The view from horseback as Backcountry Horsemen of Washington (Mt Olympus Chapter) and Clallam County Noxious Weed Control Board team up to tackle orange hawkweed at Jasmine's Meadow

Olympic Peninsula Cooperative Noxious Weed Control 2020 Project Report

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

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

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*Appendices are noted but omitted from an abridged version of this report

EXECUTIVE SUMMARY

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

Project Overview:
This project has been a comprehensive program for noxious weed control on Forest Service (FS) lands across the North Olympic Peninsula. It includes surveying, identifying, and controlling noxious weeds through a work plan coordinated between the Forest Service and local weed control boards. This project compliments the efforts of local weed board programs, which includes public education, survey and 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 or grants have sometimes augmented additional tasks added to a work plan. Depending on funding levels in any given year, work has been accomplished by crews of varying size and expertise.

2020 Project Goals:
1. Control weeds on areas scheduled for road decommissioning or forest management.
2. Control weeds in quarries and other rock sources.
3. Control weeds in Botanical Areas and other special "critical area" sites-such as elk habitat.
4. Control weeds in campgrounds, trailheads and other heavily-used sites
5. Revisit previously controlled sites and perform necessary follow-up control work.
6. Identify and treat new populations.

2020 Resources:
- Supervisor (up to 40 hours/week, 5 months)
- 1-2 Field crew (up to 40 hours/week, 4 months)

2020 Accomplishments:
- Examined **386** acres for invasive species, treated **303** weed-infested acres, and monitored **22** treated acres.
- Inspected and treated high priority weeds in **12** FS rock sources; inspected and identified corrective measures for **7** private, **6** state and **25** county rock sources in regard to their potential to spread invasive weeds,
- Compiled data and completed annual Project Report.

Observations and Recommendations:
Weed infestations negatively impact resources both within the Olympic National Forest and on adjacent lands. Restoring diversity and achieving habitat requirements and goals while improving forest productivity and overall ecosystem functioning is the underlying purpose of this invasive plant project. Weed species diversity, infestation size and density are much reduced where treatments have occurred. This year recruitment for seasonal crew and field work was complicated by COVID-19 pandemic restrictions and safety protocols. Nevertheless, we were able to complete all high priority projects. This year, no new weed species were found on ONF, but two regulated noxious weed species new to Clallam County were detected (and treated) in close proximity. Because of overall progress, we have been able to shift toward more early intervention and prevention activities; the most efficient and least expensive weed control methods in the long term. Long-range goals, detailed planning, consistency, and skilled staff have been the keys to progress to date.

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

Olympic National Forest (ONF) land is accessed via the county road system. These roads can therefore serve as a significant vector for the spread of invasive non-native plant species that imperil natural resources, habitat, and ecosystem function. Under the Clallam County Road Department's Integrated Weed Management (IWM) plan, the Clallam Noxious Weed Control Board (CNWCB) crew treated eleven county roads leading to the Olympic National Forest. This was a coordinated response to our ONF 2020 work plan and is an excellent example of the cross jurisdictional cooperative approach to managing noxious weeds on a landscape scale. More work in this regard needs to happen with neighboring Jefferson County. Unprecedented cooperation for the greater public good between the Forest Service, Clallam County and the Clallam Noxious Weed Control Board, are at the heart and intent of the Title II of the Secure Rural Schools Act. Large scale coordinated, multi-jurisdictional projects such as ours demonstrates the capacity we have forged through this program to work with a wide array of partners. This is a direct legacy of the working relationships created on the Olympic Peninsula because of Title II of the Secure Rural School Act and the vital funding it provides.

PROJECT SUMMARY

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

Project Overview:
Title II of the Secure Rural Schools Act (SRS), was designed in part to promote cooperation and collaboration between federal and local governments. This project has been a comprehensive program for noxious weed control on the North Olympic Peninsula, including surveying, identifying, and controlling noxious weeds, coordinating action and communication between local, state and federal jurisdictions, and raising public awareness of the impacts of noxious weeds. Additional dollars from specific Forest Service (FS) funds have sometimes augmented additional tasks added to the FS directed work plan for weed board partners.

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

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

Work in the National Forest has typically been accomplished by crews of varying size and expertise to match the need on the ground with available funding. Over the years, this has included a two to four person Clallam Noxious Weed Control Board (CNWCB) field crew, a larger six person Washington Conservation Corps (WCC) crew, and briefly, an Olympic Correction Center (OCC) inmate crew working in the west end of Jefferson and Clallam Counties. Although the Forest Service has hired contractors for certain, large scale projects, there have been no outside contractor projects for many years. More recently ONF has hired an invasives 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 2-3 person 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 has been working toward collaborating on projects with the FS where interest areas overlap such as the coastal portion of the Olympic Peninsula.

2020 Project Description:
This year's work focused on sites designated as high priority by the Forest Service, including infrequent high priority species, sites planned for decommission, forestry related activities, and habitat conservation. This year's team consisted of two to three members (led by experienced weed board staff) who alternated between Forest Service projects and county work including in-stream knotweed and county roadside weed control, over the course of the treatment season. Recruitment for seasonal crew and field work was complicated by COVID-19 pandemic restrictions and safety protocols.

The Forest Activity Tracking Sheet (FACTS) form was used to document treatments. Treatment reporting was based on a unique "Reference Number", arbitrarily assigned within 6th field watersheds.

In 2020, 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.

2020 Project Resources and Roles:

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

- **CNWCB**

  Coordinator: up to **40 hours/week, for 5 months, licensed applicator**
  - Supervised and administered the project
  - Provided technical information and support, crew training, and field treatments
  - Participated in planning meetings with Forest Service staff
  - Reviewed crew FACTS, Monitor, and Inventory forms, submitted to the FS
  - Compiled data, prepared end-of-season report and planned for 2021 field season
  - Provided non-forest rock source inventory, monitoring and reporting, as requested

  Field team: 1-2 (licensed applicators), up to 40 hrs/week over 4 months,
  - Field treatments **(36 10 hour-treatment days)**
  - Data collection, completing treatment forms, rock source inventory and monitoring

2020 Project Accomplishments:

- The Clallam NWCB examined **386** acres, and treated **23** different weed species over **303** of those acres; **99** acres of the 303, were manual or combined manual/chemical treatments. In the course of these treatments we documented at least **23 new** infestations; most were small easily-controlled, early detections.
- Completed and submitted associated FACTS forms for all treated sites
- Inspected, treated, and documented the status of **12** FS, rock sources, inspected and facilitated control plans for **6** state and **7**private rock sources. Treated **25** county rock sources under ancillary Clallam Integrated Weed Management plan which compliments FS prevention protocols.
- Monitored **22** acres and completed associated Monitor forms.

2020 Treatments:

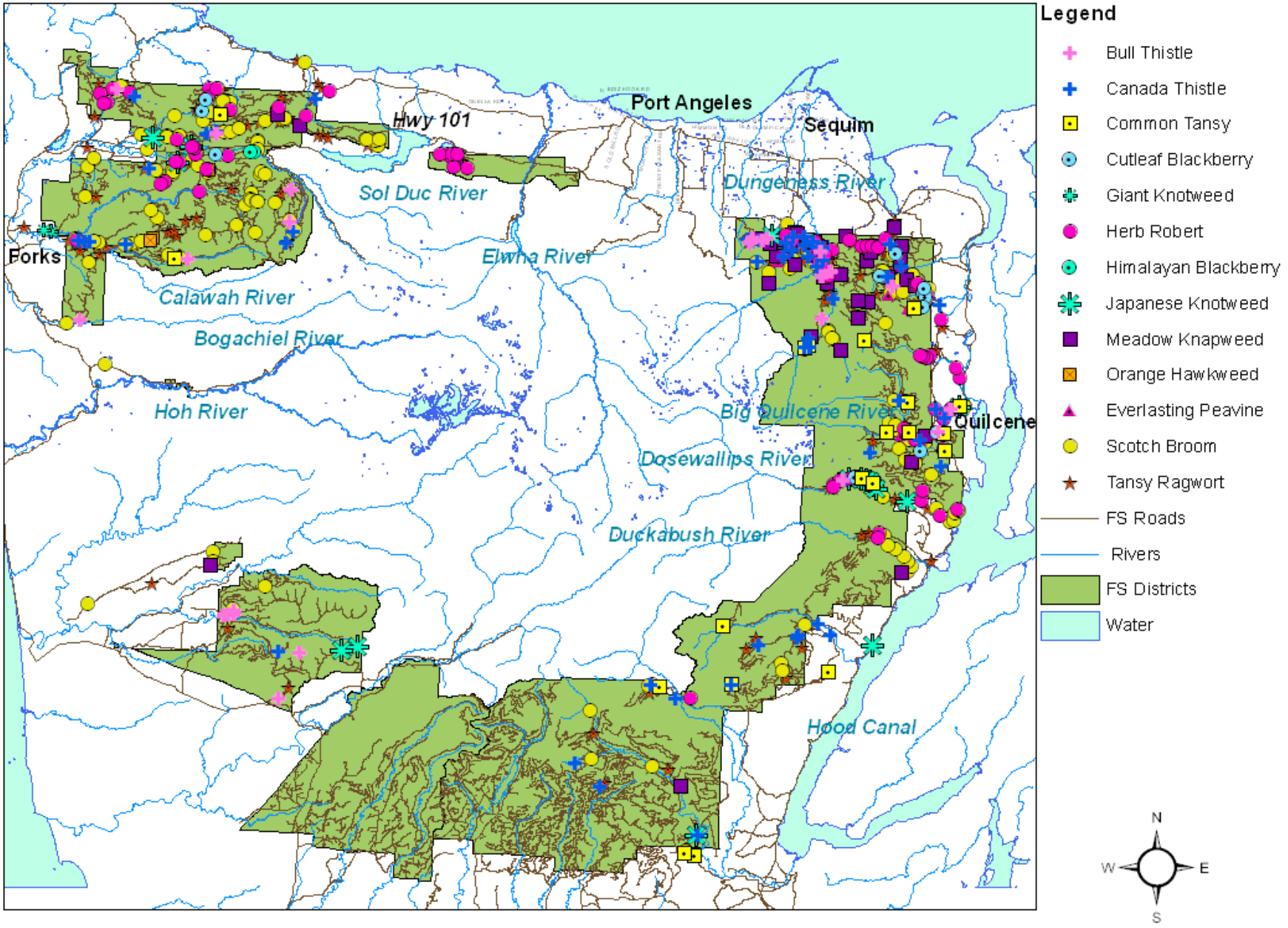
The increased capacity to cover ground by using all available tools has been instrumental in getting ahead of, and reducing the spread and impacts of invasive plant species. The discovery of new sites and/or new species continues to slow. Often these new infestations are small and easily controlled validating the concept of early detection, rapid response. See *Post –Season Observations* for more detail. Appendix A provides detailed information about specific 2020 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 2020 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 2002-2020 Accomplishment Summary Table in Appendix D provides prospective on 2020 accomplishments by summarizing yearly crew activities since 2002. Yearly comparisons are complex and inconsistent because of changes in focus, crew resources and FS reporting protocols since this program began in 2002. From 2002 to 2006, herbicides use was limited or disallowed. Manual treatments for those 5 years have been consolidated and acres treated estimated. When herbicide treatments were allowed, the CCNWCB was able to cover at least triple the amount of acres. Notice how annual focus on surveys corresponds to number of new discoveries. Treatments shown for years after 2006 may also have been combined, to conserve space. See previous reports posted on our website for greater detail of any specific project season.

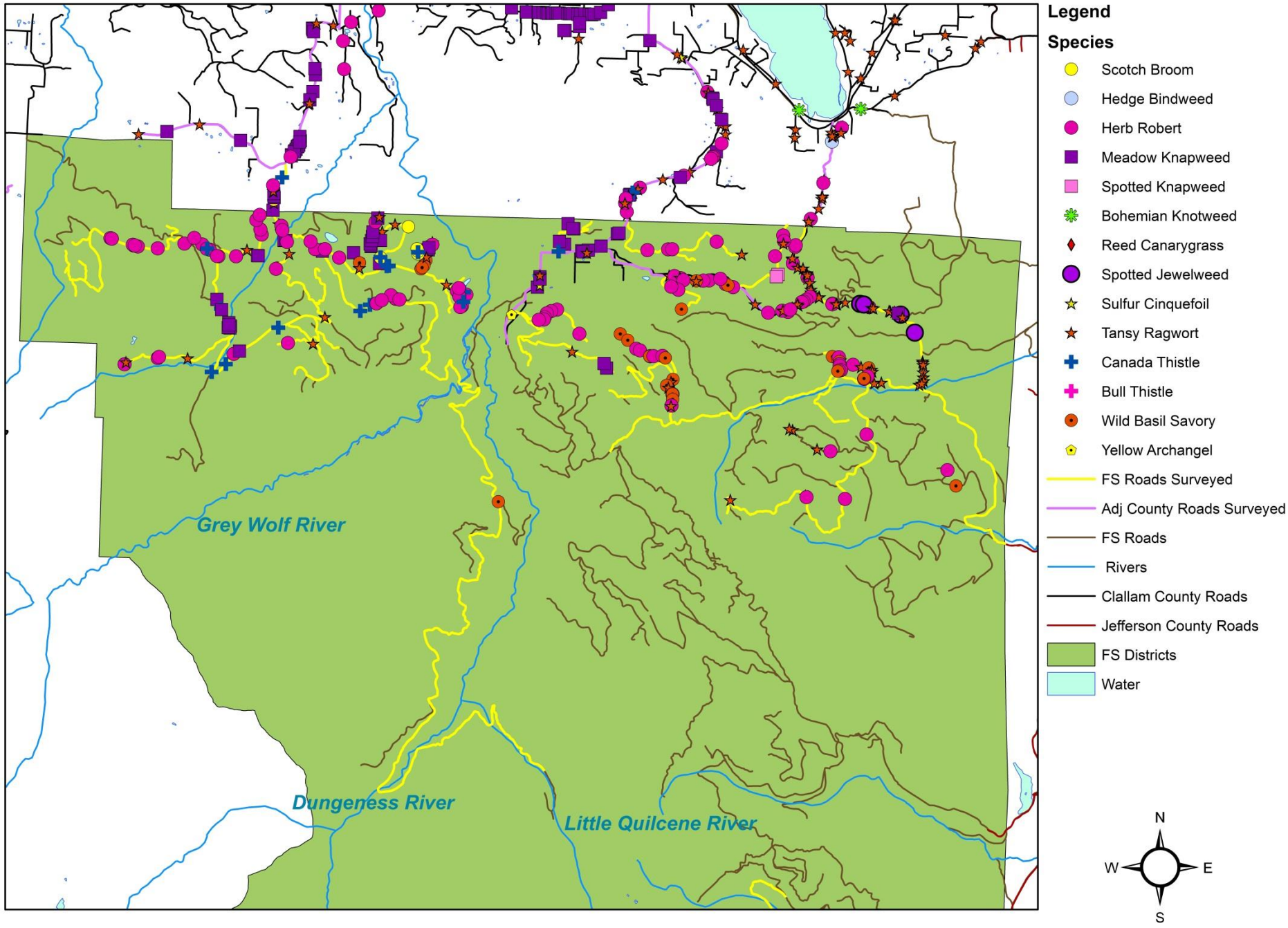
MAPS

- Four maps are shown—an original baseline Overview of the Olympic National Forest—two showing current season surveys and weed sites in the Hood Canal District from north to south —one showing current season surveys and weed sites in the Pacific North district.
- The Overview Map shows baseline weed sites, documented from 2002- 2005.
- Forest Service roads where weed board crew worked in 2020 are shown in yellow. The Roads Surveyed 2020 layer was created using a Forest Survey road layer and selecting roads on which treatment occurred. Although more efficient, this method of selecting surveyed roads may have inadvertently omitted roads that were surveyed while traveling to treatment sites. Some adjacent County roads that were surveyed and some of those treated in Clallam County jurisdiction for regulated weeds, are shown in pink. This addition reflects Clallam County's commitment to reduce the spread of noxious weeds between jurisdictional boundaries.
- The 2020 activity maps show weed sites either newly documented in 2020 OR sites of weed species that are regulated in Clallam or Jefferson County under state law, whether they were documented in past years or not. Points displayed on the map were collected this year by the field crew, using either a Garmin 78 or a smart phone. Office staff converted the points collected with a Garmin 78 to shape files, using the Minnesota DNR public domain software DNR GPS version 6.1.0.6, Crew used Collector and WSDA's IForm to document treatment of regulated weed species when collecting points on a smart phone. Points gathered this year by either method were collated into the weed layer displayed on the map. Note that points are not sized to reflect the size of an infestation.

