC GERO JAVU	1	CIVU GERO HYPE JAVU LAGA RUAR RULA	0		1	3.7	11.44	CIVU CYSC GERO RUAR RULA			
2931200	2.5	1	1			0		0		0		0						
2931190	1.7	2	1			1	CIVU GERO HYPE JAVU LAGA RUDI RULA	0		0		0						
2931000	12	8	1	1	JAVU	1	CIVU CYSC LALA	4	CEMO CIVU CYSC HYPE PHAR	0		1		1	CYSC DIPU PHAR			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2929070	3.3	7	2	525	CYSC GERO RULA	2	GERO	2	GERO RULA	0		1	3.3	9.1	CIVU GERO HYPE RUAR RULA			
2929000	3	9	2			2	CIVU CYSC GERO HIAU HYPE LALA	4	CIAR CIVU CYSC GERO HYPE PHAR	1	CYSC GERO LALA	0						
2923100	1.5	8	1			1	GERO DIPU HYPE RUDI RULA	0		2	CIVU CYSC DIFU DIPU GERO	4	3	6.54	CIVU CYSC DIPU DIFU GERO HYPE LEVU SOAC			
2923095	0.2	1	0			0		1	CIAR CIVU CYSC DIPU GERO HYRA LALA LEVU PHAR	0		0						
2923090 opened for logging 2021	1.2	3	0			0		0		1	DIPU GERO	2	1.2	1	CYSC DIPU GERO			
2923077	1.4	2	0			1	CYSC JAVU	1	CYSC HYPE TAVU JAVU	0		0						
2923074	0.8	1	0			0		1	CYSC HYPE JAVU TAVU	0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2923073	0.8	1	0			0		1	CYSC HYPE JAVU	0		0						
2923072	0.8	1	0			0		1	CIVU	0		0						
2923070	5.2	11	1	2	JAVU	2	CIAR CIVU CYSC GERO HYPE JAVU RUDI	2	CIVU CYSC HYPE LALA PHAR	2	CIAR CIVU CYSC DIPU HYPE JAVU LALA LEVU PHAR RUAR RULA TAVU	4	10.4	22	CIAR CIVU CYSC DIPU GERO HYPE JAVU LALA LEVU PHAR RULA TAVU			
2923060	1	4	1			1	CIAR CYSC GERO	1	CIAR CYSC HYPE	0		1	1.9	0.1	DIPU			
2923020	0.6	1	0			0		1	CIVU CYSC PHAR	0		0						
2923015	2.7	1	0			0		1	CIAR CIVU CYSC GERO HYPE JAVU RULA	0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2923000	4.7	12	2	1,434	CIAR CYSC HIAU JAVU	3	CYSC GERO	1	CYSC JAVU	2	CYSC GERO HYPE JAVU LALA PHAR POBO	2	4.7	11.4	CYSC DIPU GERO JAVU LALA			
2922250	2.6	2	0			0		2	CEMO CIVU CYSC GERO JAVU	0		0						
2922240	1.1	2	0			0		2	CIAR CIVU CYSC GERO HYPE JAVU RULA	0		0						
2922200	1.43	1	0			0		1	CIVU CYSC LALA	0		0						
2922020	0.86	1	0			0		1		0		0						
2922000	12.6	4	1			2	GERO	1	CYSC HYPE	0		0						
2920210	0.2	2	1			0		1	GERO	0		0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2920020	1.4	2	1			0		1	GERO	0		0						
2920000	6	3	1			1	CIAR CIVU CYSC GERO	1	GERO	0		0						
2918110	1	4	1			2	CYSC DIPU LEVU LALA	1	CIVU GERO JAVU	0		0						
2918100	3	4	1	0		2	CYSC DIFU GERO HYPE LEVU LALA JAVU	1	CIAR CIVU CYSC GERO	0		0						
2918000	14.5	7	1	2,315	CYSC JAVU	2	CYSC DIFU LEVU LALA	2	CIAR CIVU CYSC GERO HYPE PHAR	1	CIVU CYSC GERO	1	4.1	.25	GERO			
2912060	3.5	5	2	3	JAVU	1		1	CIAR CIVU CYSC GERO HYPE JAVU	1	CIVU CYSC DIPU GERO HYPE JAVU	0						
2903040* found in 2021	1		0	0		0		0		0		1						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2903000	6.8	6	1	78	CYSC JAVU	0		0		2	CIAR CIVU CYSC DIPU GERO HYPE JAVU	3	6.8	13.6	CIVU CYSC DIPU GERO JAVU			
2902375	0.8	4	1			1		1	CIAR CYSC GERO HYPE	0		1	.8	.3	GERO			
2902300	0.6	1	1			0		0		0		0						
2902000 (portions)	3.4	10	3	4,175	CYSC JAVU	0		2	CIAR CIVU CYSC JAVU	2	CASE CIAR CIVU CYSC DIPU GERO HIAU HYPE JAVU LEVU RULA RUAR	3	3.4	7.8	CIVU CYSC DIPU GERO HYPE JAVU			
2900992	0.5	1	0			1	GERO	0		0		0						
2900990	2	6	2	5,300	CYSC GERO	1	GERO	1	CIVU CYSC GERO ILAQ	1	CIAR CYSC DIPU HYPE LEVU HYPE RULA	1			GERO ILAQ LALA SOAC			

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2900960	0.2	2	1					0		1	GERO LALA SYOF	0						
2900950	.1	1	1			0		0		0		0						
2900810	1.3	1	0			0		1	CYSC GERO ILAQ	0		0						
2900800	2	1	0			0		0		1	CIVU CYSC HYPE JAVU LALA RUAR RULA	0						
2900700	2.8	1	0			0		1	CIVU CYSC	0		0						
2900650	1.2	2	1			0		1	CIAR CYSC RULA	0		0						
2900540	2	1	1			0		0		0		0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2900200	0.7	1	1	54	CYSC JAVU	0		0		0		0						
2900070	2.3	1	1			0		0		0		0						
2900030	3.6	1	1			0		0		0		0						
2900015	0.1	3	1			2	CYSC GERO JAVU RUDI	1	CYSC GERO HYPE JAVU LALA PHAR	0		0						
2900000	37.2	11	3	664,225	CIAR CYSC GERO HIAU JAVU POSA	3	CIVU CYSC GERO HIAU HYPE JAVU LALA RUDI	2	CIVU CYSC GERO HIAU HYPE JAVU PHAR TAVU	1	GERO HYPE JAVU	4	8.8	11.1	CIAR DIPU CIVU CYSC GERO HIAU HYPE JAVU LALA RYAR RULA			
2880050	0	10	2	255,004	GERO	4	GERO	3	CIAR POSA RUDI RULA	1	GERO	0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022			2023			
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2880000	1.8	8	4	9,923	GERO JAVU	2	CEMO CIAR CYSC GERO JAVU	2	CIAR CIVU CYSC DIPU GERO HIAU HYPER HYRA JAVU LALA LEVU PHAR RULA	0		0						
2878123	0.2	4	1			1		2	CIAR CIVU GERO HYPE LALA	0		1	.02	1.4	CIAR CIVU CYSC LALA			
2878120 (portions)	1	9	1	2,170	CYSC	1	CIAR CYSC LALA	2	CIAR CIVU GERO HYPE LALA	3	CIVU CYSC GERO LALA	2	1	2.5	CIVU CYSC DIPU GERO JAVU LALA			
2878110	0.75	6	1			2	LALA CIVU CEMO CYSC	1	CIAR CIVU CYSC LALA	0		1	.75	2	CIVU LALA			
2878109	0.25	4	1			0		1	CIVU CYSC LALA	1	CIVU CYSC LALA	2	.55	.95	CIVU LALA LEVU			
2878108	0.1	4	1					1	CEMO CIVU CYSC LALA	1	LALA	2	.2	.4	CIVU LALA LEVU	0.1	0.5	LALA, LEVU

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2878104	0.2	3	0			0		1	GERO	0		1	.2	.3	GERO LALA			
2878102	0.4	4	0.4			0		1	CIVU LALA	1	CIVU LALA	2	.4	1.0	CIVU LALA			
2878101	0.1	3	0			0		1	CIVU LALA	1	CIVU LALA	1	.1	.3	LALA			
2878100	1.5	9	1			2		2	CIAR CIVU HYPE	2	CIAR CIVU CEMO JAVU LALA	2	1.6	1.2	CIVU GERO JAVU LALA			
2878085	0.7	4	1			2	CIAR CIVU GERO JAVU	0		0		2	1.4	3.9	CIAR CIVU CLVU CYSC HYPE JAVU GERO LALA	0.7	3.4	CIAR, CIVU, CLVU , GERO , LEVU
2878080	0.75	5	1			2	CIAR LALA	1	CIAR CIVU GERO JAVU LALA	1	CIVU CYSC LALA	2	1.6	4.3	CIVU CIAR CYSC HYPE GERO LALA	0.75	3.0	CIAR, CIVU, CLVU , LEVU

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2878060	0.75	5	1	127	CYSC	1	CIAR CYSC JAVU LALA	1	CIAR CIVU JAVU	0		4	1.55	5.2	CEMO CIAR CIVU CLVU CYSC GERO HYPE DIPU LALA	0.75	1.8	CLVU
2878050	0.6	4	1			0		1	CEMO CIAR CIVU GERO HYPE JAVU LALA	2	CIAR CIVU GERO HYPE JAVU LALA	0						
2878000	4.0	13	2	2,971	CYSC	4	CEMO CIAR CYSC GERO JAVU LALA	2	AEPO CIAR CIVU GERO HYPE LALA	3	AEPO CEMO CIAR CIVU GERO JAVU LALA	3	8	15	AEPO CEMO CIAR CIVU CYSC DIPU HYPE GERO JAVU LALA TAVU	4.0	9.7	CEMO, CIAR, CIVU, CYSC, GERO, JAVU, LALA
2877160	0.1	1	0			0		0		0		1	.1	.01	CIVU DIPU			
2877150	0.2	1	0			0		0		0		1	.2	.002	CEMO DIPU			
2877100	0.3	3	1			0		0		0		2	.3	1.2	CEMO CIAR CIVU LALA LEVU SOAR			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023			
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2877090	1.4	1	0			0		0		1		0				0.3	0.4	CIVU, DIPU, LEVU	
2877052	0.3	5	1			0		1	CIAR CIVU GERO JAVU LALA	2	CIVU CIAR CYSC DIPU GERO JAVU LEVU RULA	1	0.3	0.001		CYSC GERO JAVU			
2877050	2.65	2	1			0		0		1	CIVU, DIPU	0							
2877040	2.5	6	1			2	CEMO CIAR CIVU JAVU	2	CIAR CIVU CYSC GERO RUAR	1	CEMO CIAR CIVU CYSC GERO HICA	0							
2877000	4.6	12	1			3	CEMO CIAR CIVU CYSC HYPE JAVU LALA	1	CIAR	4	CIAR CIVU CYSC DIPU GERO HYPE JAVU LEVU	3	4.6	25.2	CEMO CIAR CIVU CLUV CYSC GERO LALA LEFU	4.6	8	GERO, HYPE, LALA	
2875090	0.1	2	1			0		1	CIAR CIVU CYSC GERO JAVU	0		0							

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2875070 (as of 2020)	1.8	7	1			1	CIAR CYSC	1	CIAR CIVU CYSC HYPE JAVU LALA	2	CEMO CIAR CIVU CYSC GERO HYPE JAVU LEVU	2	1.8	3.6	CEMO CIAR CYSC GERO JAVU			
2875020	0.5	9	1	6	CYSC	2	CEMO CIAR CIVU CYSC JAVU PHAR POBO	2	CIAR CIVU POBO	3	CEMO CIAR CIVU GERO LALA PHAR POBO	1	.6	1.5	CEMO CIAR CIVU CYSC GERO HYPE LESU			
2875000	3.6	15	2	268	CEMO	4	CEST CEMO CIAR CIVU LALA	2	CEMO CIAR GERO JAVU	3	CEMO CIAR CIVU CYSC DIPU GERO HYPE ILAQ JAVU LALA	4	7.2	13.8	CEMO CIVU CIAR SIVU DACA GERO HYPE JAVU LALA			
2870270	3.5	3	1		CIAR CIVU	1	CEMO CIVU HYPE JAVU	1	CEMO CIAR CIVU CYSC JAVU PHAR	0		0						
2870250	1	2	0			1	CEST CEMO	1	CEMO CIAR CIVU CYSC GERO HYPE JAVU LALA	0		0						
2870230	4	7	4	3	CIAR CIVU HYPE JAVU	1	CIAR CIVU GERO	1	CIAR GERO HYPE	1	CIAR GERO HYPE	0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2870150	0.5	6	1			1	LALA	1	CIVU LALA JAVU	2	CIAR CIVU LALA JUVA	1	1.3	3.2	CIAR VICU CLUV JAVU LALA PHAR			
2870130	1	2	1	1	CYSC	1	CEMO JUVA	0		0		0						
2870110	0.5	3	1	729	CYSC	1	CYSC	1	CIAR CIVU LALA	0		0						
2870059	0.4	11	4	19,529	CEMO CIAR CIVU CYSC GERO JUVA	1		1	CEMO JUVA	3	CIAR CIVU CYSC GERO	2	0.4	1.5	CIAR CIVU CYSC GERO	0.4	0.6	GERO, HYPE
2870058		11	2		CIAR GERO PHAR	3	CIAR CIVU GERO PHAR	1	CYSC	3	CEMO CIAR CIVU GERO	2	0.3	1	CLUV GERO HYPE	0.5	0.7	CLUV, GERO, HYPE
2870057	0.2	6	0			3	CIAR CIVU GERO HYPE PHAR	2	CIAR CIVU CYSC DACA GERO HYPE JAVU LEVU PHAR	0		1	0.2	0.4	CIAR CYSC GERO			

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2870056	0.6	9	3	14	CEMO JAVU	3	CEMO CIAR CIVU CYSC JAVU TAVU	2	CIAR CIVU CYSC DACA GERO HYPE LEVU JAVU	0		1	0.6	1.8	CIAR CIVU CLUV GERO			
2870054	0.7	8	0			4	CEMO CIAR CIVU JAVU	2	CIAR CIVU CYSC GERO JAVU PHAR	0		2	0.7	2.1	CEMO CIAR CIVU CYSC HYPE JAVU			
2870053	1.5	6	0			2	CEMO CIAR CIVU JAVU	2	CEMO CIAR CIVU CYSC DACA GERO HYPE JAVU LEVU TAVU	1	CEMO CIAR CIVU CYSC	1	1.5	3	CEMO CIAR CIVU CYSC JAVU			
2870052	0.3	4	1			1	CIAR HYPE	1	CEMO CIAR CIVU CYSC HYPE LEVU PHAR JAVU	0		1	0.3	0.8	CEMO CLVU JAVU			
2870050	2.8	14	4	110	CEMO CIAR CIVU CYSC GERO HYPE LALA PHAR JAVU	4	CIAR CIVU GERO JAVU LEVU PHAR RUDI	2	CEMO CIAR CIVU GERO HYPE LALA JAVU	2	CEMO CIAR CIVU GERO HYPE LALA	2	2.8	3.5	CEMO CIAR CIVU CLVU GERO HYPE JAVU LALA			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2870030	1.5	9	2	78	CEMO CYSC JAVU	4	CEMO CIAR CYSC HYPE JAVU	1	CIAR CIVU HYPE	1	CEMO , CIAR, CIVU, HYPE, JAVU	1	1.5	3	CIAR CIVU HYPE JAVU RULA SYOF			
2870000	21.2	17	4	3,853	CEMO CYSC JAVU	4	CEMO CIAR CIVU CYSC DACA GERO HYPE JAVU LALA LEVU	3	CEMO CIAR CIVU CYSC DACA GERO HYPE JAVU LALA LEVU PHAR	3	CEMO CIAR CIVU CYSC DACA GERO HYPE JAVU LALA	4	21.4	29.9	CEMO CIAR CIVU CYSC GERO HYPE LALA PHAR PORE JAVU			
2860120	1.6	2	1			0		1	CEMO CIAR CIVU HYPE JAVU	0		0						
2860011	0.4	2	1	2,708	GERO JAVU	0		1	CEMO CIAR CIVU CYSC DACA GERO HYPE JAVU LALA PHAR RUDI	0		0						
2860000	3	2	1	54,000	CIVU GERO			1	GERO RUAR	0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2855100	1.1	6	1			0		0		3	CEMO CIAR CIVU CYSC DACA GERO HYPE JAVU LALA	3	2.2	16.4	CIAR CIVU CLUV GERO JAVU LALA			
2855070	1.1	12	3	5,497	CEMO CIAR CYSC GERO JAVU RULA	3	CEST CEMO CYSC JAVU	2	CEST CIVA,CIV U CYSC GERO HYPE JAVU LALA	3	CEST CIAR CIVU CYSC GERO HYPE JAVU LALA RUAR	4	3	7.1	CEST CIAR CIVU CLUV CYSC HYPE DALA GERO JAVU LALA ROCA RUAR			
2855032	0.8	5	1.6	1	RULA	0		1	CEMO GERO HYPE JAVU	3	CEMO CIVU CLVU GERO JAVU	0						
2855030	2.6	5	1	19,200	JAVU	0		1	CEST CIAR CIVU CYSC GERO HYPE JAVU LALA	3	CEMO CIVU CYSC GERO HYPE RUAR JAVU	0						
2855000	2.8	11	3	51,947	CEST CEMO CIVU CYSC GERO JAVU	2	JAVU	1	CIAR CIVU GERO HYPE JAVU	2	CEMO CIAR CIVU CLVU GERO HYPE JAVU PORE	4	14.1	23.3	CIAR CIVU CLUV GERO HYPE JAVU LALA PORE			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2852150	1.29	4	1	25	CYSC	0		1	CIAR CIVU CYSC GERO HYPE JAVU	1	CIVU CYSC GERO JAVU RUAR	1	0.8	3.5	CIAR CIVU GERO JAVU			
2852090	0.18	3	1	3,362	CIAR CYSC GERO JAVU	0		0		0		2	0.2	1.5	CLVU GERO JAVU			
2852000	2.6	3	3	47,605	CEMO CIAR GERO RULA JAVU	0	CEMO	0		0		0						
2851090	1	1	1			0		0		0		0						
2851080	1.6	2	1	1,660	CYSC JAVU TAVU	0		1	CEMO CIAR CIVU CYSC GERO HYPE JAVU	0		0						
2851000	4.1	1	1	10,090	JAVU			0		0		0						
2850124	0.2	1	1			0		0		0		0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2850120	2.8	1	1		CYSC	0		0		0		0						
2850100		1																
2850093	0.1	2	1			0		0		1		0						
2850090	1.1	3	1			0		1	CIVU CYSC GERO HYPE JAVU	1	CIAR CIVU GERO	0						
2850010	1.5	2	1	5,352	RULA JAVU	0		1	CIVU GERO JAVU	0		0						
2850000	7.4	12	4	67,334	CYSC GERO RULA JAVU	1		1	CIAR CIVU CYSC GERO ILAQ HYPE JAVU	3	CIAR CIVU CLVU CYSC GERO HYPE IMCA JAVU	4	10.7	19.3	CIAR CIVU CYSC DIPU GERO IMCA JAVU RUAR LALA VIMI	7.4	27.3	CEMO, CIAR, CIVU, CLVU, DIPU, GERO, IMCA, JAVU
2845200	0.28	4	1			0		0		2	CIAR JAVU	1	0.3	0.3	JAVU			