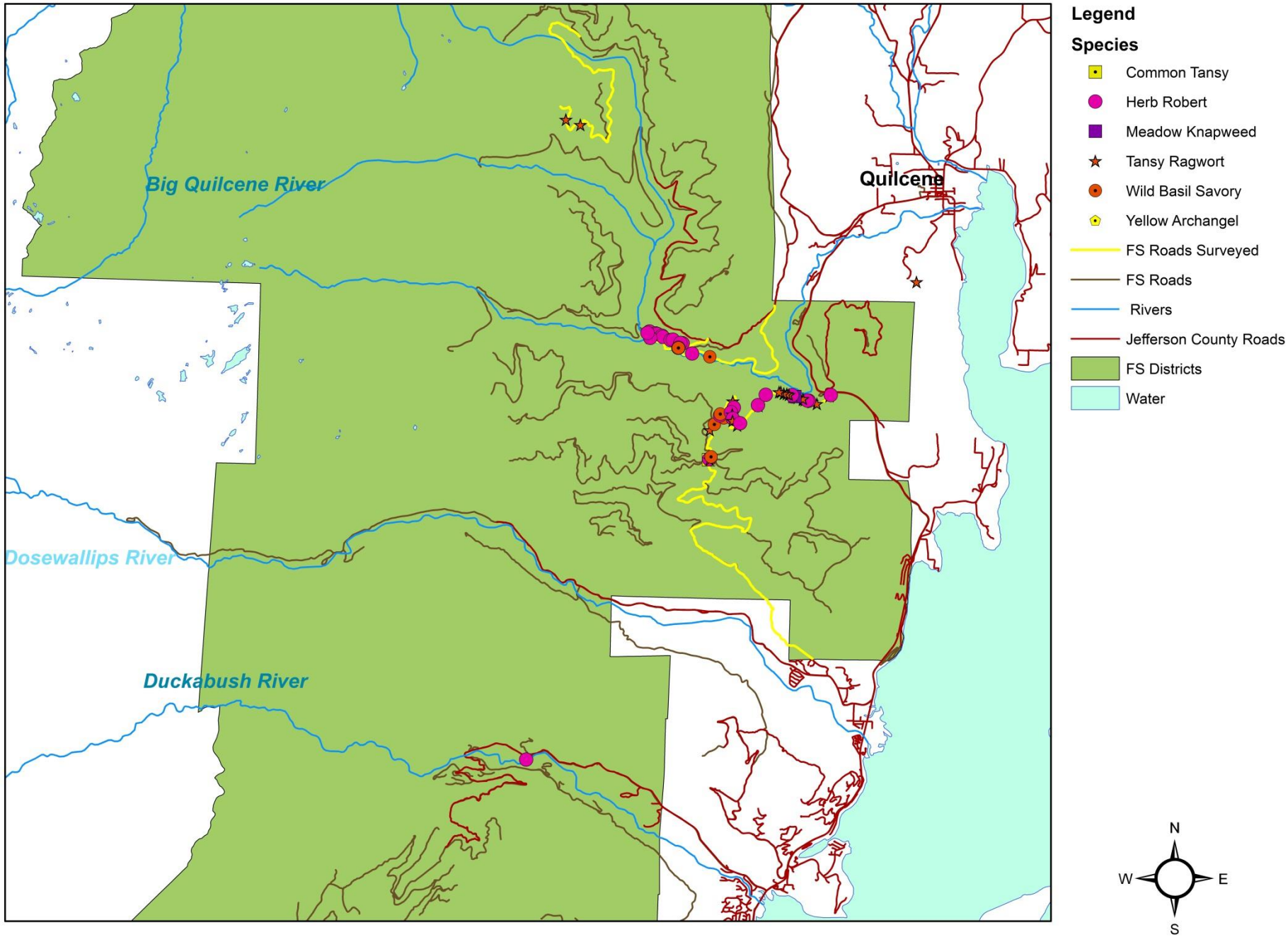
Olympic National Forest Overview, with Baseline Weed Sites



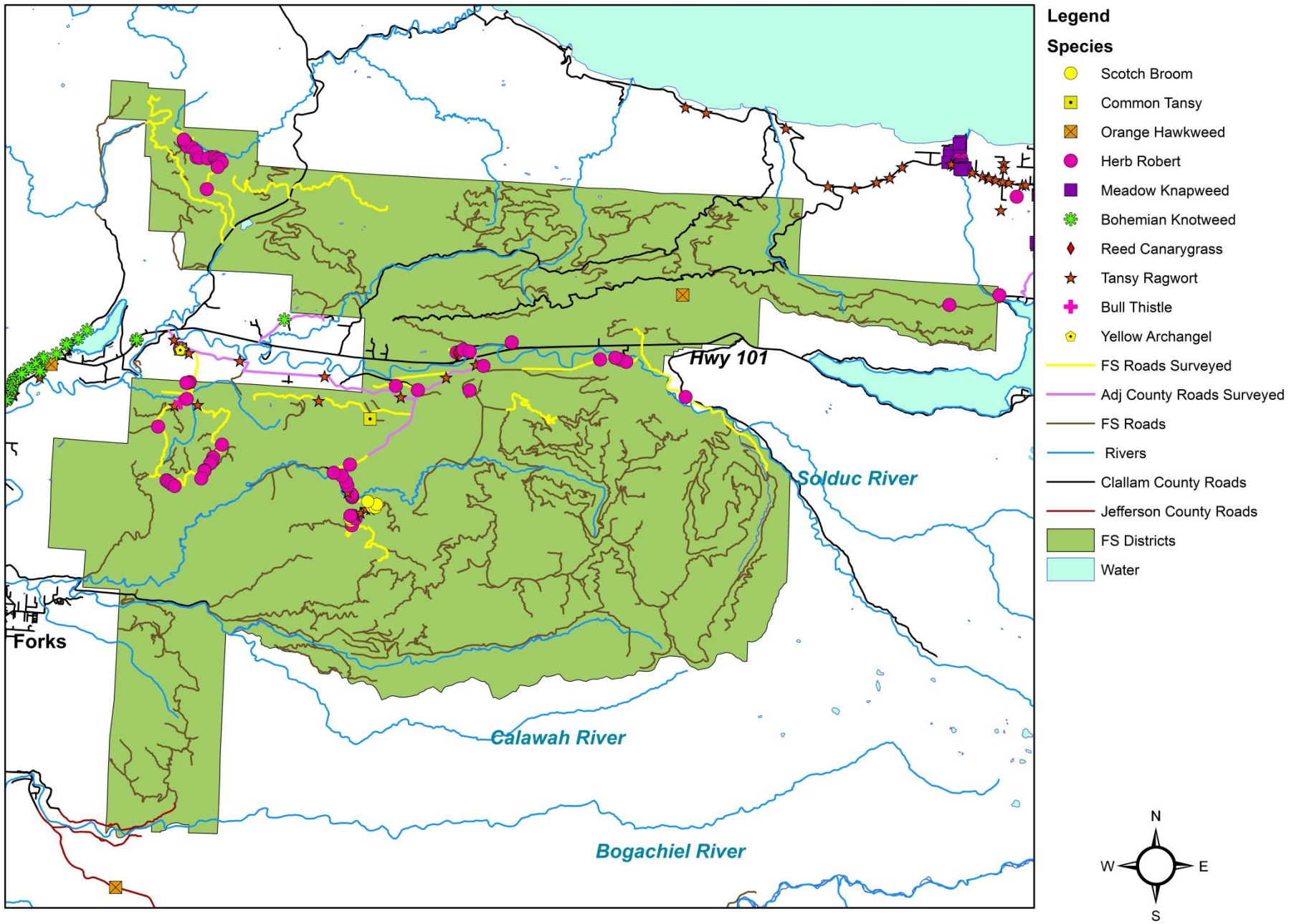
Hood Canal North

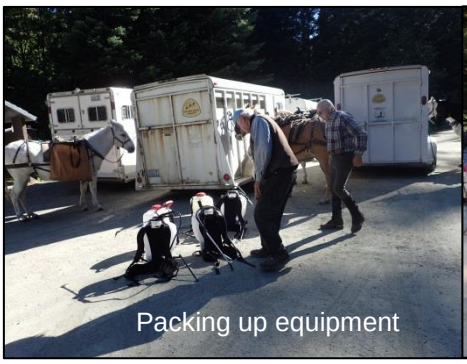


Hood Canal South



Pacific North




Packing up equipment


Safety meeting with COVID-19 masking/social distancing


In the meadows

PROJECT SPOTLIGHT: BACK COUNTRY HORSEMEN OF WASHINGTON-NOW WEED WARRIORS

This season a number of high priority projects identified in the 2020 work plan were in remote locations including invasive plant treatments in botanical areas, elk habitat, or for infrequent highly invasive species. Some projects were supported directly by Rocky Mountain Elk Foundation contributions. Several were implemented with the assistance of volunteers groups such as the Back Country Horsemen of Washington.

Natural resource managers increasingly recognize the severe ecological threats noxious weeds or other invasive non-native plant species can have on our precious wild land areas and the species that depend on them. Heavy infestations of Canada in particular, have discouraged elk calving and bedding activities while reed canarygrass and oxeye daisy reduce forage quality needed to support a variety of wildlife species. Canada thistle, a highly prolific rhizomatous non-native is extremely difficult to control, let alone eradicate in these remote natural areas. Orange hawkweed, a relatively infrequent invasive in the Olympics, is an unpalatable forb that forms dense mats crowding out important native species. It was recently discovered in an upland meadow.


Canada thistle

We treated invasives at Camp Handy, Jasmine's meadow (on the ridgeline between between Kloshe Nanitch and Mt Muller) as well as special "botanical areas" such as Pats Prairie and Cranberry Bog which represent unique habitats within FS lands. We also surveyed and performed touch-up treatments in elk habitat enhancement areas such as the Caraco Units where early seral thinning for elk forage enhancement was conducted by the Forest Service over ten years ago. Each of these sites had a slightly different complement of invasives, but Canada thistle was a common target because it thrives in grassy/shrub wet prairie or wetlands. In all cases, focused treatments were performed by or under the supervision of licensed applicators skilled at distinguishing native plants from noxious weeds. Treatments were carefully designed and implemented to have the least impact on desirable plants, animals and the environment.


orange hawkweed forms dense mats excluding native plants

Each of this year's remote projects included varying distances to access and degree of complexity to execute. For example, Camp Handy requires a three and one half mile hike to the first meadow (of three), while accessing Jasmine's meadow required a steep hike to the ridgeline of Mt Muller. These two projects in particular could not have been accomplished readily without the assistance of our local chapters of Back Country Horsemen of Washington (BCHW). For those who have yet to have the pleasure of working with these dedicated and incredibly knowledgeable volunteers, it would be hard to image how much worse the public experience in the Forest would be without them. Individual Back Country Horsemen chapters clock thousands of volunteer hours across the state maintaining trails, re-building failing infrastructure and removing hazard trees at the behest of the Forest Service. The BCHW cheerfully make multiple trips hauling mounds of equipment and supplies in and out for crews sent to accomplish a variety of tasks deep in the backcountry. In addition to all these services, our local chapters assisted with weed treatments.

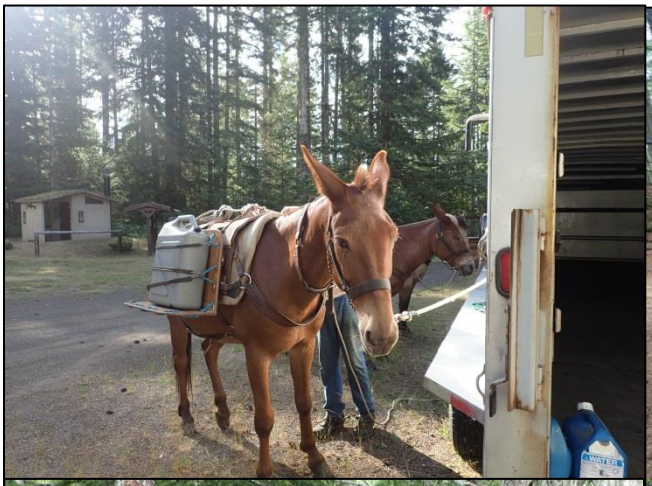
Below is a brief summary of these special or remote sites and the activities that took place this season.

Panorama of Camp Handy meadow

Camp Handy and associated meadows: A series of meadows; requires crossing the river. Canada thistle was almost exclusively the target. Last year's treatments were extremely successful with over a 75% reduction compared with last year. This year the meadow across the river was the most infested, while the farthest meadow up Heather Creek was least infested. The Camp Handy infestation was very much reduced compared to last year. Tom Mix (Peninsula Chapter BCHW) reported a fourth meadow with a small infestation farther up the mountain on the far side of the river. He showed Forest Service staff where to begin their hike to map this location for future treatment. We also investigated a reported sighting of Canada thistle approximately one half mile beyond the Heather Creek meadow; none was found.

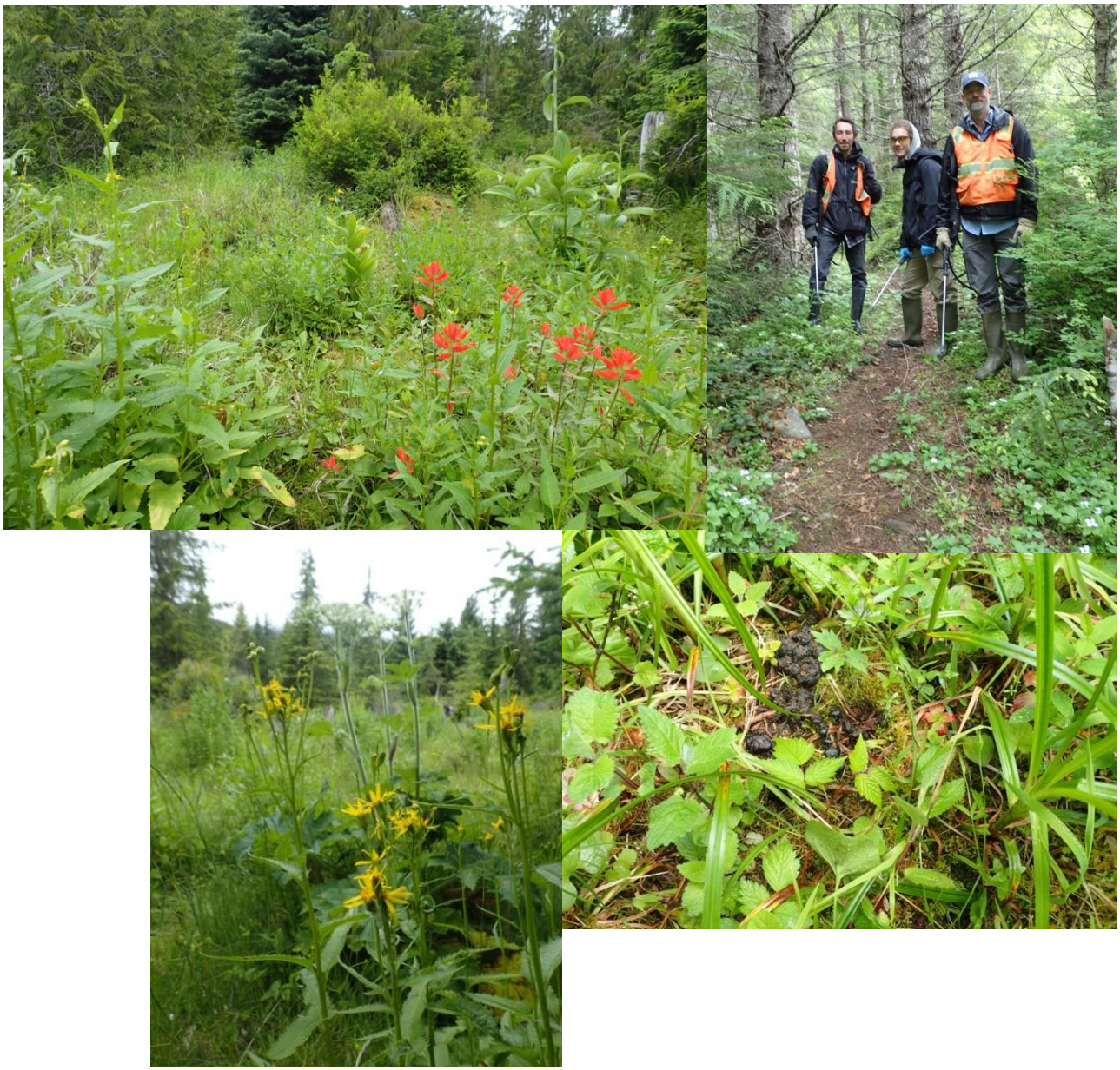
Top left: After treatment, a gorgeous stand of cow parsnip has replaced last year's infestation of Canada thistle at Camp Handy meadow. Trees in foreground were determined to be hazards by FS and were felled by BCHW FS-certified, master cross-cut sawyers Tom Mix and Del Sage. **Top right:** Mix and Sage clear trail of wind-downed trees using cross-cut saws they routinely carry for this purpose while on trips into the backcountry. **Bottom left:** Members of Peninsula Chapter BCHW recruited by Mix to assist with weed treatments, travel in style to sites. **Bottom right:** Mix shows FS staff where to access the trail to a new site he identified last fall.

Jasmine's Meadow-ridgeline Between Kloshe Nanitch and Mt Muller:
Jasmine's Meadow was a new location to treat based on a sighting of orange hawkweed reported to us by former Weed Board staff after a recreational hike. Orange hawkweed can easily overwhelm most forbs and even grass over time. Extremely bitter and hairy, it is unpalatable, replacing other important forage species for wildlife. Much more expansive than originally reported, it had overtaken much of Jasmine's Meadow, an otherwise rich and diverse meadow; a habitat type that is relatively scarce in the Olympic National Forest. The hike in is steep, and unlike the Camp Handy projects, there is no water onsite. Each gallon of water weighs approximately eight pounds-a full, four gallon backpack sprayer weighs over thirty-two pounds and can treat less than one/tenth acre when densely infested. We needed help. Through our Peninsula Chapter BCHW contact Tom Mix, we were put in touch with the Baysingers, an intrepid duo with the Mt. Olympus Chapter BCHW who supplied both riding and pack animals.



Top left: Pack animals are loaded at Littleton Horsecamp , a popular site maintained by Peninsula Chapter BCHW volunteers Larry and Sherrie Baysinger. Top right: Jim's Junction, at the top of the ridge, points the way to Jasmine's Meadow. Left: Baysinger rests the animals on the steep climb to Jasmine's Meadow. Above: Sherrie Baysinger photographs orange hawkweed for future ID as she helps collect seed heads. The Baysingers will scout for orange hawkweed on their many trips into the backcountry.

Pat's Prairie: A series of three meadows interspersed between stands of conifers. Native species have rebound as Canada thistle infestations are reduced. All areas showed EXTENSIVE use by elk and other wildlife.



Top left: First meadow erupts with color as native species rebound post Canada thistle treatments. **Top right:** Crew carries full packs to the farthest meadow, an easy twenty minute hike; there is no water available onsite. **Bottm left:** Elk beds and scat were evident throughout the Pat's Prairie meadow complex. **Bottom right:** A thicket of arrowhead butterweed fills area after Canada thistle is removed.

Cranberry Bog: Long standing, large infestations of reed canarygrass are much reduced and selective treatments of Canada and bull thistle has allowed native thistle, a good forage species to rebound. Herb Robert, although reduced in density, is still prevalent in wooded areas as well as portions of the decommissioned road leading to and surrounding this botanical area.

Top left: Patchy infestations of reed canarygrass are reduced in scope but still evident as open water recedes in this area of the bog. **Top right:** Crew packs in all the equipment and supplies needed for the day long project. Water is available onsite. Covid-19 safety protocols increased transport requirements and care on the part of crew to maintain social distancing. **Bottom left:** Native thistles are re-establishing an area formerly infested by reed canarygrass. **Bottom right:** Monkey flower and other native forbs rebound as heavy reed canarygrass infestations are suppressed.

A number of our success this year can be attributed to the powerful of partnerships between volunteer groups like the Back Country Horsemen of Washington, the Rocky Mountain Elk Foundation and public entities like Weed Boards and Forest Service who share a common interest in taking care of our precious forestland and wildlands. Harnessing the energy and resources of a wide array of partners assures the best future for these lands. A broad base of support will be critical for the often underfunded Forest Service as they struggle to maintain recreation, habitat and sustainable forest resource use for the benefit of all.

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.

A single Fuller's teasel on 2850 is removed. Teasel is spreading rapidly elsewhere in the county.

The Forest Service, in consultation with the local weed boards, creates an annual work plan identifying high priority sites based on known problems or anticipated needs. These include the potential for weed invasion during road decommissioning, thinning, or other forest health and maintenance projects. This year, the NWCB crew treated **60** high priority sites, (all except two where no access was allowed), **31** additional lower priority ones, and **6** Early Detection projects for a total of **97** projects.

A new, but very small infestation of spotted jewelweed was detected and treated. Previous sites have been all but eliminated.

Our early detection and rapid response strategy has proven to be effective. There diversity of species in each project area has decreased, suggesting that infrequent species are being gradually eliminated. Of the15 occasions where we found meadow knapweed this season, all but two had no more than a single plant or two. Although at least seven species were very infrequent (found at only one or two sites), we found it worthwhile to revisit sites we had treated before. For example, the Snider Work Camp had more knotweed than we've seen in many years. We discovered two teasel rosettes at the Caretaker's cabin after a major ground disturbing event that took place there two years ago. We found a mid size patch of meadow knapweed at an old elk habitat enhancement site. All the old Caraco sites, most sited behind decommissioned roads need thistle treatment. Few extensive everlasting peavine sites were included in our project this year. Tansy ragwort has responded equally well to treatment; overall density is sharply declining with consistent follow-up. We have may have reached a maintenance stage in the program.