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2845150	0.2	4	1			0		1	CIVU JAVU	2	CIAR CYSC GERO JAVU LALA	0						
2845120	2	5	1	84	CYSC JAVU	1	CIVU CYSC JAVU	0		2	CIAR CIVU CLVU GERO HYPE JAVU	2	3.7	5.9	DIPU CIAR CIVU GERO HYPE			
2845090	1	2	1	12	CYSC JAVU	0		0		1	CIVU GERO JAVU	0						
2845073	0.9	8	1			1	CYSC	1	CIAR CIVU CYSC JAVU LALA	2	CIAR CIVU CLVU CYSC DIPU GERO HYPE JAVU LALA	3	0.9	1.8	CIAR CIVU CLVU CYSC DIPU GERO HYPE JAVU			
2845070	1.5	8	2	1,860	CYSC	1	CEMO CIAR CIVU CYSC JAVU	0		2	CEMO CIAR CIVU CLVU CYSC GERO HYPE JAVU	4	2.7	3.3	CIAR CIVU CLVU CYSC DIPU GERO JAVU			
2845040	0.3	4	1	160	JAVU	0		1	CEMO CIAR CIVU CYSC DACA DIPU HYPE JAVU	2	CIAR CIVU CLVU GERO HYPE JAVU	0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2845000	5.4	9	2	12,378	JAVU	2		1	CIAR CIVU HYPE JAVU	1	CIAR CIVU CLVU GERO HYPE JAVU	4	15.3	19	CIAR CIVU CYSC DIPU CLVU GERO HYPE JAVU			
2840150	0.6	6	1	1	JAVU	0		0		2	CEMO CIVU, DIPU GERO HYPE, JAVU	3	0.6	1.8	CIAR CIVU CLVU GERO HYPE JAVU			
2840130	1.1	4	1			0		0		1	CYSC	2	1.2	2.2	GERO			
2840120	0.7	6	1			0		1	CIVU GERO JAVU	2	CEMO CIVU CLVU GERO HYPE JAVU	3	1.4	3.8	CIAR CLVU GERO JAVU			
2840084	0.25	2	1			0		0		0		1						
2840080	1	6	0.9	1	RULA	0		1	CIVU GERO HYPE JAVU	3	CIAR, CIVU CYSC GERO HYPE JAVU LALA	1	0	0.5	CIAR HYPE JAVU LALA			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2840071	2.0	3	1	36	JAVU SYOF	0		0		1	CEMO CIAR CIVU CYSC GERO JAVU LALA	1	2	9.6	CIAR CIVU CLVU CYSC GERO JAVU LALA PHAR			
2840070	1.7	6	1	5,753	CYSC JAVU	0		1	CIAR CIVU LALA JAVU	3	CIAR CIVU GERO JAVU	1	1.7	4.08	CEMO CIAR CIVU CLVU CYSC GERO JAVU LALA PHAR			
2840037		1	0			0		0		1	CEMO CIAR CIVU JAVU RUAR	0						
2840036	3.5	3	1			1		1	CIAR CIVU CYSC GERO HYPE LALA PHAR SYOF	0		0						
2840035	0.3	2	0			1	CIAR CIVU JAVU	0		0		1	03	.6	CIAR CIVU JAVU			
2840034	1.4	7	1			1	CEMO CIAR CIVU GERO JAVU	2	CEMO CIAR JAVU	1	CIAR, CIVU, GERO	3	1.4	4.2	CIAR CIVU CLVU GERO JAVU			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2840030	3	5	1			1	CEMO CIAR CIVU HYPE JAVU	1	CIAR, CIVU, HYPE	0		2	3	4	CIAR CLVU CYSC GERO JAVU			
2840000	1.3	13	4	10,010	CIAR CYSC JAVU	1	SYOF CIAR CIVU GERO HYPE JAVU LEVU	1	CEMO CIAR CIVU GERO JAVU	3	CIVU CYSC GERO JAVU LALA	4	1.9	4.5	CIVU CIAR DIPU GERO CYSC JAVU LALA			
2830034	0.2	2	1			0		1	CEMO CIAR CIVU HYPE JAVU	0		0						
2830032	1	2	1			0		1	CIAR CYSC GERO HYPE JAVU LEVU SYOF	0		0						
2830030	2	1	1			0		0		0		0						
2830000	5.3	3	3	1,250	CEST	2	JAVU	0		0		0						
2820000	4	6	1	2,274	JAVU	3	CEMO CIAR JAVU	0		1	CEMO CIAR CIVU GERO HYPE JAVU LALA	0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2810070	0.61	1	1			0		0		0		0						
2810000	8	2	1	10,190	CYSC JAVU	0		1	CEMO CIAR CIVU GERO HYPE JAVU LALA	0		0						
2800362	0.4	4	0			0		0		1	CIAR CIVU GERO JAVU	3	0.4	0.8	CIAR CIVU GERO JAVU			
2800360	2.4	4	0			0		0		1	CEMO CIAR CIVU DIPU GERO HYPE JAVU RULA	3	2.4	9.6	CIAR CIVU CLVU GERO HICA HYPE JAVU			
2800353	0.5	5	0			0		0		2	CEMO , CIVU, HYPE	3	0.5	1	CEMO CIVU			
2800351	0.8	10	0			3	CEMO CYSC	2	CEMO CIAR CIVU HYPE	3	CEMO CIAR, CIVU, HYPE JAVU	2	0.8	0.1	CEMO			
2800350	0.9	6	0			1	CEMO CIAR CIVU	1	CEMO CIAR GERO JAVU LALA	2	CEMO CIVU HYPE	2	0.9	0.9	CEMO CIVU CLVU			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2800325	0.6	4	0			0		0		1	CIAR CIVU LALA	3	0.6	1.2	CEMO CIAR CIVU JAVU LALA			
2800321	0.7	5	0	1		0		0		1	CIVU CIAR GERO LALA	3	0.7	0.9	CIVU GERO LALA			
2800320	0.9	5	0	1		0		0		1	CEMO CIAR CIVU CLVU HYPE JAVU LAGA LALA	3	0.9	5.4	CEMO CIAR CIVU CLVU HYPE JAVU LAGA LALA	1.7	6.2	CIVU, CLVU , GERO , HYPE, JAVU , LALA
2800310	0.25	5	4	4,655	CYSC	0		1	CEMO CIAR CIVU GERO HYPE JAVU	0								
2800290	0.3	3		2	CYSC JAVU			1	CEMO CIAR CIVU HYPE JAVU	0								
2800270		1	1	310	CYSC JAVU	0		0		0								
2800262	0.6	2	1			0		0		1	CIAR CIVU GERO JAVU	0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2800260	1.5	2	1			0		0		1	CEMO CIAR CIVU DIPU GERO HISA HYPE JAVU RULA	0						
2800250	1.1	5	3	92	JAVU	0		0		1	CIAR CIVU GERO JAVU	1	1	1.1	GERO			
2800240	0.8	1	1			0		0		0		0						
2800220	1.2	1	1			0		0		0		0						
2800210	0.4	1	1			0		0		0		0						
2800145	0.3	1	1			0		0		0		0						
2800132	0.6	6	1	463	CEST CEMO	1		1	CIAR CIVU JAVU	2	CEMO CIAR CIVU JAVU	1	.6	1.4	CIAR CIVU CLVU JAVU			

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2800130	0.6	6	0			1	CEST JAVU	2	CEMO CEST CIAR CYSC GERO HYPE LALA JAVU	2	CEMO CIAR CIVU CYSC HYPE LALA JAVU	1	0.6	6.4	CEMO CIAR CIVU CLVU CYSC HYPE JAVU LALA			
2800120	3	2	0			0		0		1	CIAR CIVU HYPE JAVU LALA	1	3	7.4	CIAR CIVU CLVU JAVU LALA			
2800060	1.1	1	1			0		0		0		0						
2800010	0.5	8	1	10		3	CIAR CIVU GERO ILAQ LALA	2	CIVU CIAR GERO HYPE JAVU	2	CIAR CIVU GERO ILAQ JAVU RUAR RULA	0						
2800000	15.6	15	5	70,321	CEMO CIAR CIVU CYSC GERO JAVU	4	CEST CEMO CIAR CIVU CYSC DIPU GERO HYPE ILAQ JAVU LALA PHAR	2	CEDE GERO HYPE JAVU LALA TAVU	2	CEMO	2	2.8	5.6	CEMO CIAR CIVU JAVU LALA			
2760000	5	5	0			0		2	CIAR CIVU GERO HYPE JAVU PHAR	1	CIAR PHAR	2	0.9	4	CEMO CIVU CYSC DIPU GERO HYPE JAVU LALA			

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022			2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated
2750020	1.5	2	1			0		1	CIAR CIVU CYSC DIPU HYPE LALA PHAR JAVU	0		0					
2750000	5	3	1			2	CIAR CIVU CYSC JAVU LALA	0		0		0					
2740110	1.5	1	0			1	CEMO CIAR CIVU CYSC JAVU	0		0		0					
2740075	0.5	3	1			1	CEMO CIAR CIVU CYSC JAVU	1	CIAR CIVU HYPE LALA JAVU	0		0					
2740072	0.5	4	3	200	CEST	1	CEMO CIAR CIVU CYSC JAVU	0		0		0					
2740070		3	2			1	CEMO CIAR CIVU CYSC JAVU	0		0		0					
2740060		4	2	33	CYSC	2	CEMO CIAR CIVU CYSC JAVU	0		0		0					