An extensive orange hawkweed site up Mt Muller at Jasmine's Meadow was treated, but needs earlier treatment and more applicators next year. The increasing spread and distribution of wild basil is probably the most significant invasion happening in real-time on the Forest. Wild basil savory is found primarily on the east side of the Peninsula, but we have no doubt that it will show up soon in the west.

Two teasel rosettes discovered for the first time at the Caretaker's Cabin

Although we are making progress, herb Robert continues to be problematic. The last several work plans have deliberately avoided larger, known infestations. Milestone for early treatment and Polaris for late roadside treatments clearly suppress germination. It will be good to experiment with other treatments that show promise.

As the significance of invasive plant impacts percolate through the

Forest Service Agency, more prevention strategies are being built into the wide range of Forest Service projects and activities that have potential to act as vectors for weeds. These include forest management, road-to-trail conversions, and contract and material

standards. These new policies are smart, cost-effective steps that are already beginning to bear fruit. More private quarry owners ask for certification inspections. The NWCB treated **12** Forest owned rock sources, and also provided certification services for 7 of the privately owned rock pits that may provide material for Forest projects in the future. **25** county rock sources were treated under the County Integrated Weed Management plan and **5** quarries owned by the Department of Natural Resources were inventoried and certified. These rock sources will be used in upcoming Forest projects. The results of these surveys are summarized in Appendix B.

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

Invasive Weed Populations:

- The most commonly recorded invasive species continue to be herb Robert, tansy ragwort, Canada and bull thistle, and wild basil savory. The most infrequently recorded species are bishops weed, comfrey, English ivy hawkweeds, knotweed, spotted jewelweed, spurge laurel, sulfur cinquefoil and teasel. No new species were detected this year. Two regulated noxious weeds, new to Clallam County were detected (and treated) in close proximity to ONF lands.
- The crew took **446** waypoints, **23** of which likely document infestations new to the associated project area. Over 150 points represented regulated weed infestations.
- No sulfur cinquefoil was found this year on the 285500 (Jimmy-come-lately Rd).
- Our treatments of spotted jewelweed have been successful; the known infested area is much reduced. A new, but small site was detected farther south of the previously documented sites. We believe it is coming to the Forest via Snow Creek Rd, an adjacent Jefferson County road where the spotted jewelweed is abundant but the weed board has not enforced control. Coordinated efforts with the Jefferson NWCB will be essential to ensure that spotted jewelweed is controlled in the vicinity of Lord's Lake Loop.
- Tansy abundance is down in areas where there has been consistent follow-up, especially in the Dungeness Watershed. We removed a formidable amount of tansy ragwort along the northern portion of Rocky Brook (FS road 2620) more work is needed here.
- The number of herb Robert infestations remains concerning. Treatments containing aminopyralid appear to be suppressing herb Robert germination, a key factor in gaining control. Small herb Robert patches treated last year responded well to treatment.
- The extent of the orange hawkweed at Jasmine's Meadow was much greater than anticipated and will require a larger crew and more water carried to the site with the assistance of the BCHW. No orange hawkweed was found in Bockman pit for the second year in a row. We were not assigned the other known site this year on the 2900, but it, too, may have been eradicated.
- In general, the condition of rock sources on FS land improves every year.
- It is clear that the more often trained crew is out in the field, the more often we find and eliminate small, new infestations before they gain a foothold. Many times, a single treatment of these EDRR sites is sufficient!
- We treated 11 county roads (45 mi.) at major access routes to Forest Service lands. Extensive yellow hawkweed and sulfur cinquefoil sites were discovered last year and were both successfully treatment through the County's roadside Integrated Weed Management program. False brome, a class A weed previously unknown to the Clallam County, was reported on Palo Alto Rd (terminates at FS lands) by a FS contract biological surveyor. Italian thistle, another class A weed, but one that is only confirmed here in the entire state, appears to be contained at present. Scouring rush, previously unknown on the Olympic Peninsula, was discovered for the first time on Hwy 101, just east of Port Angeles. We consider treatment of these species a high priority, especially along corridors that led to Forest Service lands.
- The implementation of Clallam County's Integrated Weed Management plan with its focus on controlling weeds in county rock sources and building self-sustaining resilient roadside vegetation through mowing modification and native plantings will be significant factors that reduce overall weed pressure on Forest lands, now and into the future. A full report of our complementary activities under the IWM plan can be viewed on our website.

Survey, Treatment, and Monitoring

- COVID 19 pandemic restrictions and protocols hampered field crew recruitment and complicated field treatments.
- NWCB crew treated **60** priority 1A projects listed for Jefferson/Clallam in the 2020 work plan, similar to the number in last year's work plan. An additional **31** priority 2 projects, and **6** non-prioritized projects were treated and listed as EDRR, (in total, about 30% more than in 2019).
- A Forest Service Crew, assisted by a WCC crew for 2 weeks treated **20** priority 1A, **9** priority 2s and **4** EDRR projects from the same list. We were not able to add their treatments into the table in Appendix A although such a summary would better capture all work on FS lands completed within Jefferson and Clallam Counties.

- Most treatments included the use of aminopyralid. We see that aminopyralid provides longer lasting herb Robert control (for young plants) than triclopyr with less impact to native woody species. However, aminopyralid may not be as effective on everlasting peavine as clopyralid. We'd like to hear from others regarding their experience.
- Forest Service personnel changed the locks on some of their gates. **We did not have access to several sites we would have treated if we had appropriate key.**
- There are new collaborative weed control opportunities between Coastal Restoration Team under the leadership of the 10,000Years Institute. Close communication will be essential to ensuring efficiencies.

Data Collection/Mapping

- The pre-and post-season meetings between the FS and Weed Boards continue to be essential. The preseason documents and shape files are invaluable. Thank you!
- 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.

RECOMMENDATIONS

Wild basil savory is spreading rapidly

Future Direction of the Project

Title II funding under the Secure Rural Schools Act has provided the opportunity and impetus to develop a collaborative relationship between the Forest Service and local weed boards to address invasive plant issues. The cross-prioritization strategy between this program and Clallam County's Integrated Weed Management Plan amplifies invasive species control efforts and ensure real successes in both jurisdictions.

We hope to focus on preventative surveys, early detection and rapid response, and rehabilitation activities, such as re-seeding with native species where it makes the most sense. A limited supply of non-grass mixes, are now available.

Mystery hawkweed discovered last year positively ID as yellow hawkweed

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.

Blue eyed grass, a native species, populates vernal areas of Canyon Creek pit where invasive meadow knapweed has been removed.

Specific recommendations for next year are listed below.

Program Development

- Update the cooperative agreement to reflect recent Title II awards. This funding will ensure program continuity and preservation of progress to date.
- Participate in pre- season planning with other land managers to identify needs, pool resources and formulate more cross boundary invasive plant control projects that protect FS resources.
- Continue to collaborate with ONP and ONF on a native plant material consortium that can provide a reliable, low cost, locally sourced supply of a wide variety of native plant materials.
- Develop an agreement with Coastal Restoration Crews. Clearly communicate expectations, priority sites and establish periodic reviews during the season to ensure we are all on the same track.
- Pursue a formal CWMA with federal partners which may open new funding sources for work across jurisdictional boundaries.
- Identify projects that will benefit from volunteer participation.

Ornamental flower bed at Caretaker's Cabin has been removed as part of renovations two years ago; a long standing orange hawkweed site was obliterated.

Survey and Treatment

- Continue to focus on infrequent, high priority invasives.
- Prioritize wild basil savory before it becomes more widespread.
- Prioritize locations where ground disturbance is planned and bare ground is expected as a result; prepare for seeding or planting where bare ground has been created.
- Limit FS crew treatments to southern and extreme west Jefferson County and/or heavy density sites that need crew combinations

(WCC or NWCB/FS)

- Consider adding a new priority category to encompass follow-up treatments as indicated by crew on FACTS sheets.
- Survey and treat areas as recommended in Appendix C.
- Ensure that crew has access to sites on list. Please give us the correct keys.
- Consider adopting a four-year survey cycle where resources allow.
- Seek cooperation from Jefferson County road department to treat spotted jewelweed on Lord's Lake Rd to reduce invasion potential to FS land and request control of hawkweeds on Anderson Lake Cutoff Road.
- Make "agency requests" to the Clallam County Noxious Weed Control Board prior or during its first board meeting of the year to ensure county roads that comprise Forest Service land access are included in the annual roadside Integrated Weed Management Plan.

Documentation

- Collaborate on ways to make FACTS forms more streamlined while collecting needed information.
- Continue to provide the excellent project discs at the beginning of the season.
- Work toward a shared infestation map and point collection protocol.

2020 PROTOCOLS

Crew maintained social distancing/safety protocols due to concerns about COVID-19, while conducting treatments in the field.

1. **Team and Project Dates**
   This year's project focused primarily on treatment of high priority projects such as elk habitat enhancement or botanical areas, and then on other secondary priority projects, as time allowed. Treatments were performed by Clallam County Noxious Weed Control Board staff consisting in various combinations of Cathy Lucero (coordinator), Shea McDonald (lead inspector), Joe Reynolds (weed specialist), Ari Athair and Hunter Kawie (seasonal field technicians). 2020 fieldwork began in mid-June and continued through late-October. Backcountry Horsemen volunteers, (Peninsula Chapter), under the direct supervision of weed board staff assisted with Canada thistle treatment in the Buckhorn Wilderness, including Camp Handy. Backcountry Horsemen volunteers (Olympic Chapter) assisted with transport and deadheading orange hawkweed in Jasmine's meadow. All adhered to Washington State COVID-19 safety protocols to protect both staff and the public and reduce the potential spread of this disease while we conducted our work.

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 2020. Treatments and surveys were not intended to target every non-native species.

3. **Survey and Treatment (see Appendix A):**
   The project focus was on treatment of known infestations in specific project areas identified by the Forest Service, often including sites that had received treatment in the past. Survey and treatment of new infestations was also a priority, especially if new sites were seen enroute to known sites.
   a. Many known sites are along roadsides, and are typically surveyed by vehicle but also on foot. The distance surveyed was measured using a Garmin GPS unit or vehicle odometer, and the area surveyed was calculated using the following formula. Crew made a road specific estimation of how many feet on each side of the road were to be included in the formula.

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

   b. Trailheads, campground parking areas, and gravel pits were surveyed on foot and area surveyed or treated was estimated by using measurement functions on a Garmin GPS unit or by other predetermined figures.
   c. From 2007 through 2012 miles surveyed were estimated from treatment sites (recorded on FACTS forms) and roads taken to get to those treatment sites. Beginning in 2013, surveyed miles **only includes** a single trip on a road, even though it may have been traveled and surveyed many times during the season. Additionally, **only treated** roads documented on FACTS forms were included, **not** additional roads that were viewed on the way to a project. In 2018, only treated mileage was documented on FACT sheets, was recorded; surveyed miles were not included.
   d. Small tap rooted weed infestations were often treated manually on rainy days. Seeded plants were dead-headed; heads were bagged and disposed of off-site, during late season treatments.
   e. Herbicide treatments were applied based on guidelines established in the 2008 EIS which allow the use of 10 different herbicides.

i. A legal notice listing all sites under consideration for herbicide treatment (see Appendix I) was published in the Peninsula Daily News on April 14, 2020. Herbicide applications were carried out between June 29th and October 21st.
ii. Backpack sprayers were calibrated prior to use on FS lands per federal NPDES standards. A sample calibration sheet and the calibration methodology can be seen in Appendix K.
iii. Foliar herbicide applications were made using 0.125% Milestone, 2% Element 3A or 1.5% Vastlan (both triclopyr), 0.5% Transline (clopyralid), or 1.0% Polaris (imazapyr) and 0.5-1% Competitor or R-11 (surfactants) and 0.25% Blazon (marker dye).
iv. 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, and sites were posted a week before treatment.

4. Data Collection

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

Forest Activity Tracking Sheet (FACTS)

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

Invasive Plant Inventory for Rock Sources

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

Invasive Plant Treatment Monitoring

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

Olympic NF Invasive Plant Inventory Data Collection Form NRIS

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

5. Spatial Data Collection and Mapping:

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

a. NWCB crew carries a Garmin 78 pre-loaded with Topo US 24K or a Montana Hunt chip, which identifies landowners. The automatic track log function is enabled.
b. Meta data is set to NAD83 Harn, State Plane North 4601, statute feet. Newer Garmin units that don't allow for this projection are set to UTMs, statute feet.
c. Crew is instructed to turn and leave on units, just prior to entering project area.
d. Crew is directed to take waypoints on GPS units for significant events or sites, such as beginning or end of treatments, new weed locations, or to document named locations such as quarries.
e. Individual weed sites are plotted as points. If there is no existing waypoint, crew marks a location using a pre-designated symbol and then records the four letter plant code and size of infestation in feet in the comment field. Beginning in 2018, priority weed species sites were also recorded in a state-issued phone in the iForm WSDA database app. Beginning in 2019, sites containing weed

species that were regulated in Clallam or Jefferson under Washington State law, were documented in iForm.

f. New layers are produced post-season showing where treatment occurred. Waypoints and tracklogs were downloaded in the office and converted into shape files through the Minnesota DNR public domain software DNRGarmin version 6.1.0.6 or by using ArcGISOnline.

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

6. Data Reporting

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

a. **Appendix A** is the Project Area list or "annual work plan" supplied by the Forest Service at the start of the season, with details of 2020 treatments by acreage, date and species. It is a comprehensive account of work accomplished in 2020.
b. **Appendix B** is summary of current rock source inspections, treatments and readyness.
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, 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 2020, and weed species treated. The master list is followed by a table summarizing yearly accomplishments by crew since 2002. Finally, brief annual narratives provide perspective on how the program has responded to changing conditions and resources.
e. **Appendix E** is a brief summary of weed status and weed board work in Clallam County that complements the work conducted on Forest Service land.
f. **Appendix F** is a list of all weed species reported and entered into the NRIS Terra database over the lifetime of this project.
g. **Appendix G** gives control recommendations for each invasive species identified during the course of this project.
h. **Appendix H** shows the 2020 Washington State Noxious Weed List-, which is updated annually according to WAC Chapter 16-750. Under RCW Chapter 17.10 all non-federal landowners in the state are responsible for controlling or eradicating listed noxious weeds on their property. The control threshold is defined by RCW 17.10 and is determined by the class into which each weed is placed. This same law provides for the formation of the County Noxious Weed Control Boards. Federal agencies are required to work with local agencies to meet or match local weed control standards under the Federal Noxious Weed Act amended in 1994.
i. **Appendix I** shows examples of a legal notice regarding herbicide use and an on-site posting notice.
j. **Appendix J** shows a sample of all forms used in the project and Forest Service established protocols for filling out each form.
k. **Appendix K** shows a sample record of calibrations performed to comply with federal NPDES requirements. The calibration methodology is also provided,

APPENDIX A: 2020 PROJECT LIST ACTIONS

This table is based on the Project List developed by the Forest Service, which serves as a prioritized work plan for the Clallam Noxious Weed Control Board (CNWCB). This year the list had only three categories, Priority 1A, 2, or no priority-some sites suitable for survey were identified, but not prioritized. This table includes all Clallam and Jefferson Priority 1A that were assigned in the work plan and details any treatments. Priority 2 sites are only shown when treated. Sites shown in the table as Early Detection Rapid Response were originally listed in the work plan with no priority, or were not shown. *In Clallam County, roads that directly lead to Forest Service land are prioritized and treated for regulated or high priority weeds under the roadside Integrated Weed Management Plan.*

The table below is sorted by road number; largest to smallest. It shows the acreage treated, each date the Clallam Noxious Weed Control Board (abbreviated to NWCB in the table) was on site and whether the treatment was manual, chemical or a combination of both. All told, the Clallam Noxious Weed Control Board surveyed **386** and treated **303** acres, manually or chemically. In season retreatments followed monitoring as weather conditions allowed. We retreated approximately 7.5 acres. The FS/WCC crew was assigned different projects. They treated **195** acres manually or chemically (totals provided after season by the FS Invasive Plant Coordinator). To the best our knowledge, there were no weed sites treated by a Clallam County Chain Gang this year, nor other crews not directly under the supervision of Forest Service or Weed Board staff.

County road treatments that complimented weed control efforts on FS lands but were conducted through separate funding provided by the Clallam's road department, are also listed using the FS four digit road number (when known). We show Clallam County roadside treatments of **11** weed species within **94 acres** (approximately 45 miles) along **11 county roads** to underscore our cooperative efforts to protect FS lands from noxious weed invasion. An additional 205 acres within 25 county pits were also treated. (additional details are provided in Appendix B)

In the table below, cells in the project's priority (set by FS) are color coded. Priority 1A sites are bright yellow, Priority 2 sites are light yellow, non-prioritized or survey are green. This year, details of FS crew activities were not available at the time this table was prepared and are not included. The CNWCB treated a total of **97** projects. We treated **60 Priority 1A** projects, all but two on the list. These two Priority 1A sites went untreated because they were part of an active logging unit and no access was allowed. We treated an additional **31 Priority 2** and **6** projects with **no priority** listed. These latter sites were either listed for survey or noted as EDRR, early detection, rapid response. The FS crew, by themselves or with assistance of a Washington Conservation Corps crew treated a total of **28** projects; ten of their assigned Priority 1A sites were not treated. 1A sites that we did not treat are highlighted in light red. The table summarizes each visit to a specific project this year. In cases where projects required more than one trip to complete, the work is summarized. Projects that were retreated were shown with a separate entry summarizing that work.

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

We continue to focus on sites with infrequent, high priority weeds such as orange hawkweed, yellow archangel, knotweed, and knapweeds in addition to sites that may be soon decommissioned or are in the planning stages for forestry activities. The *2021 Priority* column reflects crew suggestions based on field observations and should be considered in preparing next year's project list.