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2740000	12	8	3			2	CEST CEMO CIAR CIVU CYSC JAVU	0		3	CEMO CIAR CIVU CYSC DACA DIPU GERO HYPE ILAQ JAVU LALA RULA VETH	0				0.4	12.1	CIAR, CLVU, CYSC, DIPU, GERO, HYPE, JAVU, LALA
2730300	1	8	2	934	CYSC	3	CIAR CYSC GERO JAVU LALA PORE RUDI	2	CIAR CIVU CYSC GERO JAVU RUAR	1	CIAR CIVU GERO JAVU LALA RULA	0						
2730200	1	11	4	19,621	CIVU GERO JAVU	3	GERO	2	CEMO CIAR CIVU DIPU GERO HYPE ILAQ JAVU LALA	2	CIVU CLVU GERO HEHE HYPE ILAQ JAVU LEVU RULA	0						
2730100	0.4	2	1	35	JAVU	0		1	CYSC GERO HEHE HYPE JAVU LALA PORE RULA			0						
2730020		2	1			0		1	CIVU GERO HYPE			0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2730011	1	3	1	51	GERO	1	GERO JAVU	1	CIVU JAVU			0						
2730000		5	4	146,400	CYSC JAVU TAVU	0		0		1	CIAR CIVU CLVU GERO JAVU LALA RUAR RULA	0						
2700330	1.4	2	1			0		1	GERO HYPE ILAQ JAVU	0		0						
2700281	0.5	2	0			0		0		1	CIAR CIVU CYSC HISU JAVU	1	0.5	2	CIAR CIVU CLVU HISA JAVU			
2700280	0.6	2	0			0		0		1	CEMO CIAR CIVU DIPU HISA HYPE LALA JAVU	1	0.6	1.8	CIAR CIVU CLVU CYSC HISA JAVU			
2700140	1.2	1	1			0		0		0		0						
2700100	4.6	2	1			0		1	JAVU			0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2700090	2.0	1	1			0		0		0		0						
2700080	3	7	0			1	CIAR CIVU CYSC GERO JAVU LALA	2	CIAR GERO HYPE JAVU LALA	1	CIAR GERO HYPE JAVU LALA	3	1.5	3.5			CLVU GERO	
2700040	3.7	9	0			2	SYOF, CIVU CYSC GERO HEHE HIAU ILAQ JAVU LALA LAGA PHAR PRLA	2	AEPO ARMI CASE CIAR CIVU GERO HEHE HIAU HYPE ILAQ JAVU LAGA LALA PHAR PRLA SYOF VIMI	3	AEPO ARMI CASE CIAR CIVU CYSC DIPU GERO HEHE HIAU HYPE ILAQ JAVU LAGA LALA PHAR PRLA SYOF VIMI VETH	2	3	6.5			AEPO CIAR CIVU CLVU DIFU DIPU GERO HEHE LAGA LALA LEFU JAVU PHAR SYOF VIMI VIMO	
2700000	17.7	10	5	4,201	JAVU TAVU	3	CEMO CIAR CIVU CYSC GERO JAVU LALA		CIAR CIVU CYSC GERO HYPE JAVU LALA PHAR POBO VIMI	2	CIAR CIVU CYSC GERO HYPE JAVU LALA RUAR VIMI	0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022			2023			
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2650090	1.7	2	1			0		1	AEPO CASE CIAR CIVU CYSC DACA GERO HIAU HYPE ILAQ JAVU LAGA LALA SYOF VIMI	0		0						
2650050	0.9	2	1					1	CEMO CIAR CIVU CYSC GERO HYPE JAVU LALA POSA	0		0						
2650000	7.5	5	2	2	ARMI	0		1	CIAR HYPE JAVU	1	CIAR CIVU GERO HYPE ILAQ JAVU PORE RUAR RULA	1	3	1.5	CIAR CLVU JAVU			
2620060	2.8	1	0			0		0		0		1	2.8	5	CIAR CLVU HYPE JAVU			
2620056	0.8	4	2	24	CEMO	0		1	CIAR CIVU HYPE JAVU	0		1	0.8	1	JAVU			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2620053	1.9	4	2			0		1	CIAR CIVU CYSC HYPE JAVU	0		1	1.9	6	CEMO CIAR CLVU CYSC HYPE JAVU			
2620051 closed at 0.2 2021	0.8	3	1			0		1	CIVU HYPE JAVU	0		1	02	04	CLVU JAVU			
2620050	2.7	5	2			0		0		2	CIAR CIVU CYSC DIPU HYPE JAVU	1	2.7	3.6	CIAR CLVU CYSC JAVU			
2620043	0.7	1	1			0		1	HYPE JAVU	0		0						
2620036	0.6	1	0			0		1	CIAR CIVU HYPE JAVU	0		0						
2620035	1.1	1	0			0		0		0		0						
2620030	9.7	2	1			0		1	CIAR CIVU CYSC HYPE JAVU	0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2620000	11.6	10	3	39,464	CIVU CYSC GERO JAVU RULA	1		2	CIAR CIVU CYSC DIPU GERO HYPE JAVU RUAR	2	CIAR CIVU CYSC GERO HYPE ILAQ JAVU PHAR PORE RUAR RULA	3	5.9	23.2	CEMO CIAR CLVU CIVU CYSC DIPU GERO HYPE JAVU LEVU RULA TAVU			
2610200	0	10	5	3,676	CYSC GERO HEHE JAVU RUDI	3	CYSC JAVU	2	CYSC GERO HEHE HYPE JAVU LALA RUAR	0		0						
2610050	0	3	0			1	CIAR CYSC GERO JAVU	2	CIAR CIVU CYSC GERO HYPE JAVU	0		0						
2610040	0.6	9	2	3,000	JAVU	4	CIAR CYSC GERO JAVU	1	CIVU CYSC GERO HYPE JAVU LALA	2	GERO HYPE JAVU	0						
2610012	2.6	1	1	397	GERO			0		0		0						
2610010	0.9	3	0			0		2	COAR GERO HYPE ILAQ JAVU	1	COAR GERO JAVU	0						

ROAD	Road length	Total # Yrs Visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2610000	5.4	12	5	6,570	CEMO CIAR CIVU CYSC GERO JAVU RULA	2	CIAR CYSC GERO POBO JAVU	2	CIAR CIVU CYSC GERO HYPE POBO JAVU	2	CIAR CIVU GERO HYPE JAVU LALA POBO RUAR	0						
2530000	10.1	4	2			0		2	CIVU CYSC GERO HYPE JAVU	0		0						
2527000	1.2	2	1			0		1	CIAR CIVU CYSC GERO HYPE JAVU LALA POSA	0		0						
2510070	6.6	10	3	1,600	GERO	2	GERO	2	CIAR GERO HYPE RUAR JAVU	1	CIAR GERO JAVU	0						
2510065	0.2	6	1			1	GERO HYPE JAVU	2	CIAR CIVU GERO	1	CIAR CIVU GERO HYPE	2	4	6	CLVU GERO			
2510060	0.2	2	0			0		2	CIVU GERO	0		0						
2510012	1	2	1			0		1	GERO HYPE JAVU	0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022				2023		
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2510000	21	7	1	53	CEMO CYSC JAVU	3	CIAR CIVU GERO HYPE JAVU RUDI RULA	2	CIAR CIVU DACA DIPU GERO HYPE JAVU RULA PHAR	1	CIAR CIVU GERO HYPE JAVU	0						
2503000	4.3	1	0			0		0		0		0						
2500000	7.85	5	1			2	CIAR CYSC GERO JAVU POBO	2	CIAR CIVU CYSC JAVU GERO HYPE LALA POBO	0		0						
2190220	0.3	2	1	251	COTON POCU	0		1	GERO HYPE JAVU	0		0						
2190200	0	3	1		POCU	2	CIVU CYSC DIPU JAVU POBO	0		0		0						
2190170	1.6	1	1			0		0		0		0						

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2022			2023			
			No Yrs. Visited	# of Weeds	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Weed Species	No Yrs. Visited	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2190000	12.1	3	1			1		0		0		1	2.1	5.6	JAVU LAGA			
2100000	8.24	2	2	50	JAVU	0		0		0		0						
2071000		1	0			0		1	GERO LALA POCU RUDI	0		0						
TOTALS				2,604,669									422.82	660.153		65.4	127.2	

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.

Historic Tables: Acres, Treated/New Sites/Total Sites

The amount of work completed in any given year directly correlates to a combination of policy, funding, methods, and crew size. The following tables have been an attempt to document how different elements have impacted work. The tables are followed by a historic perspective to give context to the numbers.

Currently these tables only reflect the activities of the Noxious Weed Control Board crew, which is not an exhaustive reflection of all work occurring in the project area. For these reasons, these tables may not be relevant in future reports and could be removed. It is both informative and useful to maintain data of all crew work in any given year that is readily accessible to us. Such collated information collected over successive years lends itself to analysis to inform progress, efficiencies, or policy revision to improve results.

The table *New sites/Total sites* shows the number of new infestations recorded in any given year. It neatly 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. However, recent changes in point collection protocol has made it a little more difficult to determine what is actually “new”. Further, the total number of sites does not account for some areas where an infestation may have been eradicated since it was first discovered. Since 2018, the number of “new” sites is based on crew’s recollection or notes in the FACT sheets.

The Road Miles and Acres Surveyed table has been removed because of significant protocol changes and focus spanning the program’s lifetime. The table was unwieldy and had become irrelevant at this time. For example, only surveys or manual treatment were allowed for the first several years of the program while later metrics included acres examined and acres treated, regardless of mileage. These differences led to the collection of very different metrics to capture scope of work.

2002-2023 ACCOMPLISHMENT SUMMARY TABLES																	
Acres Treated rounded to the nearest whole number																	
CCNWCB	02-06 ¹ manual/baseline	2007-2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
manual	8.61	55	27	21	33	33	7	10	30	51	30	42*	40	99	110	19	27
chemical		131	195	316	286	338	360	248	259	245	162	204	217	303	262	135	75
total	8.61 ¹	246 ²	222 ²	337 ²	319	371	367	258	289	296	192	204	217	303	262	135	92

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	2020	2021	2022	2023
Sites/Total	122	497/619	147/766	74/840	147/986	12/998	1/999	3/1,002	29/1,031	56/1,060	22/1,082	63/1,145	12/1,157	25/1,182	52/1,287	88/1,375	15/1,392	23/1,415	3/1,418	18/1,436	4/1,440	7/1,447

PROGRAM HISTORY FROM 2002-2023: 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, future productivity in future may vary greatly from year to year depending on the annual plan of work and available funding and resources.
- **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. 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. Recently, FS has directly managed a small weed crew based in Olympia.



Meghan treating acres of wild basil savory and herb Robert along FS 2740.

- **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 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 Gang's reporting preference was 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 was retained in the table as reported.

- Most years, 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 annual comparisons of acreage treated 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 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 person 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, performed under a new integrated weed management policy, began protecting adjacent Forest Service lands from weed invasion.
- In 2019 and 2020 remote habitat was a focus. FS-led team treated projects within Clallam and Jefferson County. County roadside treatments and prevention measures are coordinated to maximize protection of Forest Service lands-
- In 2021, there was increased coordination between FS, Clallam NWCB and 10,000 Years Institute enabling multiple treatments in areas with anticipated disturbance during habitat focused forest activities across multiple jurisdictions.
- In 2022 and 2023, we were short-staffed, with only three employees to perform all NWCB responsibilities during the busiest part of the treatment season. We focused on high priority areas that were slated for harvests within the next 5 years.**

APPENDIX E: COUNTY ACCOMPLISHMENTS-A SNAPSHOT

Note: 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 northwest 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. Multiple county roads lead directly into the National Forest and many go through the Forest into Olympic National Park. The Clallam Noxious Weed Control Board (CNWCB) has a stable, assessment-funded weed program. The CNWCB implemented its seventh season of an integrated weed management (IWM) plan for Clallam County’s Road department in 2023. CCNWCB surveyed 318 miles and treated 129 miles of county roads for a broad array of invasive species (30) which pose a direct threat to adjacent Forest Service land. We also surveyed 21 pits and treated 167.7 acres within 18 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. This year we discovered and treated two small infestations of wild chervil spanning both private and County ROW and discovered 5 new county roads with wild basil savory. Kochia was found for the first time on the Olympic Peninsula, along Hwy 101 in eastern Clallam County. Additionally, with significant help from volunteers, we supplemented pollinator habitat augmentation projects by planting over 8,600 native 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 federal, tribal and state agencies, as well as volunteer groups and non-profits, including the 10,000 Years Institute, Clallam Conservation District, Back Country Horseman of Washington, 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. We reinitiated the OIWG meetings, holding one in May and another in November 2023, bringing together over 100 people from 40 different organizations across the Olympic Peninsula.

Clallam County 2023 Snapshot	
Number of Known Noxious Weed Species	83
Number of Regulated Noxious Weed Species	54
Most Common Regulated Noxious Weeds	tansy ragwort, poison hemlock, knapweeds
Least Common Regulated Noxious Weeds (bolded species are new this year)	European coltsfoot, false brome, hoary alyssum, hairy willowherb, hawkweeds, Italian thistle, purple loosestrife, sulfur cinquefoil, giant hogweed, goatsrue, gorse, perennial sowthistle, rush skeletonweed, Scotch thistle, shiny geranium, wild chervil, kochia
Total Number of Sites (Regulated Species Only)	Approximately 2,500
Number of Landowner Contacts	243
Educational Events	14
Public Contacts (Phone Calls, Walk-Ins, Emails)	1,555
# of Volunteers/Hrs (planting, surveys, research)	28/193
Number of Weeds Manually Controlled by NWCB	8,000

Jefferson County is larger than Clallam County, covering 1,397,760 acres 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. 10,000 Years Institute, a non-profit, independently leads most Jefferson County weed control projects in the far west portion of the county.

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. New leadership at Jefferson County Noxious Weed Control Board may lead to a more active role in weed control within FS lands in the future.

APPENDIX F: WEED SPECIES REPORTED 2002-2023 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 lands and but one new high-risk species in Clallam County (kochia). Plant Codes come from the USDA Natural Resources Conservation Service PLANTS database when available.

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 (x gerstlauri)</i>	CEMO6
diffuse knapweed	<i>Centaurea diffusa</i>	CEDI
spotted knapweed	<i>Centaurea stoebe</i>	CEST
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 horizontalis</i>	COHO
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, variegated</i>	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
dog rose	<i>Rosa canina</i>	ROCA3
Himalayan blackberry	<i>Rubus armeniacus</i>	RUAR9
cutleaf blackberry	<i>Rubus laciniatus</i>	RULA
tansy ragwort	<i>Jacobaea vulgaris</i>	JAVU
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 FS Lands

wild chervil	<i>Anthriscus sylvestris</i>	ANSY
bur chervil	<i>anthriscus caucalis</i>	ANCA
giant reed	<i>Arundo donax</i>	ARDO
hoary alyssum	<i>Berteroa incana</i>	BEIN
Italian thistle	<i>Carduus pycnocephalus</i>	CAPY
rush skeletonweed	<i>Chondrilla juncea</i>	CHJU
English hawthorn	<i>Crataegus monogyna</i>	CRMO
hairy willowherb	<i>Epilobium hirsutum</i>	EPHI
goatsrue	<i>Galega officinalis</i>	GAOF
shiny geranium	<i>Geranium lucida</i>	GELU
common hawkweed	<i>Hieracium lachenalii</i>	HILA
hairy whitetop	<i>Lepidium appelianum</i>	LEAP
Scotch thistle	<i>Onopordum acanthium</i>	ONAC
common reed	<i>Phragmites australis</i>	PHAU
gorse	<i>Ulex europaeus</i>	ULEU
kochia	<i>Bassia scoparia</i>	BASC

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 good herb Robert germination control with Milestone (aminopyralid); 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 invasive woody shrubs can be effectively pulled early in the season before seed set and while the ground is damp. Manual control is best utilized when labor is not an issue, or for small infestations. Cut stump is best used on plant stems greater than ½ inch, cutting plant as low to the ground as possible; dry, hot weather improves efficacy. 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 x 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>Clinopodium vulgare</i>	Foliar application necessary, late summer treatment has best results. A mixture of triclopyr (1.5%) and aminopyralid (0.125%) has produced the best results, but more study is needed.
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.

Plant Code	Common Name	Botanical Name	Control Recommendation
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 or sprayed onsite after removal, when large quantities); selective herbicide application in first year or pre-bloom in 2 nd year. May require triclopyr or imazapyr.
GERO	herb Robert	<i>Geranium robertianum</i>	Manual removal for small infestations; spot herbicide application where feasible; multiple treatments per season preferred. Prevention measures a must. Low rates of aminopyralid may be effective and reduce seed germination. Imazapyr or sulfometuron ethyl may be considered-where off-target loss is more tolerated, such as roadside- for fall treatments after rain has induced seed germination. Herbicide effects on late stages of plant lifecycle may be too slow to stop seed production.
HEHE	English ivy	<i>Hedera helix</i>	Manual removal; cut stump or foliar herbicide application. Higher end surfactant rates may be needed.
HIAU HICA HISA	orange hawkweed	<i>Hieracium aurantiacum</i> <i>Hieracium caespitosum</i> <i>Hieracium sabatum</i>	Spot spray with selective herbicide in late spring or summer; - clopyralid preferred - possible manual removal for very small infestation. Aminopyralid is likely effective.
HYPE	St. Johnswort	<i>Hypericum perforatum</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Possible candidate for biocontrol releases where infestations are heavy. Herbicide control options are available should this species otherwise become a resource management issue.
ILAQ80	English holly	<i>Ilex aquifolium</i>	Manual removal; cut stump or foliar herbicide treatment. May be best treated with imazapyr.
IMCA	spotted jewelweed	<i>Impatiens capensis</i>	Manual removal; early foliar herbicide when there are many plants.
IRPS	yellow flag Iris	<i>Iris pseudacorus</i>	Manual removal for small infestations, foliar herbicide, imazapyr may be preferred
LAGA2	yellow archangel	<i>Lamiastrum galeobdolon</i>	Foliar herbicide application –triclopyr, glyphosate, or a combination
LALA4	everlasting peavine	<i>Lathyrus latifolius</i>	Foliar herbicide application - clopyralid preferred
LEVU	oxeye daisy	<i>Leucanthemum vulgare</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Herbicide control options are available should this species otherwise become a resource management issue.
LIVU2	common toadflax	<i>Linaria vulgaris</i>	Spot herbicide application, triclopyr or aminopyralid are likely effective.
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>	Foliar application of glyphosate or imazapyr; can inject with glyphosate
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 by herbicide alone.
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
JAVU	tansy ragwort	<i>Jacobaea vulgaris</i>	Will require <u>systematic</u> removal from roadsides and follow-up; manual removal before full bloom (after full bloom, flower heads need to be removed and disposed of); selective herbicide application in first year or pre-bloom in 2 nd year. When collecting large quantities of seed heads, we have found spraying pile of heads onsite is effective and is less burdensome than clipping and disposing bags of heads.
SYOF	common comfrey	<i>Symphytum officinale</i>	Minimal occurrence, but expanding; spot herbicide application-may require triclopyr/ aminopyralid mix, glyphosate or imazapyr.
TAVU	common tansy	<i>Tanacetum vulgare</i>	Spot herbicide application-may require triclopyr or imazapyr.
VIMA VIMI12	bigleaf periwinkle common periwinkle	<i>Vinca major</i> <i>Vinca minor</i>	Thorough spot herbicide application, triclopyr or imazapyr recommended

APPENDIX H: 2023 STATE WEED LIST

What are noxious weeds?