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
661 660	NWCB		Middle Sol Duc River North Fork Calawah	2036	**Mary Clark Rd (county)**	Y	9/10/20	15.2	15.2		M/H	15.8	15.2	CYSC, RUAR, **SEJA**	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
169 120 135	NWCB		Upper Sol Duc River Middle Sol Duc River North Fork Calawah River	2065	**Cooper Ranch Rd (county)**	Y	9/10/20	11.2	11.2		M		0.1	**SEJA**	Sporadic, mainly North first half of road
	NWCB				**Bear Creek Rd (county)**	Y	9/15/20	4	0.1		M		0.1	**SEJA**	
	NWCB			4177	**Blue Mountain Rd (county)**	Y	6/23/20 6/24/20 8/6/20	10.8	10.8	10.8	H/M	110.4	2	**CEMO CEST** CYSC **HIAU PORE SEJA**	
	NWCB				**Little River Rd (county)**	Y	6/25/20 7/15/20 8/4/20 10/7/20	13.6	13.6	13.6	H/M	37.4	6.8	**CEMO** CIAR CIVU CYSC, **GERO** HYPE, RUAR,	Some stretches have high densities of meadow knapweed and herb-Robert
	NWCB				**Olympic Hot Springs Rd (county)**	Y	6/25/20 8/4/20	3	3	3	H/M	69.1	3.2	**CEMO,** CYSC, **GERO,** RUAR	
	NWCB				**Joyce Piedmont Rd/East Beach (county)**	Y	6/18/20 9/22/20	9.2	9.2		H	44.1	0	**CEMO** CYSC **GERO POBO SEJA**	
	NWCB		Jimmy-come-lately Creek	4360	**Lost Mountain Rd (county)**	Y	8/27/20	10.2	10.2		H	45.3		**CEMO** CIAR CYSC **GERO SEJA**	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
69	NWCB		Jimmy-come-lately Creek	5006	**Jimmy-Come-Lately Rd (county)**	Y	7/28/20	0.5	0.5		M	0.0	0.5	**CEMO, SEJA**	
76	NWCB		Jimmy-come-lately Creek	5331	**Palo Alto Rd (county)**	Y	7/13/20	15.6	15.6	15.6	H/M	76.8	0.25	**CEMO** CIAR **CIIN** CYSC, **DIFU GERO** HYPE **PORE,** RUAR	
	NWCB		Jimmy-come-lately Creek		**Woods Rd (county)**	Y	6/30/20 10/15/20	4.78	4.48		H/M	74.9	2.0	**CIIN** CIVU CYSC **GERO** HYPE LALA RUAR **SEJA**	
			Total Clallam County Road treatment adjacent to ONF					**98.1**	**94.2**	**43**			**30.15**		
123	NWCB	1A	Middle Sol Duc River	3100300		Y	9/28/20	7.3	7.3		H	1.0		**GERO**	Constr. on rd greatly contributed to GERO spread
638	NWCB	1A	Pysht River	3100300		N	9/26/20	6.9	6.9		H	1.3		**GERO**	Constr. on rd greatly contributed to GERO spread
612	NWCB	2	Upper Sol Duc River	3071000	**Mt. Muller TH gravel pile**	Y									Locked out! Need key!
173	NWCB	2	Upper Sol Duc River	3071000	**Littleton Horse Camp gravel pit**	Y									Locked out! Need key!

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
130	NWCB	1A	Middle Sol Duc River	3040900	**Snider Pool**	N	9/8/20	0.5	0.5		H	12.7		CYSC DIPU **GERO** PHAR RUAR RULA	This site appears to have been treated in past by another crew- LOCKED OUT, no code to combo lock
118	NWCB	1A	Middle Sol Duc River	3040800	**Snider Work Center**	N	9/8/20	10	1		H	2.5		**POCU**	Priority for POCU- approx .25 acre bishops weed not treated. Awaiting instruc.
168	NWCB	EDRR	Upper Sol Duc River	2931000	**Tom Creek Pit**	N	10/6/20	11	1		H/M	1.3	1	CYSC DIPU PHAR	
170	NWCB	3	Upper Sol Duc River	2929070	**ODT Trail**		10/1/20	9.1	9.1		H/M	101.3	1	CIVU CYSC **GERO** HYPE RUAR RULA	FS RD converted into ODT trail, work on trail recorded under this REF#
121	NWCB	1A	Middle Sol Duc River	2923100		N	10/1/20	4	1		H	15.2		CYSC DIPU **GERO** RUAR	most of infestation in 1st 1/4 m
127	NWCB	1A	Middle Sol Duc River	2923090		N	10/6/20	1	1		M		1	CYSC DIPU **GERO**	
142	NWCB	1A	North Fork Calawah River	2923070		Y	9/14/20	4	4		M			CYSC	all but last .25 miles treated. Getting pretty clean
133	NWCB	1A	North Fork Calawah River	2923070	**Grindstone Pit**	N	9/14/20	7	7		H/M	52.0	0.001	CIVU DIPU HYPE	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
637	NWCB	1A	Middle Sol Duc River	2923070		N	9/14/20	7.4	7.4		M		7.4	CIVU CYSC RUAR **SEJA TAVU**	No GERO! TINY bits of TAVU found
140	NWCB	1A	North Fork Calawah River	2923000		N	7/14/2020 9/14/20	11.4	11.4		H/M	90.0	0.001	**ARMI** CIVU CYSC **GERO** LALA **SEJA**	Although assigned priority 2 Bartlett special request, treated as 1A
177	NWCB	EDRR	Upper Sol Duc River	2918000		Y	10/6/20	4	0.25		H	0.9		**GERO**	
648	NWCB	1A	Bockman Creek	2903000		Y	9/2/20	12	12		H	42.5		CYSC **GERO SEJA**	GERO patch, but dense
646	NWCB	2	Bockman Creek	2902375		N	9/2/20	0.3	0.3		H	0.5	0.001	**GERO**	last yr treatment highly effective
645	NWCB	1A	Bockman Creek	2902000		N	9/8/20	6.8	3.4		H/M	5.4	0.001	CIVU CYSC **GERO SEJA**	Log blocking rd.
588	NWCB	1A	Bockman Creek	2902000	**Bockman Pit**	N	9/2/20	1	1		H/M	10.8	0.001	CIVU CYSC DIPU **GERO** HYPE RUAR **SEJA**	no HIAU
166	NWCB	2	Upper Sol Duc River	2900990	**Klahowya CG**	N	10/6/20	10	10		H	5.5		**GERO** ILAQ LALA SOAC	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
165	NWCB	1A	Upper Sol Duc River	2900000	**Bonidu Pit**	Y	10/6/20	9	9		H//M	38.1	0.25	CYSC DIPU **GERO** HYPE **SEJA**	
602	NWCB	1A	Canyon Creek /Pats Creek	2878123		N	8/25/20	0.4	0.4		H/M	0.1	0.1	CIAR CIVU CYSC LALA	
20	NWCB	1A	Canyon Creek /Pats Creek	2878123	**Ned Hill Quarry**	N	8/25/20	1	1		H/M	6.8		CIAR CIVU CYSC LALA	Some new burned out cars in pit
42	NWCB	1A	Canyon Creek /Pats Creek	2878120		N	8/25/20	2.5	2.5		H/M	8.6	0.001	CIVU CYSC **GERO** LALA **SEJA**	reseed recommended
603	NWCB	1A	Canyon Creek /Pats Creek	2878102		N	8/19/20	1	1		H	1.1		LALA	
29	NWCB	1A	Canyon Creek /Pats Creek	2878100		Y	8/25/20	1.2	1.2		H/M	0.2	0.001	LALA CIVU	
38	NWCB	1A	Canyon Creek /Pats Creek	2878060		N	8/19/20	2.5	2.5		H/M	19.5		CIAR CIVU **CLVU** LALA	Spectacular improv after CLVU treatment!
26	NWCB	EDRR	Canyon Creek /Pats Creek	2878000		N	10/12/2020 10/20/20	7.9	7.9		H/M	14.1	0.02	CIVU CYSC **CEMO GERO** LALA	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
840	NWCB	1A	Canyon Creek /Pats Creek	2878000	**Slab Camp / Deer Ridge TH**	N	7/1/20	1	0.1	0.1	M		0.1	CIVU	
840	NWCB	1A	Canyon Creek /Pats Creek	2878000	**Slab Camp / Deer Ridge TH**	N	10/12/20	1.5	0.5		H	2.0		CIVU LALA	retreat
980	NWCB	2	McDonald Creek/Siebert Creek	2877160		N	10/8/20	0.01	0.001		H	0.0		CIVU DIPU	
979	NWCB	2	McDonald Creek/Siebert Creek	2877150		N	10/8/20	0.52	0.002		H	1.1		**CEMO** DIPU	
978	NWCB	2	McDonald Creek/Siebert Creek	2877140		N	10/8/20	0.64				0.0			Clean! Went .34 m instead of .2
100	NWCB	survey	McDonald Creek/Siebert Creek	2877100		N	8/19/20	1.2			H/M	6.5	0.4	CIAR CIVU LALA	
913	NWCB	1A	McDonald Creek/Siebert Creek	2877052		N	10/8/20	0.6	0.001		H	0.0		CYSC **GERO SEJ**A	
98	NWCB	1A	McDonald Creek/Siebert Creek	2877000		Y	7/1/20	9.2	3	3	H/M	9.1	7	CIVU **GERO**	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
98	NWCB	1A	McDonald Creek/Siebert Creek	2877000		Y	10/8/20 10/12/20	11	5		H/M	10.5	5	CIAR CIVU **CLVU GERO**	retreat
99	NWCB	1A	McDonald Creek/Siebert Creek	2877000	**Pat's Prairie**	N	7/1/20	15	15		H	1.0		CIAR CIVU LEVU	Hardly any CIAR left!
37	NWCB	1A	Canyon Creek /Pats Creek	2875070		Y	7/1/20	3.6	3.6		H	3.4		**GERO SEJA**	GERO considerable improved, would be nice to hit one more yr. Road now closed
25	NWCB	2	Canyon Creek /Pats Creek	2875000		Y	6/29/20	5.5	5.5	5.5	H/M	10.7	5.5	**CEMO** CIAR CIVU **GERO** LALA **SEJA**	CEMO found.
25	NWCB	2	Canyon Creek /Pats Creek	2875000		Y	10/12/20	4	0.001		H/M	1.2	0.001	CIAR CIVU CYSC LALA	retreat
5	NWCB	1A	Canyon Creek /Pats Creek	2875000	**Canyon Pit**	Y	6/29/20	2.5	2.5	2.5	H	10.7		**CEMO** CIAR	
5	NWCB	1A	Canyon Creek /Pats Creek	2875000	**Canyon Pit**	Y	10/12/20	3	3		H	0.2		**CEMO**	retreat

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
18	NWCB	2	Canyon Creek /Pats Creek	2870059		Y	7/7/20	1.5	1	1	H/M	13.3	0.005	CIAR CIVU CYSC **GERO**	No CEMO left!
18	NWCB	2	Canyon Creek /Pats Creek	2870059		Y	10/21/20	1.5	1		H	0.2		CIAR **GERO**	
10	NWCB	1A	Canyon Creek /Pats Creek	2870059	**Cranberry Bog**	N	7/7/20	6	6		H	75.2		CIAR CIVU **GERO** RHAR	Water level high, significantly less CIAR, CIVU lots of bear scat and Canada geese.
17	NWCB	2	Canyon Creek /Pats Creek	2870058		Y	7/7/20	0,5	0.1	0.1	H	2.7		CIVU **GERO**	No Wild Basil Savory this time! More GERO in road than last year, less in the original spot.
17	NWCB	2	Canyon Creek /Pats Creek	2870058		Y	10/21/20	1	0.1		H	0.1		**GERO**	retreat
16	NWCB	2	Canyon Creek /Pats Creek	2870057		N	10/22/20	0.4	0.1		H	6.2		CYSC **GERO**	
8	NWCB	2	Canyon Creek /Pats Creek	2870057	**Caraco Cat Unit 2**	Y	10/22/20	1						CIAR	Examined-This should be treated next year. Too far senesced to treat this year.
15	NWCB	2	Canyon Creek /Pats Creek	2870056		N	10/20/20 10/22/20	1.8	1.65		H	10.6		CIVU **CEMO CLVU GERO**	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
9	NWCB	2	Canyon Creek /Pats Creek	2870056	**Caraco Cat Unit 3**	Y	10/22/20	7						CIAR	Examined-This should be treated next year. Too far senesced to treat this year.
31	NWCB	1A	Canyon Creek /Pats Creek	2870054		Y	8/19/20	2.1	2.1		H/M	10.8		**CEMO** CIAR CIVU HYPE **SEJA**	Unexpected CEMO
6	NWCB	2	Canyon Creek /Pats Creek	2870054	**Caraco Cat Unit 6**	Y	10/22/20	1.5	0.01		H	0.5		CIAR CYSC	
14	NWCB	1A	Canyon Creek /Pats Creek	2870053		N	8/19/20	3	3		H/M	2.2	3	**CEMO** CIAR CIVU CYSC **SEJA**	The bigger CEMO patch worth hitting next yr. Lots of animal use, sm amount CYSC
13	NWCB	2	Canyon Creek /Pats Creek	2870052		N	10/22/20	0.8	0.8		H	1.3		**CEMO CLVU SEJA**	
11	NWCB	2	Canyon Creek /Pats Creek	2870050		N	10/20/20 10/21/20 10/22/20	5.5	3.5		H//M	1.3	2.5	CIVU **GERO**	
7	NWCB	2	Canyon Creek /Pats Creek	2870050	**Caraco Cat Unit 5**	Y	10/22/20	1						CIAR	Examined-This should be treated next year. Too far senesced to treat this year.

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
33	NWCB	2	Canyon Creek /Pats Creek	2870000		N	6/29/20	1.8	1.8	1.8	H/M	21.3	1.8	**CEMO** CIAR CIVU CYSC **GERO PORE SEJA**	Adjacent portion of county rd treated as well.
32	NWCB	1A	Canyon Creek /Pats Creek	2870000	**unnamed gravel pit**	N	7/20/20	3	3	3	H	19.5		CIAR **CEMO** CIAR CYSC HYPE LALA RUAR RULA	2 sm CEMO-no PORE no DIFU, much improved
24	NWCB	2	Canyon Creek /Pats Creek	2870000		Y	10/15/20 10/19/20 10/20/20 10/21/20	8.85	13.5		H/M	14.8	7.5	CIAR CIVU CYSC **GERO** LALA	priority only from 2870-150 heading west 1.9 m
19	NWCB	1A	Canyon Creek /Pats Creek	2870000	**Lower Caraco Quarry**	Y	7/20/20	4	4	4	H	46.0		CIAR **CEMO** CIVU **GERO**	
19	NWCB	1A	Canyon Creek /Pats Creek	2870000	**Lower Caraco Quarry**	Y	10/20/20	4	0.05		H	0.8		CIAR **GERO**	partial retreat-pit in use by shooters
21	NWCB	1A	Canyon Creek /Pats Creek	2870000	**Upper Caraco Quarry**	N	7/20/20	2	0.5	0.5	H	6.5		CIAR CIVU **GERO SEJA**	There is NO butterfly bush anymore-minor amounts GERO at beginning of pit
160	NWCB	1A	Upper Dungeness River	2870000	**TH Parking Lot only**	Y	7/29/20	0.1	0.1	0.1			0.1	**GERO**	

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
160	NWCB	1A	Upper Dungeness River	2870000	**TH Parking Lot only**	Y	10/21/20	0.1	0.1	0.1			0.1	**GERO**	retreat-should be high priority next year!
162	NWCB	1A	Upper Dungeness River	2870000	**Camp Handy**	Y	7/29/20	10	10		H	10.3		CIAR LEVU	Nick and Julie hiked another mile on other side of river to new meadow, but did not treat.
759	NWCB	1A	Upper Dungeness River	2870000	**Dungeness Trail**	N	7/21/20	0.1	0.1		M		0.1	**GERO**	GERO adjacent to parking lot, posting for camp hardy pulled and bagged. All GERO prior to Camp Hardy treated.
760	NWCB	1A	Upper Dungeness River	2870000	**Heather Basin Trail**	Y	7/29/20	3.5						**GERO**	Crew noted, but failed to treat due to lateness of the day
66	NWCB	1A	Jimmy-come-lately Creek	2855100		Y	9/30/20	7	7		H	76.8		**CLVU GERO SEJA**	Much improved! CLVU was treated and appears much improved over last yr.
64	NWCB	1A	Jimmy-come-lately Creek	2855070		Y	9/30/20	3.5	3.5		H/M	21.0	0.1	**CEST** CIAR CYSC **DALA GERO** LALA RUAR **SEJA**	1 Montana Knapweed-Spotted Knapweed at far end almost gone. GERO has significantly improved.
60	NWCB	1A	Jimmy-come-lately Creek	2855070	**Raccoon Pit**	N	9/28/20	1.5	1.5		H/M	1.1	0.1	CYSC, DIPU, LALA	VERY CLEAN!
63	NWCB	1A	Jimmy-come-lately Creek	2855000		Y	7/28/20 9/30/20 10/5/20	6.6	6.6		H/M	121.4	5	CIVU **GERO** HYPE **SEJA**	No PORE found this year!

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
151	NWCB	1A	Snow Creek/Salmon River	2852090		Y	9/28/20	1.5	1.5		H	36.2		**CLVU GERO**	Some heavy GERO, entire Rd should be treated at some point.
501	NWCB	2	Snow Creek/Salmon River	2850000		Y	8/26/20	2.2	2.2		H/M	1.1		CIVU **IMCA SEJA**	New spotted jewelweed site!
84	NWCB	1A	Jimmy-come-lately Creek	2850000		Y	8/26/20	5.6	5.6		M		5.6	CIVU **IMCA SEJA**	spotted jewelweed patch just above known part.
84	NWCB	1A	Jimmy-come-lately Creek	2850000		Y	6/30/20	6.1	0.5		H/M	24.5	5.7	CIVU CYSC **DIFU GERO IMCA** RUAR **SEJA**	retreat-high priority for ICMA and DIFU, new patch south of area at 2850010
148	NWCB	2	Snow Creek/Salmon River	2845073		Y	8/26/20	1.8	1.8		H/M	19.5		CIVU **CLVU** CYSC DIPU **GERO** HYPE **SEJA**	
61	NWCB	1A	Jimmy-come-lately Creek	2845073	**2845073 spur pit**	N	8/26/20	1	0.5		H/M	0.5	0.001	CIVU CYSC **SEJA**	Really clean, no CEMO!
147	NWCB	2	Snow Creek/Salmon River	2845070		Y	8/26/20	3	3		H/M	10.8	3	CIAR CIVU **CLVU** CYSC DIPU **GERO SEJA**	
845	NWCB	1A	Snow Creek/Salmon River	2845000		Y	8/31/20	10.8	10.8		H/M	29.3	10.8	CIAR CIVU **CLVU GERO SEJA**	Canada thistle much reduced, native species thriving

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
914	NWCB	1A	Snow Creek/Salmon River	2840150		Y	9/22/20	1.8	1.8		H	1.3		CIAR CIVU **CLVU GERO SEJA**	
843	NWCB	1A	Jimmy-come-lately Creek	2840130		N	9/22/20	2.2	1E-04		M		1E-04	**GERO**	
83	NWCB	1A	Jimmy-come-lately Creek	2840120		Y	9/22/20	2.1	2.1		H	19.5		**CLVU GERO SEJA**	
62	NWCB	1A	Jimmy-come-lately Creek	2840120	**Wolf Quarry 2**	N	9/22/20	1	1		H	0.5		**CLVU** HYPE	
80	NWCB	1A	Jimmy-come-lately Creek	2840034		Y	9/22/20 9/28/20	4.2	4.2		H/M	43.2	0.1	CIAR CIVU **CLVU GERO SEJA**	Priority for GERO, on only 1/2 rd. CLVU just getting started.
79	NWCB	survey	Jimmy-come-lately Creek	2840030		Y	9/28/20	0.8	1.6		H/M	4.3		CIAR **CLVU** CYSC **GERO SEJA**	CLVU just getting started, sm concentrated patches
502	NWCB	2	Snow Creek/Salmon River	2840000		N	8/26/20	1.6	1.6		M		1.6	CIVU **SEJA**	
77	NWCB	1A	Jimmy-come-lately Creek	2800362		N	7/21/20	0.8	0.8		H/M	1.1	0.9	CIVU **SEJA**	Considerable improvement!

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
67	NWCB	1A	Jimmy-come-lately Creek	2800360		Y	7/21/20	6	6		H/M	19.5	6.0	CIAR CIVU **GERO HICA SEJA**	Mystery hawkweed revealed to be yellow hawkweed! Not much left. Found at about 1 m. DNR has been active in this area-likely gournd disturbance spreading GERO!
59	NWCB	2	Jimmy-come-lately Creek	2800360	**Luella LuLu quarry**										Searched for but could not find. Will GPS next time!
921	NWCB	2	Jimmy-come-lately Creek	2800353		Y	10/15/20	1	1			3.1		**CEMO**	
65	NWCB	2	Jimmy-come-lately Creek	2800351		N	10/15/20	1.5							No weeds seen!
75	NWCB	2	Jimmy-come-lately Creek	2800350	**Louella Work Center**	Y	10/15/20	0.9	0.9		H	4.1		**CEMO** CIVU	
671	NWCB	1A	Middle Dungeness River	2800325		N	8/10/20	1.2	1.2		H/M	0.3	1.2	CIAR CIVU LALA	No CLVU or CEMO found!
667	NWCB	1A	Canyon Creek /Pats Creek	2800321		Y	8/10/2020 9/30/20	1.5	1.5		H/M	19.4		CIVU **GERO**	Patches of GERO most of which are small with the exception of 0.3 MP. Last year's treatment was extremely effective, many seedlings few of which are flowering.

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
668	NWCB	1A	Jimmy-come-lately Creek	2800321		N	8/10/20	1.5	0.002		H/M	0.1		CIVU **GERO**	Small Patch of GERO, would be nice to retreat for GERO.
669	NWCB	1A	Canyon Creek /Pats Creek	2800320		Y	9/30/20	0.35	0.1		H	0.6		**LAGA**	
670	NWCB	1A	Jimmy-come-lately Creek	2800320		Y	8/10/20	4.8	4.8		H/M	4.3	2.0	**CEMO** CIAR CIVU **CLVU SEJA**	Priority for CEMO-trace at beginning of rd.
922	NWCB	1A	Upper Big Quilcene River	2760000		Y	9/29/20	4	4		H/M	15.6	4.0	CIAR CIVU LALA **SEJA**	Treated only 4.5-3.6. Very heavily infested with tansy, heavy peavine infestation in remaining untreated portion of rd.
767	NWCB	1A	Lower Big Quilcene River	2700080	**Lower Big Quilcene Trail**	Y	9/9/20	4	3.9		H	37.7		**CLVU GERO**	Surveyed trail to camp on horseback-approx 3 miles. (after treatment). CLVU has made it approx .9 miles up trail, overlaps with GERO at approx .8. GERO treatment in prior yrs has reduced. CLVU treatment begun, some patches too extensive.
462	NWCB	2	Lower Big Quilcene River	2700040		Y	10/7/20 10/19/20	3.8	3.8	0.5	H	44.2		**CLVU GERO**	
590	NWCB	2	Lower Big Quilcene River	2700040	**PT Muni WS caretakers cabin**	Y	10/7/20	3.1	3		H	9.7		**DIFU** DIPU **GERO** ILAQ **LAGA** LALA PHAR **SYOF VIMA**	reseed recommended

FS Ref #	Crew	2020 Priority	6th Field Watershed Name	FS Road #	Site Name	2021 Priority	Date Treated	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz.)	Manual acres	Species	Comments
295	NWCB	1A	Lower Big Quilcene River	2620000		Y	9/21/2020 9/29/20	5.5	9.1		H/M	20.4	9.1	**CEMO** CIAR CIVU **CLVU** CYSC DIPU **GERO** HYPE RULA **SEJA TAVU**	Wild basil savory has taken over!! Sm patch of CEMO removed. Should consider staged removal of CLVU-only about 1-1.5 miles has been treated from intersection at top.
310	NWCB	1A	Lower Duckabush River	2510070	**Collins CG**	Y	9/15/20	4	4		H	30.0		**GERO**	Did not treat first 3 campgrounds, were occupied. More remained there.
989	NWCB	2	Upper Sol Duc River		**Snider Ridge Trail # 882.2**										may have been part of survey during Mt. Muller Trail
988	NWCB	1A	Upper Sol Duc River		**Mt. Muller Trail # 882**	Y	8/18/20	8	1		H/M	6.0	0.1	**HIAR**	
							TOTALS	**386.3**	**302.7**	**22.2**		**1358.5** (=10.8 gal.)	**99.2**		

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

Treating herb Robert on wastepile at Bondidu Pit

In 2020, **12** high priority FS rock sources were inspected and treated by **CNWCB**, another **3** were treated by FS crew (included here, but no rating was ascribed). In general, sites that have been treated for several years are in very good condition. Dates treated or inspected, treated species, and suitability are shown in the table below, as well as whether the rock source is dormant or how it is currently being used. FS Rock Source Index codes, when available, have been added because they are helpful when locating sites; the type of ownership is shown for non-Forest sources.

To reduce the spread of weeds across jurisdictional boundaries, we have made a concerted effort to ensure that as many non-FS managed quarries in Clallam County as possible, meet FS "weed *free*" standards--see the Rock Source Inventory form in appendix J for an explanation of each standard. The result of our surveys (or treatments, in the case of county-held rock sources) are summarized in the table below, and are intended to be used as a resource for FS personnel gauging the suitability of a wide variety of rock sources. (The status of non-FS rock sources is listed after FS-managed). In the private sector, we inspected **7** and certified **6** private rock sources; one failed to meet standard. Certifications are shown as *not current* if they were not updated this year. We treated all **25** county managed rock sources totaling **205** acres most would still need to be used with caution. The DNR has begun the long process of bringing their rock sources up to speed in advance of forestry projects-**6** DNR-held pits were inspected and 5 were certified this year. Most of the non-Forest rock sources shown in the table are in Clallam County. *"County"* rock source assessments in the following table include only Clallam County. Status of most Jefferson County rock sources is not available. More assessments of non-Forest rock sources in Jefferson County would be useful.

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

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Forest Service Quarries									
Armpit Quarry	**0.6**	28701500	2870-150	586	1A	CIVU LALA	8/15/18	DORMANT: Chemical –LALA much less **2020 FS crew list-nt treated**	
Bockman Pit	0.6	29020009	2902-000	588	1A	CIVU CYSC DIPU **GERO** HYPE RUAR **SEJA**	9/2/20	DORMANT: Chemical careful, GERO, no HIAU found this year	1
Bonidu Pit	6.3	290000037	2900-000	165	1A	CYSC DIPU **GERO** HYPE **SEJA**	10/6/20	Spoils, Storage, Extraction: Chemical-	9

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
								CAREFUL:GERO still found on perimeter	
Bon Jon Quarry	1.2	260000004	2600-000	194	2	CIVU LALA **SEJA**	Treated in 2016	DORMANT: **Very clean-2020 FS Crew list, nt inspected**	
Calawah Pit	8.0	290001500	2900-000	152	1A	**CYSC GERO** RULA	8/10/20 9//10/20	Spoils, Storage, Extraction: **GERO**	13.7
Canyon Pit	3.8	287500001.4	2875-000	5	1A	**CEMO** CIAR	6/29/20 10/12/20	DORMANT: Chemical -not suitable-almost ready!	2.5
Coho Pit	1.0		2840-080	57	1A	CIAR HYPE LALA **SEJA**	9/23/19	DORMANT: Chemical very sm amount of weeds 2020 **FS Crew list, nt inspected**	
Grindstone Pit	7	292307000.1	2923-070	133	1A	CIVU DIPU HYPE	9/14/20	Spoils? Storage, Extraction Chemical Extraordinary amount of DIPU especially on berms and edges.	7
Empire Quarry	0.5	21600005.6	2160000	**826**	1A	CYSC RULA	7/17/2019	Chemical **2020 FS crew list, nt. inspected**	
Littleton Horsecamp stockpile	0.8	307100000.0	3017-000.3	173	2	**CYSC** HYPE LALA	Treated in 2016	DORMANT? Storage: Met standard A in prior yrs; minimal GERO and LALA along road- **NO ACCESS-LOCKED OUT**!	
Loop Quarry aka-spur (unnamed) Pit	1.0	284507300.9	2845-073	61	1A	CIVU CYSC **SEJA**	8/26/20	DORMANT: Chemical, manual	0.5
Louella Rock Pit	1.0	280036000.4	2800-351	58	2	No weeds found	10/15/20	DORMANT: very clean	0
Luella LuLu	0.6	290000360.9	2900-360			No weeds found	7/12/20	DORMANT: CLEAN!	0
Lost Pit (aka Canine Pit)	4.5	280013000.3	2800-130	101	1A	CIAR CIVU CYSC **GERO** LALA **SEJA**	8/5/20	Storage, Extraction? Chemical rating N/A-	5.3
Lower Caraco Quarry	0.3	287000001.0	2870-000	19	1A	CEMO CIAR CIVU **GERO SEJA**	7/20/20 10/20/20	Spoils, Storage Chemical -not suitable largely because of GERO extensively around perimeter-better, but still infested	4
Mt Muller TH Gravel Pile	0.8	307100000.3	3071-000	612	2	CIVU HYPE LALA RUAR	Treated in 2016	DORMANT? Storage met standard A in prior yr; trace amounts of weeds only **NO ACESS LOCKED OUT**	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Mystery Pit	N/A	2900200.?			2	**POBO**	Treated in 2014	Did not locate.	
Ned Hill Quarry (aka Sandstone Quarry)	1.0	287812500.5	2878-125	20	1A	CIAR CIVU **CYSC** LALA	8/25/20	DORMANT? Spoils, Storage, Extraction? Chemical-continued improvement, sm amount weeds present	1.0
Neptune Quarry	N/A	21900007.7?	2190000	832	1A			**No Information** 2020 FS crew list-nt inspected	
Park Pit	3.0	21800110.3	2180-011	611	1A	CYSC RULA **SEJA**	9/3/20	**Chemical FS crew assessment and** rating N/A	7
Raccoon Pit	1.5	285507001.3	2855-070	60	1A	CYSC, DIPU, LALA	9/28/20	DORMANT: Chemical Use caution; GERO is still present in significant quantities on "road" especially entrance, and on road to pit. Some CEST on road	1.5
Tom Creek Pit	11.0	293100000.2	2931-000	168	2	CYSC DIPU PHAR	10/6/20	Spoils, Storage: Very clean	
Unmarked Pit N/A	1	**280012001.3**	**2800-120/ 2800-210**		1A-within a 1A priority	LALA	Treated in 2017	DORMANT: Chemical-meets Standard B Very sm amounts of LALA	
Unnamed Gravel Pit	2		Junction 2878 X 2870	32	2	**CEMO** CIAR CYSC HYPE LALA RUAR RULA	7/20/20	Chemical-Met standard B, but some caution because of very limited CEMO.	3
Upper Caraco Pit	1.5		2870-000	21	1A	CIAR CIVU **GERO SEJA**	7/20/20	Chemical-trace amounts of weed at dormant road entrance only	1.5
Wolf Quarry 2	0.6	28401200.3	2840-120	62	2	CLVU HYPE	9/22/20	DORMANT: Met requirements-GERO down bank and not in pit-sm patch CLVU starting	0.6
Private Quarries									
A & A Rock	44.14	Private	Hwy 101 W			**CEMO** CIAR **CYSC GERO** LALA	11/27/19	Spoils, Storage, Extraction: Chemical-Meets Standard B-none in active quarry and storage areas. CERTIFICATION **NOT CURRENT**	
Beaver Falls		Private	Hwy 113 near Beaver Lake			**CYSC** HYPE PHAR RUAR **SEJA**	Inspected in 2020	Storage, Extraction Chemical-Meets Standard B CERTIFICATION **NOT CURRENT**	
Black Diamond Quarry (formerly called Holcomb)		Private	Black Diamond Rd.			CIVU CYSC DIPU **GERO**	6/9/20	Storage, Extraction: Chemical-Meets Standard C- in general clean-careful of material stored "outside" of pit-not clean. New access rd will help.	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
								CERTIFICATION **CURRENT**	
Blue Mountain		Private	Hwy 101 E, north side			**CEST** CIAR CIVU **COMA CYSC**	Inspected 2020	Partial dormant, Spoils, Storage, Extraction: This pit is improving, but needs additional treatment **NO** CERTIFICATION	
Davis Sand and Gravel		Private	Evans Rd.			CIAR CIVU **possibly COMA** DACA **DIFU**	Inspected in 2015	Overall in good shape, has some DIFU rosettes CERTIFICATION **NOT** CURRENT	
Elwha Rock Products		Private	Place Rd.			**CYSC POBO SEJA**	Inspected in 2017	Spoils, Storage, Extraction: **FAILED-**Standard D Soil disturbed, chipped rock placed on POBO infestations	
Green Crow (InterWest)	19.0	Private	Lower Elwha River Rd.			**CYSC (removed at time of inspection)**	5/13/20	Storage, Extraction: Chemical-Meets Standard A CERTIFICATION **CURRENT**	
Haller Quarry	20?	Private	2 m south on River Rd. gate on left			**BUDA** CIAR CIVU **DIFU GERO** LALA RUAR RULA	6/9/20	Spoils, Storage, Extraction: Chemical-Meets Standard B CERTIFICATION **CURRENT**	
Hecklesville Quarry		Private	44 Heckle Rd.			CASE CIVU **CYSC** DIPU LALA	Inspected in 2018	Storage, Extraction: Chemical-Widespread, low density LALA, scattered CYSC in stored material. visited, but no formal inspection CERTIFICATION **NOT** CURRENT	
Hillcar-Fletcher Quarry	105.0	Private	Hwy 110			CIVU **CYSC GERO LAGA** RUAR **SEJA**	6/9/20	Spoils, Storage, Extraction Chemical-Meets Standard C Good condition- have checked this quarry for yrs-owner very co-operative. CERTIFICATION **CURRENT**	
Hoh Pit-Seton		Private No commercial rock avail.	Hoh Rd.			**CYSC** LALA RUAR	Inspected in 2018	Partially dormant, Spoils, Storage, Extraction **NO RATING**-3 stock piles only-	
Lakeside Place Rd Quarry		Private	Place Rd. on right			CIVU **CYSC** DIPU HYPE LALA **SEJA**	Inspected in 2016	Partial dormant? Storage, Extraction Chemical-might be able to isolate from considerable broom in back of pit **NO** CERTIFICATION	
Mystery Quillayute Pit		Private, possibly WSDOT	Quillayute Rd.			**CYSC** PHAR **SEJA**	Inspected in 2016	Floor of pit is pretty clean. Edges have scattered SEJA; CYSC is widespread around perimeter of pit. Isolated patches of PHAR **NO** CERTIFICATION	
Moriarity Rd Pit		Private; unknown	Moriarity Rd.			**CYSC** HYPE PHAR RUAR RULA	Inspected in 2016	RUAR, RULA, CYSC are all widespread throughout pit. HYPE is scattered, with a few isolated patches of PHAR **NO** CERTIFICATION	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Penny Creek Pit		Private	Penny Creek			**CYSC GERO IRPS** LALA **LEDR POBO** RUAR PHAR **SEJA TAVU**	9/29/18	Spoils, Storage, Extraction: Chemical-Meets Standard C-inspected, treated twice. Concern about POBO remains-where did LEDR go? CERTIFICATION **LIMITED NOT** CURRENT	
Princess Pit	Approx 40	Private	Princess Ln off Place Rd.			CIAR CIVU **CYSC** DACA DIPU **GERO** LEVU RUAR RULA	6/25/20	Storage, Extraction Chemical-Meets Standard B CERTIFICATION **CURRENT**	
Rayonier Pit		Private	Bogachiel Way			**CYSC** RUAR RULA	Inspected in 2016	Meets minimum requirements. CYSC is widespread around rim of pit and scattered on pit floor. RUAR/RULA scattered intermittently around edges. **NO** CERTIFICATION	
E Snider Quarry	24.86	Private	252 E Snider Rd.			CIVU DACA DIPU **GERO** LEVU RUAR RULA	6/9/20	Storage, Extraction: Chemical-Meets Standard B CERTIFICATION **CURRENT**	
Thorndyke Pit	Approx 40	Private	Hwy 104, Wahl Rd.			CIAR PHAR **SEJA**	Inspected in 2018	Partially dormant, Spoils, Storage, Extraction: Chemical-Meets Standard B The formal purpose of this inspection was inspect a clay vein for use in ONP. However, much of the pit had been well treated. CERTIFICATION NOT **CURRENT**	
West Twin-La Farge	N/A	Private	Hwy 112 approx MP 39			CIVU sundry weeds	Inspected in 2018	Rock stockpiles inspection only, for ONP project-situated on property that did not belong to contractor requesting inspection. Material given a Standard B-**NO** overall CERTIFICATION	
Clallam County Quarries									
Blue Mountain Transfer Station	2.7	Clallam County	Blue Mountain Rd.			**CEMO,COMA** CIAR,CIVU,CYSC, HYPE,RUAR*	6/23/20 9/30/20	Spoils: (At landfill transfer site)	2.7
Blyn Pit	14.3	Clallam County	Woods Rd.			**BUDA** CASE**, COMA, CYSC, DALA** DIPU**, GERO** HYPE, LALA, LEVU, RUAR**, SEJA**	2/10/20 5/7/20 7/9/20 9/14/20 10/7/20	Partially dormant, Spoils, Storage, some possible Extraction: Clean areas for material storage	14.3

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Clallam Bay Storage	3.0	Clallam County	Frontier St.			**CYSC LAGA,** PHAR* RUAR **SEJA**	5/26/20	Spoils, Storage Chemical, manual	3.0
District 1	2.75	Clallam County	Washington St.			**CEST** CIAR CIVU RUAR *	3/24/20 10/7/20	Storage: Chemical, manual	1.0
District 2	4.7	Clallam County	Lauridson Blvd.			CIAR CIVU **CYSC DALA GERO** RUAR	6/11/20 7/21/20	Storage: Chemical	2.5
Forks Pit	10.0	Clallam County	Pit Ln.			**CYSC SEJA**	Surveyed 2019	Spoils, Storage: Chemical/Manual	
Herrick Gravel	11.8	Clallam County	Herrick Rd.			**CEMO,** CIAR, CIVU, **CYSC, DALA** DIPU, **GERO, HIAU** HYPE LALA RUAR RULA **SEJA**	5/4/20 5/11/20 9/3/20	Extraction, Spoils, Storage: Chemical/Manual-Still contains priority 1 and 2 weeds.	10.0
Hogback Pit	1.7	Clallam County	Off Cays Rd. on Hogback Rd.				Surveyed 2020	Dormant-High warning! Adjacent to source of CAPY	.25
Hoko-Ozette Rd MP4.5	1.4	Clallam County	Hoko-Ozette Rd. MP 4.5			DIPU, **GERO,** HYPE, PHAR, RUAR **SEJA**	5/26/20	Storage: Chemical-clean areas for material storage-no HIAU found this yr	1.4
Hoko Ozette MP10	2.9	Clallam County	Hoko Ozette Rd MP10			CASE* CIAR,CIVU,**GERO**, HYPE PHAR RUAR RULA **SEJA,**	5/26/20 8/11/20	Spoils, Storage, Chemical-clean areas for storage	2.9
Hoko-Ozette Pit MP13	1.5	Clallam County	Hoko-Ozette Rd. MP 13			CASE **CYSC** DIPU* **GERO** RUAR RULA **SEJA**	5/19/20	Storage Chemical-Clean areas for material storage	1.5
Hwy 101 Storage Yard	1.2	Clallam County	Intersection Old Olympic Hwy Hwy 101			CIAR **COMA GERO** RUAR	2/11/20 9/29/20	Storage: Chemical-Clean areas for material storage	0.23
Joyce/Piedmont Pit	5.4	Clallam County	Joyce/Piedmont Rd			**CEMO,** CIAR, CIVU, **CYSC,** DIPU, **GERO,** HYPE,LALA, LEVU, PHAR **SEJA**	5/11/20 10/6/20	Storage: Chemical-Clean areas for material storage	5.4
Kirner Pit	39.24	Clallam County	Kirner Rd.			**CAPY CEST** CIAR CIVU **COMA CYSC DIFU GERO** LALA LUAR RUAR* **SEJA** VIMA	2/10/20 3/17/20 4/8/20 8/24/20 9/16/20 9/29/20	Spoils, Storage, Extraction: Chemical/Manual-piles have been cleaned, areas for clean storage	39.24