Washington's noxious weeds are invasive, exotic introductions. None of them are native to Washington. Noxious weeds create public health hazards, decrease agricultural productivity, lower property values, degrade wildlife habitat and reduce enjoyment of recreational areas. In essence, noxious weeds are everybody's problem – the homeowner, the farmer, the environmentalist, the recreational visitor, the public land manager, and the elected official.

Who is responsible for controlling weeds under the state noxious weed control laws, RCW 17.10 and WAC 16-750?

All landowners, including, city, county, and state governments, are required to eradicate all Class A, control and prevent the spread of any Class B designate, and selected Class B or C species on their property. There are many ways to control noxious weeds; state law does not dictate method. For Class A species, prevention and eradication is the goal, while for Class B designates and selected weeds, containment and eventual reduction is the objective. The type of control selected by the landowner should take into consideration the weed, its life cycle, distribution (extent of the problem) and its location.

Clallam County Noxious Weed Control Board

The state weed law allows counties to focus noxious weed control authority and activity at the local level through noxious weed control boards which are responsive to local needs, concerns, and conditions. In 1997 the Clallam County Commissioners authorized the activation of the Clallam Noxious Weed Control Board. The five voting members of this board are volunteer residents appointed by the Board of County Commissioners. The noxious weed control board is responsible for assuring the control of noxious weeds within the county. They typically accomplish this by employing a weed coordinator who educates and informs the public about noxious weeds, conducts on-going early detection surveys for noxious weeds, and assists landowners in developing control strategies. If landowners refuse to control the noxious weeds on their property, noxious weed control boards can have the control work done and bill the landowner, or issue civil infractions.

County noxious weed control boards provide many benefits to their community, including:

- Local decision making and regulatory authority
- Prevention of noxious weed infestations through education, county wide early-detection surveys, quarantines, and other programs
- Technical assistance for all landowners such as on-site plant surveys, weed identification, control recommendations and cost/share assistance
- Cooperative action from state and federal land management agencies
- Assurance that all landowners will control noxious weeds on their property
- Influence on state noxious weed control policy decisions

YOU CAN HELP! Contact your local weed board if you see or know of noxious weed infestations. For more information about weed control contact:

Clallam Noxious Weed Control Board
223 East Fourth Street, Suite 15
Port Angeles, WA 98362-0149
(360) 417-2442 or
Web_weed@clallamcountywa.gov

Check out our website at:
www.clallamcountywa.gov/821/Noxious-Weed-Control

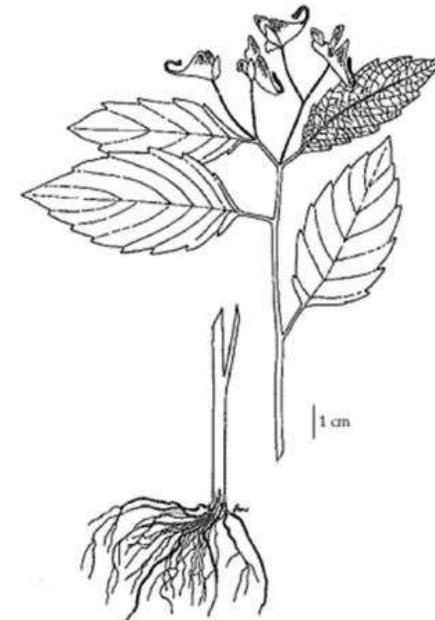
For additional information, contact:

Washington State Noxious Weed Control Board
P.O. Box 42560, Olympia, WA 98504
(360) 725-5764

Washington State Department of Agriculture
(509) 249-6973

PLEASE! Help protect Washington's economy and environment from noxious weeds!

2023 CLALLAM COUNTY NOXIOUS WEED LIST



Impatiens capensis

Drawing reproduced from *Illustrated Flora of British Columbia*

Spotted jewelweed is currently found only in a few watersheds in Clallam County but is spreading. It can form dense carpets along streams and is difficult to control. It has been designated for control in Clallam County.

2023

CLALLAM COUNTY WEED LIST

The Clallam County Weed List is updated annually and consists of all state listed Class A and Class B designate and county select noxious weeds. State law requires eradication or control, containment, and preventing spread of these weeds. To date, at least 74 state listed noxious weeds have been present in Clallam County; these plants are shown in bold in each category.

Class A Weeds are non-native species with a limited distribution in Washington. Preventing new infestations and eradicating existing infestations is required by law.

broom, French	<i>Genista monspessulana</i>
broom, Spanish	<i>Spartium junceum</i>
cordgrass, common	<i>Spartina anglica</i>
cordgrass, denseflower	<i>Spartina densiflora</i>
cordgrass, salt meadow	<i>Spartina patens</i>
cordgrass, smooth	<i>Spartina alterniflora</i>
crupina, common	<i>Crupina vulgaris</i>
dyer's wood	<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>
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 var. lobata</i>
meadow clary	<i>Salvia pratensis</i>
oriental clematis	<i>Clematis orientalis</i>
reed sweetgrass	<i>Glyceria maxima</i>
ricefield bulrush	<i>Schoenoplectus mucronatus</i>
sage, clary	<i>Salvia sclarea</i>
sage, Mediterranean	<i>Salvia aethiops</i>
silverleaf nightshade	<i>Solanum elaeagnifolium</i>
small flowered jewelweed	<i>Impatiens parviflora</i>
South American spongeplant	<i>Limnium laevigatum</i>
Syrian bean-caper	<i>Zygophyllum fabago</i>
starthistle, purple	<i>Centaurea calcitrapa</i>
Texas blueweed	<i>Helianthus ciliaris</i>
thistle, Italian	<i>Carduus pycnocephalus</i>
thistle, milk	<i>Silybum marianum</i>
thistle, slenderflower	<i>Carduus tenuiflorus</i>
thistle, Turkish	<i>Carduus cinereus</i>
variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>
wild four o'clock	<i>Mirabilis nyctaginea</i>

*unconfirmed sighting, controlled at time

Class B-designate Weeds Class B weeds are non-native species that are presently limited to portions of the state. The following Class B species are designated for control in Clallam County where they are not yet widespread. Controlling infestations and preventing spread of all propagules is required by law.

blueweed	<i>Echium vulgare</i>
Brazilian elodea	<i>Egeria densa</i>
bugloss, annual	<i>Lycopsis arvensis</i>
bugloss, common	<i>Anchusa officinalis</i>
camelthorn	<i>Alhagi maurorum</i>
common fennel (not bulbing)	<i>Foeniculum vulgare (nt var. azoricum)</i>
common reed	<i>Phragmites australis</i>
common tansy	<i>Tanacetum vulgare</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
European coltsfoot	<i>Tussilago farfara</i>
fanwort	<i>Cabomba caroliniana</i>
gorse	<i>Ulex europaeus</i>
flax, spurge	<i>Thymelaea passerina</i>
grass-leaved arrowhead	<i>Sagittaria graminea</i>
hairy willow-herb	<i>Epilobium hirsutum</i>
hanging sedge	<i>Carex pendula</i>
hawkweed, all nonnative species	<i>Hieracium subgenus Hieracium, Hieracium subgenus Pilosella</i>
hawkweed, orange	<i>Hieracium aurantiacum</i>
hoary alyssum	<i>Berteroa incana</i>
houndstongue	<i>Cynoglossum officinale</i>
indigobush	<i>Amorpha fruticosa</i>
knawweed, black	<i>Centaurea nigra</i>
knawweed, brown	<i>Centaurea jacea</i>
knawweed, diffuse	<i>Centaurea diffusa</i>
knawweed, meadow	<i>Centaurea x gerstlaeri</i>
knawweed, Russian	<i>Rhaponticum repens</i>
knawweed, spotted	<i>Centaurea stoebe</i>
knawweed, Himalayan	<i>Persicaria wallichii</i>
kochia	<i>Kochia scoparia</i>
leafy spurge	<i>Euphorbia esula</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>
oxtonque, hawkweed	<i>Picris hieracioides</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>
rough chervil	<i>Chaerophyllum temulum</i>
rush skeletonweed	<i>Chondrilla juncea</i>
saltcedar	<i>Tamarix ramosissima</i>
shiny geranium	<i>Geranium lucidum</i>
starthistle, Malta	<i>Centaurea melitensis</i>
starthistle, yellow	<i>Centaurea solstitialis</i>
sulfur cinquefoil	<i>Potentilla recta</i>
thistle, musk	<i>Carduus nutans</i>
thistle, plumelless	<i>Carduus acanthoides</i>
thistle, Scotch	<i>Onopordum acanthium</i>
toadflax, Dalmatian	<i>Linaria dalmatica ssp dalmatica</i>
velvetleaf	<i>Abutilon theophrasti</i>

Class B-designates	continued
water primrose	<i>Ludwigia hexapetala</i>
wild basil savory	<i>Clinopodium vulgare</i>
white bryony	<i>Bryonia alba</i>
wild chervil	<i>Anthriscus sylvestris</i>
yellow archangel,	<i>Lamiastrum galeobdolon</i>
yellow floating heart	<i>Nymphoides peltata</i>
yellow nutsedge	<i>Cyperus esculentus</i>

Selected Weeds

RCW 17.10.090 State Noxious Weed Law allows counties to select weeds from the B or the C list that must be controlled. Preventing spread of all propagules is required.

broom, Scotch ¹	<i>Cytisus scoparius</i>
common teasel	<i>Dipsacus fullonum</i>
herb Robert ²	<i>Geranium robertianum</i>
lawweed	<i>Soliva sessilis</i>
knawweed ^{1,3} , Japanese	<i>Fallopia japonica, x bohemica, sachalinensis</i>
Bohemian, giant	
perennial sowthistle	<i>Sonchus arvensis ssp. arvensis</i>
spotted jewelweed	<i>Impatiens capensis</i>
tansy ragwort	<i>Jacobaea vulgaris</i>
spurge laurel	<i>Daphne laureola</i>

¹Control in and 100 ft around any soil, mulch or mineral mining (pit)/storage areas

²Control along roadsides leading to areas with active treatment program

³Control within riparian and flood zones of Big, Clallam, Ennis, Hoko, & Sekiu Rivers and their tribs, roadsides, soil, mulch or mineral mining (pit)/storage areas.