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
La Push Ballard Pit	2.1	Clallam County	Ballard Rd.			CIAR**,** CIVU**, CYSC,** DIPU**, GERO LAGA,** PHAR**,** RUAR**,** RULA**, SEJA**	4/16/20 10/5/20	Spoils, Storage: Chemical/manual-Clean areas for material storage	2.1
Lake Creek Pit (Bedrock Pit)	15.1	Clallam County	Hwy 101 (Co. Forks Shop)			CIVU**, CYSC,** DIPU**,** HYPE**,** LEVU**,** PHAR**,** RUAR**, SEJA bamboo**	4/15/20 7/8/20 9/2/20 9/15/20 9/28/20	Spoils, Storage: Chemical/manual-Piles have been cleaned and a corridor to piles is ready.	15.1
Little River Pit	1.0	Clallam County	Little River Rd.			**CEMO,** CIAR**,** CIVU**, GERO** PHAR	6/5/20 10/7/20	Spoils: Chemical-Needs more work	1.0
Lower Elwha-Elwha Pit	1.0	Clallam County	Lower Elwha Rd.			**COMA CYSC SEJA** RUAR	2/14/20 4/30/20 7/16/20	Spoils-may be full already? Chemical/Manual	1.0
McInnes Pit	5.83	Clallam County	Vistas Dr.			**CAPY COMA, CEMO CEST CIIN,** CIAR CIVU**, CYSC** RUAR **SEJA, SYOF TAVU**	2/10/20 3/17/20 4/9/20 7/2/20 8/19/20 9/29/20	Spoils: Chemical-High levels of infested materials	5.83
Morse Creek Pit	25.3	Clallam County	Mt Pleasant Rd.			**BRRA** CIAR CIVU **COMA CYSC GERO** RUAR* **SEJA TAVU**	2/11/20 3/18/20 4/9/20 4/14/20 4/20/20 8/18/20 9/17/20	Spoils, Storage, limited Extraction: Chemical/Manual	25.3
Place Pit	4.9	Clallam County	Place Rd.			BRRA, CIAR, CIVU, CYSC, DIFU, **GERO**, **IRPS**, RUAR, **SEJA**	2/11/20 4/30/20 5/4/20 8/18/20 9/24/20	Spoils: Chemical-Not clean enough for storage	4.9
Quilayute Pit	13.5	Clallam County	Quilayute Rd.			CIAR, CIVU, **CYSC**, DIPU, **GERO**, HYPE, RUAR, RULA, **SEJA**	3/23/20 4/16/20 5/27/20 5/28/20 9/1/20 9/2/20 9/28/20 10/5/20	Spoils, Storage, Extraction: Chemical/Manual-Piles have been cleaned, and there is a clean corridor-	13.5
Ranger Pit	45.8	Clallam County	Place Rd.			**CEMO** CIAR CIVU* **CYSC DIFU GERO** PHAR **POBO** RUAR*	2/11/2020 4/22/2020 4/23/20 8/18/20	Spoils, Storage, Extraction: Chemical/Manual-piles have been cleaned, there is area for clean storage, clean access	27.8

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
							9/21/20 9/30/20		
Sequim Storage Yard	2.1	Clallam County	Washington St.			**CEMO CEST** CIAR CIIN CIVU **DALA*** **DIFU** PHAR	2/14/20 6/17/20 9/14/20	Spoils, Storage: Chemical-Piles are clean, but area not clean enough for safe storage	2.1
Umbrella Creek Pit	5.5	Clallam County	Hoko-Ozette Rd.			CIAR* CIVU* **CYSC GERO** PHAR* **POBO** RUAR* RULA* **SEJA**	5/19/20 8/4/20 10/22/20	Spoils, Storage: Chemical-not clean enough for safe storage of clean materials	5.0
Whitcomb-Diimmel Pit	8.8	Clallam County	Whitcomb-Dimmel Rd			CIAR**,** CIVU**, CYSC,** DIPU**, GERO,** HYPE**,** RUAR**,** RULA**, SEJA**	5/5/20 7/8/20 9/10/20 10/1/20	Spoils, Storage Chemical/Manual-piles have been cleaned, there is area for clean storage, clean access	7.0
State (DNR) Quarries									
Alpaca Quarry	Not known	DNR	Follow FS Rd 2850, at fork, take left instead of following to FS 2855			**BUDA** CIAR CYSC **GERO** RUAR	Inspected in 2016	Storage, Extraction: Met Standard A requirements; rock prepared and stockpiled is free of weeds. Weeds are present on roads leading to this pit CERTIFICTION **NOT** CURRENT	
Baby Bear	2.0 est.	DNR	Hwy 101 near MP 208			No weeds found	5/7/19	Storage,Extraction: Chemical-Meets Standard A- CERTIFICATION **CURRENT**	
Fitzgerald Pit	Not known	DNR	Norris Rd			CIAR **CYSC GERO**	Inspected in 2016	Storage, Extraction: Quarry looks fine, but the roads leading to it are infested CERTIFICTION **NOT** CURRENT	
Jimmy-Come-Lately Pit	Not known	DNR	On FS Rd 2850, at fork, take left			**BUDA** CIAR **CYSC GERO** RUAR	Inspected in 2016	Storage, Extraction: Met requirements; weeds indicated are just outside of pit CERTIFICTION **NOT** CURRENT	
Littleton Pit	78.43	DNR	Hwy 101 west of Heckle Rd.			CIVU **CYSC GERO** LEVU PHAR-all outside pit area	5/6/20	Storage, Excavation: Chemical-Meets Standard B Quite clean. CERTIFICATION **CURRENT**	
Little River	587.71	DNR	Little River Rd			CIVU **CEST SEJA**	10/9/18	Storage, Excavation: Chemical/manual-Meets Standard C-CEST control, but must be monitored and retreated. **CEMO found on road**. CERTIFICATION NOT **CURRENT**	

Name	Size (acres)	FS RSI Code or Ownership	Road	Ref. #	Priority	Weeds	Date	Use: Treatment Type/Suitability	Acres Treated
Loop Tavern Pit	24.58	DNR	Hwy 101 between Forks and Beaver MP 209.5			CIVU **CYSC GERO SEJA** RUAR-removed or outside pit area	5/12/20	Storage, Excavation: Chemical-Meets Standard B CERTIFICATION **CURRENT**	
Mary Clark	170.2	DNR	Mary Clark Rd .5 miles			**CYSC GERO HIAU LAGA** PHAR **POBO** RUAR-all treated	5/13/20	Partial Dormant-spoils, Storage, Extraction: Chemical-Meets Standard B CERTIFICATION **CURRENT**	
Place Pit	Not known	DNR	Place Rd			**CYSC**	Inspected in 2016	Spoils, Storage, Extraction: Not suitable at this time: CYSC is too difficult to isolate. In process of treating. **NO** CERTIFICATION	
Pyramid Pit	0.75	DNR	East Beach OL-PA-S-4000			CIVU	10/8/20	Excavation, storage possible FS project material Clean-meets standard B CERTIFICATION **CURRENT**	
Unnamed Pit	1.5 est.	DNR	Hwy 101 E of Wisen Cr Rd			CIAR CIVU **CYSC POBO** LALA **SEJA**	9/13/18	Dormant?-Spoils, Storage, possible Extraction: **No treatment in 2019 or 2020**. 2017 Chemical POBO treated by CNWCB **NO** CERTIFICATION	
Winfield Pit (north and south)		DNR	Clearwater (Jefferson Co)			CYSC, SEJA	5/13/20	2 separate locations: Extraction, Spoils, Storage inspection only Would have met standard B	

APPENDIX C: POTENTIAL SURVEY AND TREATMENT SITES

Treating meadow knapweed at Canyon Creek pit on the 2875

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 2020 Project Action table in Appendix A and can inform the project list for next year.

Future work should continue to focus on priority species with limited distribution in the forest. Herb Robert, which is one of the most problematic species to completely eradicate continues to be a top priority because of its ability to rapidly spread into uninfested areas and degrade wildland habitat. The method of prioritizing projects for the 2020 Project List worked well for herb Robert treatments but should continue to explore methods to control large herb Robert infestations in the long term. New herbicide treatments are promising and may already be slowing spread. 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 be a priority wherever it is encountered.

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

General Recommendations:

- Species with limited distribution: Continue focus to eradicate the limited species- bishop's weed, comfrey, hawkweeds (orange and yellow-flowered hawkweed species), knapweeds, knotweeds, mullein, sulfur cinquefoil, teasel, and yellow archangel. There are no large infestations of these species on any FS lands in Clallam and Jefferson Counties. Spotted jewelweed is an infrequent species in Clallam County and on ONF lands within Clallam and Jefferson Counties. However there has not been treatment on Jefferson County roads such as Snow Creek Rd which appears to be a major source. Anderson Lake Rd in Jefferson County may be the source for European hawkweed on Forest Service land within Jefferson County as well. It would be advisable to make a request to Jefferson County Road Department for treatment of these sites. Continue to press for Burnt Hill treatment by the DNR -it is the source of the meadow knapweed.
- Herb Robert: Large infestations of herb Robert may be beyond our resources, but past locations of heavy infestations may be isolated by treating on the perimeter Perhaps the Coastal crew (under 10K Institute) could assist. Continue good follow-up wherever there were small patches. That strategy seems to be working.
- Wild basil savory: We are finding more incidences of this species. Work on Rocky Brook this year cemented our concern that this species would do more than just populate roadsides; we found considerable spread past road edge into shaded forest sites. We should continue to document wild basil savory locations and treat whenever encountered.
- Everlasting peavine: Continue to treat everlasting peavine in advance of road closures. Follow-up on 2700 or 2800 treatments would be valuable. Ensure that Milestone is as effective as Transline.
- Botanical Areas/Wetlands/Special sites: Reed-canary grass in Cranberry Bog is much improved following imazapyr treatments- Camp Handy and associated meadows along Heather Creek were much improved and may not need to be a priority for 2021. The new Canada thistle site could be treated along with the **herb Robert** which was discovered along Heather Creek Trail and can be found at the trail head. Pat's Prairie is also much improved and may not need to be a priority next year. Caraco units 2, 3 and 5 displayed sufficient infestations of Canada thistle to warrant priority next season; unit 6 may still be in good condition.
- Rock Sources: Keep pits as a priority unless crew said it didn't need to be a priority on FACTS sheets. Survey and treat pits not seen in the past two years. Identify old pit sites that are along the way of other scheduled treatments, encourage concurrent treatment. We will look for 2014 documentation of rock source with POBO at 2900200 (dubbed Mystery Pit).
- Identify high-priority cross-boundary projects with other public land agencies-Lord's Lake Loop/Snow Creek Rd jewelweed is an example. Notify us as soon as possible to request Clallam County connector roads so they may be added to our integrated weed management work plan.
- Specific Roads: In addition to those sites that crew recommended as priorities, consider the ones listed in the table on the following page.
- Surveys: Even though there is never adequate time for needed surveys, the locations provided by FS staff have been excellent-Continue to identify areas that have not been surveyed or treated for four years or more.
- It would be useful to know FS crew treatment locations in Clallam and Jefferson Counties in season and before preparing reports.

Specific Site Recommendations for 2020

Ref #	6th Field Watershed Name	Road #	Site Name	Species	Comments
453	Lower Duckabush River	2510065			do with Collins and other Duckabush treatmt
310	Lower Duckabush River	2510070	**Collins CG**	GERO	Not treated in 2018 or 2019
768	Lower Dosewallips River	2610000	**Lower Dosewallips River**	GERO	Above washout.
758	Lower Dosewallips River	2610010		GERO	as above
300	Lower Dosewallips River	2610040		GERO	as above
303	Lower Dosewallips River	2610050	**Elkhorn CG**	GERO	Not treated since 2017
653	Lower Big Quilcene River	2650000	**Rocky Brook Rd**	CLVU, SEJA	No PORE found, single CEMO, heavy CLVU
590	Lower Big Quilcene River	2700040	**PT Muni WS caretakers cabin and road**	CLVU, GERO	Follow-up
767	Lower Big Quilcene River	2700080	**Lower Big Quilcene Trail**	**CLVU, GERO**	Coordinate with Graywolf volunteer –Mike?
201	Little Quilcene River	2700280		**HISU**	hawkweed close to eliminated
202	Little Quilcene River	2700281		**HISU**	hawkweed close to eliminated
291	Lower Big Quilcene River	2740000	**Tunnel Cr**		Treated in 2018-getting good tansy control
454	Upper Big Quilcene River	2740000			should be completed with above
59	Jimmy-come-lately Creek	2800360		**HICA**	Limited yellow hawkweed site
162	Upper Dungeness River	2870000	**Camp Handy, Heather Cr.**	GERO	Follow up new herb Robert site
10	Canyon Creek /Pats Creek	2870059	**Cranberry Bog**	GERO, PHAR	Making good progress
multi	Canyon Creek /Pats Creek	2870-spurs	**Caraco Elk Habitat Units**	CIAR	See 2020 FACT sheets recommendations
157	South Fork Calawah	2932000	**Elk Quarry**		Have never been to this rock source
193?	Upper Sol Duc River	3040000	**Mt Muller Trail**	**HIAU**	Larger than expected orange hawkweed site-needs earlier treatment-coordination with BCH to carry in water
118	Middle Sol Duc River	3040800	**Snider Work Center**	POBO	High priority in previous years. What to do about Bishop's weed, large infestation?
173	Upper Sol Duc River	3071000	**Littleton Horse Camp gravel pit**		Small amount GERO discovered in 2016 LOCKED OUT!!

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**. This table has been freshly reorganized into 4 year blocks, noting how many times a road had been surveyed in each time frame.** 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. 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 that were noted but not treated on county roads have been italicized. Information in the 2019-2020 columns is a summary of both years, species newly noted in 2020 were italicized, species that were not seen in a following year are in red. Treatments that encompassed less area than in the previous year are noted in red. 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 columns.

			Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
ROAD	**Road length**	**Total # Yrs visited**	**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**
SR101		17	3		***GERO HICA*** **SEJA**	4	CYSC **POBO POSA**	4	**CEST SEJA**	4	**HISA HICA SEJA**	2			**CHJU *HICA* SEJA**
CR5695 Woods Rd		17	3		CIAR CYSC **SEJA**	4	**SEJA**	4	**CEMO** CIVU CYSC ***GERO*** **SEJA**	4	**CEMO** CIVU CYSC **GERO** LALA RUAR **SEJA VIMA**	2	0.9	1.8	CIVU **CLVU** CYSC **GERO** HYPE LALA **SEJA**
CR5331 Palo Alto Rd	7.8	17	3		*CIAR CIVU CYSC* ***GERO*** *LALA* **SEJA**	4	*CIAR CIVU CYSC* ***GERO*** *LALA* **SEJA**	4	***CEMO*** *CYSC GERO LALA* **SEJA**	4	**CEMO** CIAR CYSC **GERO** HYPE LALA PHAR **PORE SEJA**	2	7.8	14	**BRSY*** **CEMO** CIAR HYPE LALA *PHAR* **SEJA**
CR4361 Taylor Cut-off Rd	2.6	17	3		*CIAR CYSC*	4	CYSC	4	*CYSC*	4	**BUDA COMA** CYSC	2	2.6	5.2	**BUDA** CYSC
CR4360 Lost Mountain Rd	5.1	17	3		*CIAR CIVU CYSC* **SEJA**	4	*CIAR CYSC* **SEJA**	4	***CEMO*** *CIAR CYSC* **SEJA**	4	**CEMO** CIAR CYSC **GERO SEJA**	2	5.1	10.2	**CEMO** CIAR CYSC **GERO SEJA**
CR Blue Mount Rd	5.4	17	3		*CYSC* **SEJA**	4	*CYSC* **SEJA**	4	*CYSC* **SEJA**	4	**CEMO** CYSC **PORE SEJA**	2	5.4	10.8	**CEMO** CYSC **HIAU PORE SEJA**
CR Little River Rd	6.8	17	3		**CEMO**	4	***CEMO*** CYSC **GERO**	4	***CEMO GERO***	4	**CEMO** CIAR CIVU CYSC **GERO** HYPE LALA RUAR	2	6.8	13.6	**CEMO** CIAR CIVU CYSC **GERO** HYPE RUAR
CR Olympic Hotsprings Rd	1.5	17	3		**CEMO** CYSC ***GERO PORE***	4	**CEMO** CYSC ***GERO***	4	***CEMO*** *CYSC* ***GERO***	4	**CEMO** CYSC **GERO** RUAR	2	1.5	3	CEMO CYSC **GERO** RUAR
CR Joyce/Piedmont East	4.5	17	3		**CEMO** CYSC ***GERO*** *LALA*	4	**CEMO** CYSC ***GERO*** *LALA*	4	**CEMO** CYSC ***GERO*** *LALA*	4	**CEMO** CYSC **GERO** LALA	2	4.6	9.2	**CEMO** CIAR CYSC **GERO SEJA**