Additional Noxious Weeds

The following Class B and C weeds are found in our county and in many parts of the state. Control is encouraged. (Class is indicated with B or C)

absinth wormwood (C)	<i>Artemisia absinthium</i>
babysbreath (C)	<i>Gypsophila paniculata</i>
blackberry, evergreen (C)	<i>Rubus laciniatus</i>
blackberry, Himalayan (C)	<i>Rubus bifrons (armeniacus)</i>
buffalobur (C)	<i>Solanum rostratum</i>
butterfly bush (B)	<i>Buddleia davidii</i>
common catsear (C)	<i>Hypochaeris radicata</i>
common groundsel (C)	<i>Senecio vulgaris</i>
curly-leaf pondweed (C)	<i>Potamogeton crispus</i>
English hawthorn (C)	<i>Crataegus monogyna</i>
English ivy (C) specific varieties	<i>Hedera helix, H. hibernica</i>
fragrant water lily (C)	<i>Nymphaea odorata</i>
field bindweed (C)	<i>Convolvulus arvensis</i>
green alkanet (C)	<i>Pentaglottis sempervirens</i>
hairy white top (C)	<i>Lepidium appelianum</i>
Italian arum (C)	<i>Arum italicum</i>
myrtle spurge, (B)	<i>Euphorbia myrsinites</i>
old man's beard (C)	<i>Clematis vitalba</i>
oxeye daisy (C)	<i>Leucanthemum vulgare</i>
pampas & jubata grass (C)	<i>Cordia selloana& jubata</i>
reed canarygrass (C)	<i>Phalaris arundinacea</i>
St Johnswort, common (C)	<i>Hypericum perforatum</i>
thistle, bull (C)	<i>Cirsium vulgare</i>
thistle, Canada (C)	<i>Cirsium arvense</i>
tree-of-heaven	<i>Ailanthus altissima</i>
toadflax, yellow (C)	<i>Linaria vulgaris</i>
white cockle (C)	<i>Silene latifolia</i>
wild carrot (C)	<i>Daucus carota</i>
yellow flag iris (C)	<i>Iris pseudacornus</i>

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 on the Olympic National Forest website (<https://www.fs.usda.gov/alerts/olympic/alerts-notice>). The text of the legal notice read as follows (from 2022):

The screenshot shows the USDA Forest Service website. At the top, there is a navigation bar with the USDA logo and the text "Forest Service Caring For the Land and Serving People". To the right, it says "Olympic National Forest" with links for "Forest Service Home", "About the Agency", "Contact the National Office", and "Inside the FS". Below this is a dark green navigation bar with links for "Home", "Visit Us", "Managing the Land", "Learn", "Working With Us", and "About Us".

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- Herbicide applications to occur on Olympic National Forest**
Date(s): Apr 22, 2022

The Olympic National Forest may be applying the herbicides glyphosate, clopyralid, triclopyr, aminopyralid, sulfometuron methyl, or imazapyr to noxious weeds or other invasive plant species from April 25 – November 18, 2022. Limited injection or cut stump treatments may be conducted from November 19, 2022 – April 22, 2023. Please [see the following spreadsheet and maps](#) for a more detail about treatment areas.

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 the formulation of the herbicide to be applied will be posted at entrances to the target road systems and/or individual sites. For questions about applications contact Nick Jarvis, Invasive Plant Program Coordinator at (360) 956-2319.

Fire Danger TODAY
LOW

[Fire Information](#)

Alerts & Warnings

[Forks Area Flood Damage & Road Closure](#)

[Herbicide applications to occur on Olympic National Forest](#)

[Alcohol Ban along Lake Cushman Corridor \(FS-24\) remains in effect](#)

[View All Forest Alerts](#)

Quick Links

[Forest Rules & Regulations](#)

[Crime Prevention/Report a Crime Form](#)

Related Links

[National Weather Service](#)

[Washington State Department of Transportation](#)

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

Nick Jarvis
Forest Botanist and Invasive Plant Program Coordinator
Olympic National Forest
1835 Black Lake Blvd., SW Suite A
Olympia, WA 98512
Nicholas.jarvis@usda.gov
360-956-2319

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

APPENDIX J: PROJECT FORMS

FACTS Manual/Herbicide Treatment Data Form-front side

2023 FACTS Invasive Plant Treatment Data Form
General Activity Fields

Ref #: 84

Document only one area represented by one Ref # per FACTS form.

Region	Forest	District (circle one) *	6 th Field Watershed Name	Owner	Workforce** (and Number of People in Crew)
06	09	PAC-N (05) PAC-S (03)	HC-N (02) HC-S (01)	Jimmy Come Lately	FS CCNWB (2) # people
Method Code	Equipment Code:	Job Code:	Treatment Location and Comments:		
700 Herbicide	(circle one) 711 hand sprayer 712 backpack sprayer 713 hack & squirt 716 injector		If you are treating a road, record Road number w/ BMP & EMP If you are not treating a road (ex: a campground, rock pit, etc) record Site Name -Record this information as it appears on the spreadsheet - 2850000 Milepost 4.6-7.4 Comments:		
100 Manual	721 mobile ground sprayer 000 other		Was entire area represented by the Ref# treated for weeds? <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No → 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 #
7/6/23	12.6	Road edge/ROW Forest Admin Site	Allison Frick - 104051, C. St. John - 104740
		Riparian Rock Source Other:	Total Manual Infested Area Treated: 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
IMCA	0.5 acres	2	310+8 mp 0.1
CEMO	0.1 acres	1	mp .8
GERO	6.3 acres	2	mp 1.7, 2.3, 3.0
JAVU	1.9 acres	1	mp 1.7, 1.8, 2.0, 2.1, 2.2, 2.5
	acres		22 Plants manual
CLVU	0.5 acres	2	mp 2.1, 2.3
	acres		r
	acres		

FACTS Manual/Herbicide Treatment Data Form-back side

Daily Log

Reminder: Review buffers prior to spraying, they are sometimes different than what's on the label. In particular, DO NOT use any triclopyr formulations (including aquatic) within 15 ft of water.

Tank Mix 1

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:				
7/6/23	11:15	4:45	77°	4	NW	0					
Total Volume of Mix Applied	UOM	Mix (ounces herbicide per 1 gallon water)		Dilutant	Applicators Names						
4	Gallons	1. 0.16 oz/ gal		Water	C. St John A. Frick						
		2. 1.92 oz/ gal									
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):				
Milestone - Vastlan - Element 3A 1. Aquaneat - Aquamaster - Transline - Stinger - Oust - Polaris	0.64 oz		125%	Agridex - Completitor	5.1 oz	1.0%	8.7				
Milestone - Vastlan - Element 3A 2. Aquaneat - Aquamaster - Transline - Stinger - Oust - Other:	7.7 oz		1.5%	Hilight Blue - Blazon Blue	0.6 oz	0.125%	Area treated in Riparian Reserves: 8.7				
		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					
	Gallons	1. oz/ gal		Water						
		2. oz/ gal								
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):			
Milestone - Vastlan - Element 3A 1. Aquaneat - Aquamaster - Transline - Stinger - Oust - Other:	oz		%	Agridex - Completitor	oz	%				
Milestone - Vastlan - Element 3A 2. Aquaneat - Aquamaster - Transline - Stinger - Oust - Other:	oz		%	Hilight Blue - Blazon Blue	oz	%	Area treated in Riparian Reserves:			
		oz	%		oz	%	Area Treated within 5 feet of Standing Water:			

(From front page) Ref #: 84 Notes: 823.0

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

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.

2023 FACTS Invasive Plant Treatment Data Form

Rock Source Inspection Record for Invasive Plants

Valid one year from date of inspection. Expiration date: __

Rock Source Information:

Name of Rock Source:	Parcel Number (s):	Acres:
Address of Rock Source:		
Closest town:		
Phone Number:		
Name and Title of Rock Source Contact Person:		
Narrative of location of rock source:		

Inspection Information:

Agency Conducting Inspection: Clallam Noxious Weed Control Board	
Name and Title of Inspector:	
Contact Information of Inspector: (360)417-2442, 223 E Fourth St, Suite 15, Port Angeles, WA. 98362	
Signature of Inspector:	Date of Inspection:
Does this Rock Source meet "Weed-free" standards (indicate option): Clallam County RD: __ Environmental: __ Olympic National Forest: __ Olympic National Park: __ <small>-(subject to proj specs)</small>	
Does this Rock Source have mitigation requirements? __ Description:	
Treatment/Management priorities:	
1. Access roads:	

2. Active pit area:	

3. Perimeter of property:	

4. Vehicle parking & wash areas:	

5. Stock piles:	

6. Additional areas:	

Does This Rock Source Meet Forest Service and/or Clallam County Requirements for Use?