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
Beach Rd					**SEJA**		**SEJA**		**SEJA**		**SEJA**				
CR3057 Big Quilcene River Rd		1	1.9	3	**SEJA**			2		0		0			
CR3039 Penny Creek Rd		10	2	4,959	GERO	4	**SEJA**	4		3		1			
CR2515 Rocky Brook Rd	0.4	10	0.4			1		3		2		1			
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	9	2		**SEJA**	2	CIAR CYSC **GERO** LALA **POBO**	2		2		1			CYSC
CR Bear Cr Rd	4	2				2		0		0		2	2	.1	**SEJA**
CR2065 Cooper Ranch Rd	5.6	10	2			2		2		2		2	5.6	0.0014	**POBO SEJA**
CR2036 Mary Clark Rd	7.6	17	3			4		4	**CYSC GERO POBO SEJA**	4	CYSC HYPE PHAR **SEJA**	2	7.6	15.2	CYSC RUAR **SEJA**
CR5006 Jimmy Come Lately Rd	0.25	6	1			1		1		1		2	0.25	0.5	**CEMO** CIAR CIVU CYSC **GERO** HYPE LALA **POBO PORE** RUAR RULA SEJA
3116200	5.0	0				0		0		0		0			
3116000	5.0	5	3			1	CIAR **GERO** RUDI	1	CIVU CYSC HYPE **SEJA TAVU**	0		0			
3100420		1	1			0		0		0		0			
3100400	2.8	1	1			0		0		0		0			
3100700	3.3	0	0			0		0		0		0			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
3100400	2.8	0	0			0		0		0		0			
3100300	5.8	5	2			1	**GERO**	0		0		2	5.8	14.2	CYSC **GERO**
3071015		1	1			0		0		0		0			
3071000	0.5	6	2	60	CYSC	1		2	CIVU CYSC **GERO** HYPE LALA **SEJA**	1	CYSC **GERO** LALA RUAR	0			
Mt Muller #882	4	1	0			0		0		0		1	4	0.5	**HIAU**
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 **SEJA**	2	CYSC	2	CIVU CYSC HYPE **SEJA**	2	**CEMO** CIVU	0			
3067000	3.6	3	2	1,402	CYSC **SEJA**	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	**SEJA**	2	CIAR CIVU **GERO HIAU** HYPE LEVU LALA	2	CYSC **GERO HIAU** ILAQ LEVU PRLA **SEJA**	0		0			
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	8	1	54, 709	**ARMI GERO** ILAQ **POBO**	4	CIAR CIVU CYSC **GERO** LALA **POBO** RUDI **SEJA**	3	CIVU CIAR **GERO HIAU** HYPE ILAQ LALA **POBO** PRLA **SEJA**	0		1	0	1	POBO
3040595	1.9	3	2	373	CIVU **SEJA**	1	**GERO** SEJA	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			

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3040100	0.6	3	1	8	CYSC **SEJA**	1		1	CiVU DIPU HYPE **SEJA**	0		0			
3040025		3	3	1	RUDI	0		0		0		0			
3040012	.31	2	1	2	CYSC	1	CIVU DIPU HYPE **SEJA**	0		0		0			
3040011	0.6	2	2			0		0		0		0			
3040000 (portions)	21	14	4	35, 136	CYSC **GERO SEJA**	4	**CEMO** CIAR CIVU CYSC **GERO** LALA **SEJA**	4	**CEMO** CIAR CIVU CYSC **GERO** HYPE ILAQ LALA PHAR RUAR **SEJA**	2	CIAR, CIVU, CYSC,**GERO** LALA **SEJA**	0			
3006300	4.1	1	1			0		0		0		0			
3006011	1.2	2	1			1	**CEMO** CIAR CIVU **GERO** HYPE ILAQ LALA PHAR RUDI **SEJA**	0		0		0			
3006000	1.7	3	1			1	CYSC	1	CIVU **GERO** HYPE RUAR RULA **SEJA**	0		0			
3000800	1.8	1	0			0		1	**GERO**	0		0			
3000591	0.3	2	0			1	CIVU **GERO** HYPE, RUDI RULA **SEJA**	1	CIVU **GERO** DIPU	0		0	0		
3000401		1	1			0		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 LEVU **SEJA**			0			
3000330	1.1	1	0			0		1	CIVU CYSC **SEJA**	0		0			
3000300	3.5	4	1			0		3	CIVU CYSC **GERO SEJA**	0		0			
3000260	0.7	2	1			1	CIVU CYSC **SEJA**	0		0		0			

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			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
3000250	6.9	5	1	10	CYSC	1	CIVU CYSC **GERO SEJA**	3	CIVU CYSC G**ERO** 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	**SEJA**	3	CIVU CYSC **GERO** LALA **SEJA**	4	CIVU CYSC DIPU **GERO** LALA	0		0			
3000011		1	1			1	CYSC **GERO**	0		0		0			
3000000		10	3	883 ,09 8	CYSC CIVU **GERO** RULA **SEJA**	2	**CEMO** CIAR CIVU CYSC **GERO** LALA **SEJA**	4	CIAR CIVU CYSC **GERO** HYPE LALA **SEJA** 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 **SEJA**
2978025	.3	3	2			0		0		0		1	0.8	1.9	CYSC
2978015	1.6	3	2	18	CYSC	0		0		0		1	1.4	3.36	CYSC **SEJA**
2978011	0.4	3	2			0		0		0		1	0.4		
2978000	3	4	2	3,6 04	CYSC **SEJA**	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			
2932035	0.2	1	1			0		0		0		0			
2932031	0.5	1	1			0		0		0		0	0		
2932030	1.5	3	2			1	CYSC	0		0		0			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
2932000	11.8	7	3	2,153	LEVU CYSC	2	CYSC **GERO SEJA**	1	CIVU **GERO** HYPE **LAGA** RUAR RULA **SEJA**	0		1	3.7	11.44	CIVU CYSC **GERO** RUAR RULA
2931200	2.5	1	1			0		0		0		0	0		
2931190	1.7	2	1			1	CIVU GERO HYPE **LAGA** RUDI RULA **SEJA**	0		0		0			
2931000	12	7	1	1	**SEJA**	1	CIVU CYSC LALA	4	**CEMO** CIVU CYSC HYPE PHAR	0		1		1	CYSC DIPU PHAR
2929070	3.3	7	2	525	CYSC **GERO** RULA	2	**GERO**	2	**GERO** RULA	0		1	3.3	9.1	CIVU CYSC **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	6	1			1	**GERO** DIPU HYPE RUDI RULA	0		2	CIVU CYSC **DIFU DIPU GERO**	2	1.5	1.0	CIVU CYSC **DIFU** DIPU **GERO** HYPE
2923095	0.2	1	0			0		1	CIAR CIVU CYSC DIPU **GERO**HYRA LALA LEVU PHAR	0		0			
2923090	1.2	2	0			0		0		1	DIPU **GERO**	1	1.2	1.0	CYSC DIPU **GERO**
2923077	1.4	2	0			1	CYSC **SEJA**	1	CYSC HYPE TAVU **SEJA**	0		0			
2923074	0.8	1	0			0		1	CYSC HYPE **TAVU SEJA**	0		0			
2923073	0.8	1	0			0		1	CYSC HYPE **SEJA**	0		0			
2923072	0.8	1	0			0		1	CIVU	0		0			
2923070	5.2	9	1	2	SEJA	2	CIAR CIVU CYSC **GERO** HYPE RUDI **SEJA**	2	CIVU CYSC HYPE LALA PHAR	2	CIAR CIVU CYSC DIPU HYPE LALA LEVU PHAR RUAR RULA **SEJA TAVU**	2	5.2	11.4	CIAR CIVU CYSC DIPU **GERO** HYPE LALA PHAR RULA **SEJA TAVU**

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
2923060	1	3	1			1	CIAR CYSC **GERO**	1	CIAR CYSC HYPE	0		0			
2923020	0.6	1	0			0		1	CIVU CYSC PHAR	0		0			
2923015	2.7	1	0			0		1	CIAR CIVU CYSC **GERO** HYPE RULA **SEJA**	0		0			
2923000	4.7	12	2	1,4 34	CIAR CYSC **HIAU SEJA**	3	CYSC **GERO**	1	CYSC **SEJA**	2	CYSC **GERO** HYPE LALA PHAR **POBO SEJA**	1	4.7	11.4	ARMI CIVU CYSC **GERO** LALA **SEJA**
2922250	2.6	2	0			0		2	**CEMO** CIVU CYSC **GERO SEJA**	0		0			
2922240	1.1	2	0			0		2	CIAR CIVU CYSC **GERO**HYPE RULA **SEJA**	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			
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 SEJA**	0		0			
2918100	3	4	1	0		2	CYSC DIFU **GERO** HYPE LEVU LALA **SEJA**	1	CIAR CIVU CYSC **GERO**	0		0			
2918000	14.5	7	1	2,3 15	CYSC **SEJA**	2	CYSC DIFU LEVU LALA	2	**CIAR CIVU CYSC** GERO **HYPE PHAR**	1	CIVU CYSC **GERO**	1	4.1	0.25	GERO

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2912060	3.5	5	2	3	**SEJA**	1		1	CIAR CIVU CYSC **GERO** HYPE **SEJA**	1	CIVU CYSC DIPU **GERO** HYPE **SEJA**	0			
2903000	6.8	5	1	78	CYSC **SEJA**	0		0		2	CIAR CIVU CYSC DIPU **GERO** HYPE **SEJA**	2	6.8	12	CIVU CYSC DIPU **GERO** HYPE **SEJA**
2902375	0.8	4	1			1		1	CIAR CYSC **GERO**HYPE	0		1	0.8	0.3	**GERO**
2902300	0.6	1	1			0		0		0		0			
2902000 (portions)	3.4	9	3	4,175	CYSC **SEJA**	0		2	CIAR CIVU CYSC **SEJA**	2	CASE CIAR CIVU CYSC DIPU **GERO** **HIAU** HYPE LEVU RULA RUAR **SEJA**	2	3.4	7.8	CIVU CYSC **GERO** HYPE RUAR **SEJA**
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
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 LALA RUAR RULA **SEJA**	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			
2900200	0.7	1	1	54	CYSC **SEJA**	0		0		0		0			
2900070	2.3	1	1			0		0		0		0			

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2900030	3.6	1	1			0		0		0		0	0		
2900015	0.1	3	1			2	CYSC **GERO** RUDI SEJA	1	CYSC **GERO** HYPE LALA PHAR **SEJA**	0		0			
2900000	37.2	11	3	664 225	CIAR CYSC **GERO HIAU POSA SEJA**	3	CIVU CYSC **GERO HIAU** HYPE LALA RUDI **SEJA**	2	CIVU CYSC **GERO HIAU** HYPE PHAR **SEJA TAVU**	1	**GERO** HYPE **SEJA**	2		9	CIAR CIVU CYSC **GERO HIAU SEJA (only Bondiu Pit in 2020**
2880050	0	10	2	255 ,00 4	**GERO**	4	**GERO**	3	CIAR **POSA** RUDI RULA	1	**GERO**	0			
2880000	1.8	8	4	9,9 23	**GERO SEJA**	2	**CEMO** CIAR CYSC **GERO SEJA**	2	CIAR CIVU CYSC DIPU **GERO HIAU** HYPE HYRA LALA LEVU PHAR RULA **SEJA**	0		0			
2878123	0.2	4	1			1		2	CIAR CIVU **GERO** HYPE LALA	0		1	0.2	1.4	CIAR CIVU CYSC LALA
2878120 (portions)	1	9	1	2,1 70	CYSC	1	CIAR CYSC LALA	2	CIAR CIVU **GERO** HYPE LALA	3	CIVU CYSC **GERO** LALA	2	1	2.5	CIVU CYSC DIPU **GERO** LALA **SEJA**
2878110	0.75	6	1			2	LALA CIVU **CEMO** CYSC	1	CIAR CIVU CYSC LALA	0		1	0.75	2	CIVU LALA
2878109	0.25	4	1			0		1	CIVU CYSC LALA	1	CIVU CYSC LALA	1	0.25	0.25	CIVU LALA
2878108	0.1	4	1					1	**CEMO** CIVU CYSC LALA	1	LALA	1	0.1	0.2	CIVU LALA
2878104	0.2	3	0			0		1	**GERO**	0		1	0.2	0.3	**GERO** LALA
2878102	0.4	4	0.4			0		1	CIVU LALA	1	CIVU LALA	2	0.4	1.0	CIVU LALA
2878101	0.1	3	0			0		1	CIVU LALA	1	CIVU LALA	1	0.1	0.3	LALA
2878100	1.5	9	1			2		2	CIAR CIVU HYPE	2	CIAR CIVU **CEMO** LALA **SEJA**	2	1.6	1.2	CIVU **GERO** LALA **SEJA**

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2878085	0.7	4	1			2	CIAR CIVU **GERO SEJA**	0		0		1	0.7	1.4	CIAR CIVU **CLVU** CYSC HYPE **SEJA**
2878080	0.75	5	1			2	CIAR LALA	1	CIAR CIVU **GERO**LALA **SEJA**	1	CIVU CYSC LALA	1	0.8	1.6	CIVU CYSC LALA
2878060	0.75	5	1	127	CYSC	1	CIAR CYSC LALA **SEJA**	1	CIAR CIVU **SEJA**	0		2	0.75	2.5	CIAR CIVU **CLVU** CYSC DIPU LALA
2878050	0.6	4	1			0		1	**CEMO** CIAR CIVU **GERO** HYPE LALA **SEJA**	2	CIAR CIVU **GERO** HYPE LALA **SEJA**	0			
2878000	4.0	12	2	2,9 71	CYSC	4	**CEMO** CIAR CYSC **GERO** LALA **SEJA**	2	**AEPO** CIAR CIVU **GERO** HYPE LALA	3	**AEPO CEMO** CIAR CIVU **GERO** LALA **SEJA**	1	4	7.9	**AEPO CEMO** CIAR CIVU CYSC **GERO** LALA **SEJA**
2877160	0.1	1	0			0		0		0		1	0.1	0.01	CIVU DIPU
2877150	0.2	1	0			0		0		0		1	0.2	.002	**CEMO** DIPU
2877100	0.3	2	1			0		0		0		1	0.3	1.2	CIAR CIVU LALA
2877090	1.4	1	0			0		0		1		0			
2877052	0.3	5	1			0		1	CIAR CIVU **GERO** LALA **SEJA**	2	CIVU CIAR CYSC DIPU **GERO** LEVU RULA **SEJA**	1	0.3	0.001	CYSC **GERO SEJA**
2877050	2.65	2	1			0		0		1	CIVU, DIPU	0			
2877040	2.5	6	1			2	**CEMO** CIAR CIVU **SEJA**	2	CIAR CIVU CYSC **GERO** RUAR	1	**CEMO** CIAR CIVU CYSC **GERO HICA**	0			
2877000	4.6	11	1			3	**CEMO** CIAR CIVU CYSC HYPE LALA **SEJA**	1	CIAR	4	CIAR CIVU CYSC DIPU **GERO** HYPE LEVU **SEJA**	2	4.6	25.2	CIAR CIVU **CLVU** CYSC **GERO** LALA LEVU
2875090	0.1	2	1			0		1	CIAR CIVU CYSC **GERO SEJA**	0		0			

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2875070 (as of 2020)	1.8	7	1			1	CIAR CYSC	1	CIAR CIVU CYSC HYPE LALA **SEJA**	2	**CEMO**CIAR CIVU CYSC **GERO** HYPE LEVU **SEJA**	2	1.8	3.6	**CEMO** CIAR CYSC **GERO SEJA**
2875020	0.5	9	1	6	CYSC	2	**CEMO** CIAR CIVU CYSC PHAR **POBO SEJA**	2	CIAR CIVU **POBO**	3	**CEMO** CIAR CIVU **GERO** LALA PHAR **POBO**	1	0.6	1.5	**CEMO** CIAR CIVU CYSC **GERO** HYPE LESU
2875000	3.6	13	2	268	**CEMO**	4	**CEBI CEMO** CIAR CIVU LALA	2	**CEMO** CIAR **GERO SEJA**	3	**CEMO** CIAR CIVU CYSC DIPU **GERO** HYPE ILAQ LALA **SEJA**	2	3.6	8	**CEMO** CIAR CIVU DACA HYPE LALA **SEJA**
2870270	3.5	3	1		CIAR CIVU	1	**CEMO** CIVU HYPE **SEJA**	1	**CEMO** CIAR CIVU CYSC PHAR **SEJA**	0					
2870250	1	2	0			1	**CEBI CEMO**	1	**CEMO** CIAR CIVU CYSC **GERO** HYPE LALA **SEJA**	0		0			
2870230	4	7	4	3	CIAR CIVU HYPE **SEJA**	1	CIAR CIVU **GERO**	1	CIAR **GERO** HYPE	1	CIAR **GERO** HYPE	0			
2870150	0.5	6	1			1	LALA	1	CIVU LALA **SEJA**	2	CIAR CIVU LALA **SEJA**	1	1.3	3.12	CIAR CIVU **CLVU** LALA PHAR **SEJA**
2870130	1	2	1	1	CYSC	1	**CEMO SEJA**	0		0		0			
2870110	0.5	3	1	729	CYSC	1	CYSC	1	CIAR CIVU LALA	0		0			
2870059	0.4	10	4	19, 529	**CEMO** CIAR CIVU CYSC **GERO SEJA**	1		1	**CEMO SEJA**	3	CIAR CIVU CYSC **GERO**	1	0.4	1.5	CIAR CIVU CYSC **GERO**
2870058		10	2		CIAR **GERO** PHAR	3	CIAR CIVU **GERO** PHAR	1	CYSC	3	**CEMO** CIAR CIVU **GERO**	1	0.3	1	**CLVU GERO** HYPE
2870057	0.2	6	0			3	CIAR CIVU **GERO** HYPE PHAR	2	CIAR CIVU CYSC DACA **GERO** HYPE LEVU PHAR **SEJA**	0		1	0.2	0.4	CIAR CYSC **GERO**

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2870056	0.6	9	3	14	**CEMO SEJA**	3	**CEMO** CIAR CIVU CYSC **SEJA TAVU**	2	CIAR CIVU CYSC DACA **GERO** HYPE LEVU **SEJA**	0		1	0.6	1.8	CIAR CIVU **CLVU GERO**
2870054	0.7	7	0			4	**CEMO** CIAR CIVU **SEJA**	2	CIAR CIVU CYSC **GERO** PHAR **SEJA**	0		1	0.7	2.1	**CEMO** CIAR CIVU HYPE **SEJA**
2870053	1.5	6	0			2	**CEMO** CIAR CIVU **SEJA**	2	**CEMO** CIAR CIVU CYSC DACA **GERO** HYPE LEVU **SEJA TAVU**	1	**CEMO** CIAR CIVU CYSC	1	1.5	3	**CEMO** CIAR CIVU CYSC **SEJA**
2870052	0.3	4	1			1	CIAR HYPE	1	**CEMO** CIAR CIVU CYSC HYPE LEVU PHAR **SEJA**	0		1	0.3	0.8	**CEMO CLVU SEJA**
2870050	2.8	14	4	110	**CEMO** CIAR CIVU CYSC **GERO** HYPE LALA PHAR **SEJA**	4	CIAR CIVU **GERO LEVU** PHAR RUDI **SEJA**	2	**CEMO** CIAR CIVU **GERO** HYPE LALA **SEJA**	2	**CEMO** CIAR CIVU **GERO** HYPE LALA	2	2.8	3.5	**CEMO** CIAR CIVU **CLVU GERO** HYPE LALA **SEJA**
2870030	1.5	9	2	78	**CEMO** CYSC **SEJA**	4	**CEMO** CIAR CYSC HYPE **SEJA**	1	CIAR CIVU HYPE	1	**CEMO**, CIAR, CIVU, HYPE, SEJA	1	1.5	3	CIAR CIVU HYPE RUAR RULA **SEJA SYOF**
2870000	21.15	16	4	3,853	**CEMO** CYSC **SEJA**	4	**CEMO** CIAR CIVU CYSC **GERO** HYPE LALA LEVU **SEJA**	3	**CEMO** CIAR CIVU CYSC DACA **GERO** HYPE LALA LEVU PHAR **SEJA**	3	**CEMO** CIAR CIVU CYSC DACA **GERO** HYPE LALA **SEJA**	2	4.5	28.5	**CEMO** CIAR CIVU CYSC **GERO** HYPE LALA PHAR **PORE SEJA**
2860120	1.6	2	1			0		1	**CEMO** CIAR CIVU HYPE **SEJA**	0		0			
2860011	0.4	2	1	2,708	**GERO SEJA**	0		1	**CEMO** CIAR CIVU CYSC DACA **GERO** HYPE LALA PHAR RUDI **SEJA**	0		0			
2860000	3	2	1	54,	CIVU **GERO**			1	**GERO**	0		0			