The inspector will circle or highlight the option that best describes this quarry. **This rating is not an endorsement.**

Option A	<p>This rock source exceeds requirements. <i>Invasive plants are rare to absent in quarry. Use of materials would almost certainly not contribute to the spread of invasive plants.</i></p>
Option B	<p>This rock source meets requirements. <i>Invasive plants are uncommon in quarry, and easily isolated.</i></p> <ul style="list-style-type: none"> • Invasive plants that are present – even those that are easily isolated - are not listed as high priority or regulated species and/or are not species of particular concern. • Non-regulated or lower priority species may be present, but are not pervasive. They may be present in small, isolated patches within or near the rock source, but can be isolated by simple precautionary measures. • 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. • Treatment of weeds is recommended, but use of materials from this source as found on the day of inspection would most likely not contribute to the spread of invasive plants on Forest Service lands if simple precautionary measures are followed. County road or restoration projects may require additional mitigation.
Option C	<p>This rock source meets minimum requirements, but will only be used if no other source is available. <i>Invasive plants are common in quarry; precautionary measures will need to be followed carefully to prevent spread.</i></p> <ul style="list-style-type: none"> • Any regulated or species listed as priority 1 by Olympic NF or species of particular concern are absent in or around rock source*. • Non-regulated or species listed as priority 2 by Olympic NF 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. • Treatment of weeds is highly recommended, and may be required as a condition of use by the Forest Service or County projects. Distribution of materials from this rock source may contribute to the spread of noxious weeds if precautionary measures are not followed carefully. County road or restoration projects may require additional mitigation. <p><small>*In limited circumstances, as determined by the inspector, this box may be checked when species listed as Priority 1 and/or of particular concern are present in very small, easily isolated patches.</small></p>
Option D	<p>This rock fails to meet minimum requirements for use on Forest Service lands or Clallam County Projects. <i>Distribution of materials from this rock source would likely contribute to the spread of noxious weeds.</i></p> <ul style="list-style-type: none"> • Regulated or weed species listed as priority 1 and/or species of particular concern are present in or around this rock source, OR weed species listed as priority 2 by the Forest Service are present to the extent that plants and/or propagules (seeds, roots, etc.) are present in significant portions (greater than half) of the rock source and/or cannot be isolated by simple precautionary measures. • Treatment of weeds followed by subsequent inspections will be required as a condition of use.

Additional space for map, comments and/or recommendations:

Name of Rock Source:

Date of Inspection:

Document valid 1 year after inspection.

Weed List: 2022*

Species	Code	Common Name	Scientific Name	Abundance (circle one – use comments section to
VIMA		bigleaf periwinkle	<i>Vinca major</i>	Widespread / Scattered / Rare
AEPO		Bishop's weed, goutweed	<i>Aegopodium podagraria</i>	Widespread / Scattered / Rare
SILAA3		bladder campion (C)	<i>Silene latifolia</i> ssp. <i>alba</i>	Widespread / Scattered / Rare
POBO10		Bohemian knotweed (B _s)	<i>Polygonum x bohemicum</i>	Widespread / Scattered / Rare
BUDA2		butterfly bush (B)	<i>Buddleja davidii</i>	Widespread / Scattered / Rare
BRTE		cheatgrass	<i>Bromus tectorum</i>	Widespread / Scattered / Rare
BOOF		common borage	<i>Borago officinalis</i>	Widespread / Scattered / Rare
SYOF		common comfrey	<i>Symphytum officinale</i>	Widespread / Scattered / Rare
VETH		common mullein	<i>Verbascum thapsus</i>	Widespread / Scattered / Rare
VIMI2		common periwinkle	<i>Vinca minor</i>	Widespread / Scattered / Rare
TAVU		common tansy (B ₊)	<i>Tanacetum vulgare</i>	Widespread / Scattered / Rare
HEMA3		dames rocket	<i>Hesperis matronalis</i>	Widespread / Scattered / Rare
CEI3		diffuse knapweed (B ₊)	<i>Centaurea diffusa</i>	Widespread / Scattered / Rare
HISA4		European hawkweed (B ₊)	<i>Hieracium sabaudum</i>	Widespread / Scattered / Rare
TUFA		European coltsfoot (B ₊)	<i>Tussilago farfara</i>	Widespread / Scattered / Rare
BRSY		false brome (A)	<i>Brachypodium sylvaticum</i>	Widespread / Scattered / Rare
DIFU2		Fuller's teasel (B _s)	<i>Dipsacus fullonum</i>	Widespread / Scattered / Rare
LYVU		garden yellow loosestrife (B ₊)	<i>Lysimachia vulgaris</i>	Widespread / Scattered / Rare
POSA4		giant knotweed (B _s)	<i>Polygonum sachalinense</i>	Widespread / Scattered / Rare
GERO		herb Robert, stinky Bob (B _s)	<i>Geranium robertianum</i>	Widespread / Scattered / Rare
POPO5		Himalayan knotweed (B _s)	<i>Polygonum polystachyum</i>	Widespread / Scattered / Rare
POCU6		Japanese knotweed (B _s)	<i>Polygonum cuspidatum</i>	Widespread / Scattered / Rare
LYPU2		large yellow loosestrife	<i>Lysimachia punctata</i>	Widespread / Scattered / Rare
ARM12		lesser burdock	<i>Arctium minus</i>	Widespread / Scattered / Rare
HICA10		meadow (yellow) hawkweed (B ₊)	<i>Hieracium cespitosum</i>	Widespread / Scattered / Rare
CEDES		meadow knapweed (B ₊)	<i>Centaurea debeauxii</i>	Widespread / Scattered / Rare
HIAU		orange hawkweed (B ₊)	<i>Hieracium aurantiacum</i>	Widespread / Scattered / Rare
ORVU		oregano	<i>Origanum vulgare</i>	Widespread / Scattered / Rare
MEP		peppermint	<i>Mentha X piperita</i>	Widespread / Scattered / Rare
COMA		poison hemlock (B ₊)	<i>Conium maculatum</i>	Widespread / Scattered / Rare
CYSC4		Scot's broom (B _s)	<i>Cytisus scoparius</i>	Widespread / Scattered / Rare
CESTM		spotted knapweed (B ₊)	<i>Centaurea stoebe</i> ssp. <i>micranthos</i>	Widespread / Scattered / Rare
PORES		sulfur cinquefoil (B ₊)	<i>Potentilla recta</i>	Widespread / Scattered / Rare
SEJA		tansy ragwort (B _s)	<i>Senecio jacobaea</i>	Widespread / Scattered / Rare
LAGA2		yellow archangel (B ₊)	<i>Lamium stramonium</i>	Widespread / Scattered / Rare
CLVU		wild basil savory (B ₊)	<i>Clinopodium vulgare</i>	Widespread / Scattered / Rare
CIVU		bull thistle (C)	<i>Cirsium vulgare</i>	Widespread / Scattered / Rare
CIAR4		Canada thistle (C)	<i>Cirsium arvense</i>	Widespread / Scattered / Rare
HYPE		common St. Johnswort (C)	<i>Hypericum perforatum</i>	Widespread / Scattered / Rare
RULA		cutleaf blackberry (C)	<i>Rubus laciniatus</i>	Widespread / Scattered / Rare
ILAQB0		English holly	<i>Ilex aquifolium</i>	Widespread / Scattered / Rare
HEHE		English ivy (C)	<i>Hedera helix</i>	Widespread / Scattered / Rare
PRLA5		English laurel	<i>Prunus laurocerasus</i>	Widespread / Scattered / Rare
LALA4		everlasting peavine	<i>Lathyrus latifolius</i>	Widespread / Scattered / Rare
COAR4		field bindweed (C)	<i>Convolvulus arvensis</i>	Widespread / Scattered / Rare
LASY		flat pea	<i>Lathyrus sylvestris</i>	Widespread / Scattered / Rare
RUAR9		Himalayan blackberry (C)	<i>Rubus armeniacus</i>	Widespread / Scattered / Rare
DACA6		wild carrot (B)	<i>Daucus carota</i>	Widespread / Scattered / Rare
PHAR3		reed canarygrass (including ribbon grass) (C)	<i>Phalaris arundinacea</i>	Widespread / Scattered / Rare
DIFU		purple foxglove	<i>Digitalis purpurea</i>	Widespread / Scattered / Rare
HYRA3		hairy catsear (B)	<i>Hypochaeris radicata</i>	Widespread / Scattered / Rare
LEVU		oxeye daisy (B)	<i>Leucanthemum vulgare</i>	Widespread / Scattered / Rare
		other noxious weeds		Widespread / Scattered / Rare
		agricultural weeds		Widespread / Scattered / Rare
		undesirable ornamental plants		Widespread / Scattered / Rare
		other non-native weeds		Widespread / Scattered / Rare

*List incomplete; may include any ONF plant species of concern, noxious or non listed undesirable invasive ornamental, agricultural or other weedy species.

Widespread = Common in rock source and would be difficult to avoid, even with preventive measures. **Scattered** = Present to varying degrees in rock source, but can be isolated and avoided with preventive measures. **Rare** = One or very few individuals or small patches that are easily isolated and avoided with very simple or no preventive measures.

A, B, B select, B designate, C refer to state or county weed list designations-**bolded shows control is mandated by WA state law.**

Name of Rock Source:

Date of Inspection:

Document valid 1 year after inspection.



Clallam County, Washington

BACKPACK CALIBRATION FORM

DATE:

1 MEASURE AREA OF TEST COURSE

LENGTH =

WIDTH =

LENGTH X WIDTH = SQ FT

2 MEASURE AMOUNT OF MATERIAL APPLIED OVER TEST AREA

a. TIME TO COVER ENTIRE AREA SECONDS

B. NOZZLE OUTPUT (catch can time-same as test area time) OUNCES

$\frac{\text{OUNCES}}{128} = \frac{\text{42}}{128} = \text{0.328}$ GALLONS APPLIED

3 CALCULATE CALIBRATION RATE:

$\frac{\text{GALLONS APPLIED}}{\text{SQUARE FEET}} = \frac{\text{0.328}}{\text{342.3}} \times 1000 = \text{0.959}$ GALLONS PER 1,000 SQUARE FEET (GPK)

GALLONS PER ACRE = X 43.56 = (GPA)

DATA RECORD

TESTED BY:

NOZZLE:

SPRAYER:

OTHER:

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.