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				000					RUAR						
2855100	1.1	5	1			0		0		3	**CEMO** CIAR CIVU CYSC DACA **GERO HYPE LALA SEJA**	1	1.1	8.02	CIAR CIVU **CLVU GERO SEJA**
2855070	1.1	12	3	549 7	**CEMO** CIAR CYSC **GERO** RULA **SEJA**	3	**CEBI CEMO** CYSC **SEJA**	2	**CEBI** CIVA,CIVU CYSC **GERO** HYPE LALA **SEJA**	3	**CEST** CIAR CIVU CYSC **GERO** HYPE LALA RUAR **SEJA**	2	1.5	3.5	**CEST** CIAR CIVU **CLVU** CYSC **DALA GERO** LALA ROCA RUAR **SEJA**
2855032	0.8	5	1.6	1	RULA	0		1	**CEMO GERO** HYPE **SEJA**	3	**CEMO** CIVU **CLVU GERO SEJA**	0			
2855030	2.6	5	1	19, 200	**SEJA**	0		1	**CEBI** CIAR CIVU CYSC **GERO** HYPE LALA **SEJA**	3	**CEMO** CIVU CYSC **GERO** HYPE RUAR **SEJA**	0			
2855000	2.8	10	3	51, 947	**CEBI CEMO** CIVU CYSC GERO **SEJA**	2	**SEJA**	1	CIAR CIVU **GERO** HYPE **SEJA**	2	**CEMO** CIAR CIVU **CLVU GERO** HYPE **PORE SEJA**	2	2.8	6.6	CIAR **CLVU GERO PORE SEJA**
2852150	1.29	4	1	25	CYSC	0		1	CIAR CIVU CYSC **GERO** HYPE **SEJA**	1	CIVU CYSC **GERO** RUAR **SEJA**	1	0.8	3.5	CIAR CIVU **GERO SEJA**
2852090	0.18	3	1	3,3 62	CIAR CYSC **GERO** SEJA	0		0		0		2	0.18	1.5	**CLVU GERO SEJA**
2852000	2.6	3	3	47, 605	**CEMO** CIAR **GERO** RULA SEJA	0	**CEMO**	0		0		0			
2851090	1	1	1			0		0		0			0		
2851080	1.6	2	1	1,6 60	CYSC **SEJA TAVU**	0		1	**CEMO** CIAR CIVU CYSC **GERO** HYPE **SEJA**	0		0			
2851000	4.1	1	1	10, 090	**SEJA**			0		0		0			
2850124	0.2	1	1			0		0		0		0			
2850120	2.8	1	1		CYSC	0		0		0		0			

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2850093	0.1	2	1			0		0		1		0			
2850090	1.1	3	1			0		1	CIVU CYSC **GERO** HYPE **SEJA**	1	CIAR CIVU **GERO**	0			
2850010	1.5	2	1	5,352	RULA **SEJA**	0		1	CIVU **GERO SEJA**	0		0			
2850000	7.4	11	4	67,334	CYSC **GERO** RULA **SEJA**	1		1	CIAR CIVU CYSC **GERO** ILAQ HYPE **SEJA**	3	CIAR CIVU **CLVU** CYSC **GERO HYPE IMCA SEJA**	2	7.4	7.8	CIAR CIVU **GERO IMCA SEJA VIMI**
2845200	0.28	4	1			0		0		2	CIAR **SEJA**	1	0.3	0.3	**SEJA**
2845150	0.2	4	1			0		1	CIVU **SEJA**	2	CIAR CYSC **GERO** LALA **SEJA**	0			
2845120	2	4	1	84	CYSC **SEJA**	1	CIVU CYSC **SEJA**	0		2	CIAR CIVU **CLVU GERO** HYPE **SEJA**	0			
2845090	1	2	1	12	CYSC **SEJA**	0		0		1	CIVU **GERO SEJA**	0			
2845073	0.9	7	1			1	CYSC	1	CIAR CIVU CYSC LALA **SEJA**	2	CIAR CIVU **CLVU** CYSC DIPU **GERO** HYPE LALA **SEJA**	2	0.9	1.8	CIAR CIVU **CLVU** CYSC **GERO** HYPE **SEJA**
2845070	1.5	7	2	1,860	CYSC	1	**CEMO** CIAR CIVU CYSC **SEJA**	0		2	**CEMO** CIAR CIVU **CLVU** CYSC **GERO** HYPE **SEJA**	2	1.5	3	CIAR CIVU **CLVU** CYSC DIPU **GERO SEJA**
2845040	0.3	4	1	160	**SEJA**	0		1	**CEMO** CIAR CIVU CYSC DACA DIPU HYPE **SEJA**	2	CIAR CIVU **CLVU GERO** HYPE **SEJA**	0			
2845000	5.4	8	2	12,378	**SEJA**	2		1	CIAR CIVU HYPE **SEJA**	1	CIAR CIVU **CLVU GERO** HYPE **SEJA**	2	5.4	10.8	CIAR CIVU **CLVU GERO SEJA**
2840150	0.6	5	1	1	**SEJA**	0		0		2	**CE**MO CIVU, DIPU **GERO** HYPE, **SEJA**	2	0.6	1.8	CIAR CIVU **CLVU GERO SEJA**

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2840130	1.1	3	1			0		0		1	CYSC	1	1.1	2.2.	**GERO**
272840120	0.7	5	1			0		1	CIVU **GERO SEJA**	2	**CEMO** CIVU CLVU **GERO** HYPE **SEJA**	1	0.7	2.1	**CLVU GERO SEJA**
2840084	0.25	2	1			0		0		0		1			
2840080	1	6	0.9	1	RULA	0		1	CIVU **GERO** HYPE **SEJA**	3	CIAR, CIVU CYSC **GERO** HYPE LALA **SEJA**	1	0	0.52	CIAR HYPE LALA **SEJA**
2840071	2.0	3	1	36	**SYOF SEJA**	0		0		1	**CEMO** CIAR CIVU CYSC **GERO** LALA **SEJA**	1	2	9.6	CIAR CIVU **CLVU** CYSC **GERO** LALA PHAR **SEJA**
2840070	1.7	6	1	5,753	CYSC **SEJA**	0		1	CIAR CIVU LALA **SEJA**	3	CIAR CIVU **GERO SEJA**	1	1.7	4.08	**CEMO** CIAR CIVU **CLVU** CYSC **GERO** LALA PHAR **SEJA**
2840037		1	0			0		0		1	**CEMO** CIAR CIVU RUAR **SEJA**	0			
2840036	3.5	3	1			1		1	CIAR CIVU CYSC **GERO** HYPE LALA PHAR **SYOF**	0		0			
2840035	0.3	1	0			1	CIAR CIVU **SEJA**	0		0		0			
2840034	1.4	6	1			1	**CEMO** CIAR CIVU **GERO SEJA**	2	**CEMO** CIAR **SEJA**	1	CIAR, CIVU, **GERO**	1	1.4	4.2	CIAR CIVU **CLVU GERO SEJA**
2840030	3	4	1			1	**CEMO** CIAR CIVU HYPE **SEJA**	1	CIAR, CIVU, HYPE	0		1	3.0	0.8	CIAR **CLVU** CYSC **GERO SEJA**
2840000	1.3	11	4	10,010	CIAR CYSC **SEJA**	1	**SYOF** CIAR CIVU **GERO** HYPE LEVU **SEJA**	1	**CEMO** CIAR CIVU **GERO** SEJA	3	CIVU CYSC LALA **GERO SEJA**	2	1.3	1.6	CIVU CYSC LALA **SEJA**
2830034	0.2	2	1			0		1	**CEMO** CIAR CIVU HYPE **SEJA**	0		0			

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2830032	1	2	1			0		1	CIAR CYSC **GERO** HYPE LEVU **SEJA SYOF**	0		0			
2830030	2	1	1			0		0		0		0			
2830000	5.3	3	3	1,2 50	**CEBI**	2	**SEJA**	0		0		0			
2820000	4	6	1	2,2 74	**SEJA**	3	**CEMO** CIAR **SEJA**	0		1	**CEMO** CIAR CIVU **GERO** HYPE LALA **SEJA**				
2810070	0.61	1	1			0		0		0		0			
2810000	8	2	1	10, 190	CYSC **SEJA**	0		1	**CEMO** CIAR CIVU **GERO** HYPE LALA **SEJA**	0		0			
2800362	0.4	3	0			0		0		1	CIAR CIVU **GERO SEJA**	2	0.4	0.8	CIVU **GERO SEJA**
2800360	2.4	3	0			0		0		1	**CEMO** CIAR CIVU DIPU **GERO HI sp** HYPE RULA **SEJA**	2	2.4	6	CIAR CIVU DIPU **GERO HICASEJA**
2800353	0.5	4	0			0		0		2	**CEMO**, CIVU, HYPE	2	0.5	1	**CEMO**
2800351	0.8	9	0			3	**CEMO** CYSC	2	**CEMO** CIAR CIVU HYPE	3	**CEMO** CIAR, CIVU, HYPE **SEJA**	1	0.8		
2800350	0.9	5	0			1	**CEMO** CIAR CIVU	1	**CEMO** CIAR **GERO** LALA **SEJA**	2	**CEMO** CIVU HYPE	1	0.9	0.9	**CEMO** CIVU
2800325	0.6	3	0			0		0		1	CIAR CIVU LALA	2	0.6	1.2	**CEMO** CIAR CIVU LALA **SEJA**
2800321	0.7	4	0	1		0		0		1	CIVU CIAR **GERO** LALA	2	0.7	0.35	CIVU **GERO** LALA
2800320	0.9	4	0	1		0		0		1	**CEMO** CIAR CIVU **CLVU** HYPE **LAGA** LALA **SEJA**	2	0.9	5.4	**CEMO** CIAR CIVU **CLVU** HYPE **LAGA** LALA **SEJA**

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2800310	0.25	5	4	4,6 55	CYSC	0		1	**CEMO** CIAR CIVU **GERO** HYPE **SEJA**	0		0			
2800290	0.3	3		2	CYSC **SEJA**			1	**CEMO** CIAR CIVU HYPE **SEJA**	0		0			
2800270		1	1	310	CYSC **SEJA**	0		0		0		0			
2800262	0.6	2	1			0		0		1	CIAR CIVU **GERO SEJA**	0			
2800260	1.5	2	1			0		0		1	**CEMO** CIAR CIVU DIPU **GERO HISA** HYPE RULA SEJA	0			
2800250	1.1	5	3	92	**SEJA**	0		0		1	**CIAR** CIVU GERO SEJA	1	1.1	0	**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	**CEBI CEMO**	1		1	CIAR CIVU **SEJA**	2	**CEMO** CIAR CIVU **SEJA**	1	0.6	1.4	CIAR CIVU **CLVU SEJA**
2800130	0.6	6	0			1	**CEBI SEJA**	2	**CEMO** CEST CIAR CYSC **GERO** HYPE LALA **SEJA**	2	**CEMO** CIAR CIVU CYSC HYPE LALA **SEJA**	1	0.6	6.4	CIAR CIVU **CLVU** CYSC LALA **SEJA**
2800120	3	2	0			0		0		1	CIAR CIVU HYPE LALA **SEJA**	1	3	7.44	CIAR CIVU **CLVU** LALA **SEJA**
2800060	1.1	1	1			0		0		0		0			

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2800010	0.5	8	1	10		3	CIAR CIVU **GERO** ILAQ LALA	2	CIVU CIAR **GERO** HYPE **SEJA**	2	CIAR CIVU **GERO** ILAQ RUAR RULA **SEJA**	0			
2800000	15.6	14	5	70, 321	**CEMO** CIAR CIVU CYSC **GERO SEJA**	4	**CEBI CEMO** CIAR CIVU CYSC DIPU **GERO** HYPE ILAQ LALA PHAR **SEJA**	2	**CEDE GERO** HYPE LALA **SEJA** TAVU	2	**CEMO**	1	2	0.5	**CEMO** CIAR **SEJA**
2760000	5	5	0			0		2	CIAR CIVU **GERO** HYPE PHAR **SEJA**	1	CIAR PHAR	2	0.9	4	**CEMO** CIVU CYSC DIPU **GERO** HYPE LALA **SEJA**
2750020	1.5	2	1			0		1	CIAR CIVU CYSC DIPU HYPE LALA PHAR **SEJA**	0		0			
2750000	5	3	1			2	CIAR CIVU CYSC LALA **SEJA**	0		0		0			
2740110	1.5	1	0			1	**CEMO** CIAR CIVU CYSC **SEJA**	0		0		0			
2740075	0.5	3	1			1	**CEMO** CIAR CIVU CYSC **SEJA**	1	CIAR CIVU HYPE LALA **SEJA**	0		0			
2740072	0.5	4	3	200	CEBI	1	**CEMO** CIAR CIVU CYSC **SEJA**	0		0		0			
2740070		3	2			1	**CEMO** CIAR CIVU CYSC **SEJA**	0		0		0			
2740060		4	2	33	CYSC	2	**CEMO** CIAR CIVU CYSC **SEJA**	0		0		0			

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2740000	12	8	3			2	**CEBI CEMO** CIAR CIVU CYSC **SEJA**	0		3	**CEMO** CIAR CIVU CYSC DACA DIPU **GERO** HYPE ILAQ LALA RULA **SEJA VETH**	0			
2730300	1	8	2	934	CYSC	3	CIAR CYSC **GERO** LALA **PORE** RUDI **SEJA**	2	CIAR CIVU CYSC **GERO PORE** RUAR **SEJA**	1	CIAR CIVU **GERO** LALA RULA **SEJA**	0			
2730200	1	11	4	19, 621	CIVU **GERO SEJA**	3	**GERO**	2	**CEMO** CIAR CIVU DIPU **GERO** HYPE ILAQ LALA **SEJA**	2	CIVU CLVU **GERO** HEHE HYPE **ILAQ** LEVU RULA **SEJA**	0			
2730100	0.4	2	1	35	**SEJA**	0		1	CYSC **GERO** HEHE HYPE LALA **PORE** RULA **SEJA**			0			
2730020		2	1			0		1	CIVU **GERO** HYPE			0			
2730011	1	3	1	51	**GERO**	1	**GERO SEJA**	1	CIVU **SEJA**			0			
2730000		5	4	146 ,40 0	CYSC **SEJA TAVU**	0		0		1	CIAR CIVU **CLVU GERO** LALA RUAR RULA **SEJA**	0			
2700330	1.4	2	1			0		1	**GERO** HYPE ILAQ **SEJA**	0		0			
2700281	0.5	2	0			0		0		1	CIAR CIVU CYSC **HISU SEJA**	1	0.5	2	CIAR CIVU **CLVU HISA SEJA**
2700280	0.6	2	0			0		0		1	**CEMO** CIAR CIVU **DIPU HISA** HYPE LALA **SEJA**	1	0.6	1.8	CIAR CIVU **CLVU** CYSC **HISA SEJA**
2700140	1.2	1	1			0		0		0		0			
2700100	4.6	2	1			0		1	**SEJA**			0			
2700090	2.0	1	1			0		0		0		0			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
2700080	3	6	0			1	CIAR CIVU CYSC **GERO** LALA **SEJA**	2	CIAR **GERO** HYPE LALA **SEJA**	1	CIAR **GERO** HYPE LALA **SEJA**	2	1.5	0.5	**CLVU GERO**
2700040	3.7	8	0			2	SYOF, CIVU CYSC **GERO** HEHE **HIAU** ILAQ LALA **LAGA** PHAR PRLA **SEJA**	2	**AEPO ARMI** CASE CIAR CIVU **GERO HEHE HIAU** HYPE ILAQ **LAGA** LALA PHAR PRLA **SEJA SYOF VIMI**	3	**AEPO ARMI** CASE CIAR CIVU CYSC DIPU **GERO HEHE HIAU** HYPE ILAQ **LAGA** LALA PHAR PRLA **SEJA SYOF VIMI VETH**	1	1.2	3.8	CIAR CIVU **CLVU DIFU** DIPU **GERO HEHE LAGA** LALA LEVU PHAR **SEJA SYOF VIMI**
2700000	17.65	10	5	4,201	**SEJA TAVU**	3	**CEMO** CIAR CIVU CYSC **GERO** LALA **SEJA**		CIAR CIVU CYSC **GERO** HYPE LALA PHAR **POBO** SEJA **VIMI**	2	CIAR CIVU CYSC **GERO** HYPE LALA RUAR **SEJA VIMI**	0			
2650090	1.7	2	1			0		1	**AEPO** CASE CIAR CIVU CYSC DACA **GERO HIAU** HYPE ILAQ **LAGA** LALA SEJA SYOF VIMI	0		0			
2650050	0.9	2	1					1	**CEMO** CIAR CIVU CYSC **GERO** HYPE LALA **POSA SEJA**	0		0			
2650000	7.5	4	2	2	**ARMI**	0		1	CIAR HYPE **SEJA**	1	CIAR CIVU **GERO** HYPE ILAQ **PORE** RUAR RULA **SEJA**	0			
2620060	2.8	0	0			0		0		0		0	0		
2620056	0.8	3	2	24	**CEMO**	0		1	CIAR CIVU HYPE **SEJA**	0		0			
2620053	1.9	3	2			0		1	CIAR CIVU CYSC HYPE **SEJA**	0		0			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
2620051	0.8	2	1			0		1	CIVU HYPE **SEJA**	0		0			
2620050	2.7	4	2			0		0		2	CIAR CIVU CYSC DIPU HYPE **SEJA**	0			
2620043	0.7	1	1			0		1	HYPE **SEJA**	0		0			
2620036	0.6	1	0			0		1	CIAR CIVU HYPE **SEJA**	0		0			
2620035	1.1	1	0			0		0		0		0	0		
2620030	9.7	2	1			0		1	CIAR CIVU CYSC HYPE **SEJA**	0		0	0		
2620000	11.6	9	3	39, 464	CIVU CYSC **GERO** RULA **SEJA**	1		2	CIAR CIVU CYSC DIPU **GERO** HYPE RUAR **SEJA**	2	CIAR CIVU CYSC **GERO** HYPE ILAQ PHAR **PORE** RUAR RULA **SEJA**	1	4.3	9.1	**CEMO** CIAR CIVU **CLVU** CYSC DIPU **GERO** HYPE RULA **SEJA** **TAVU**
2610200	0	10	5	3,6 76	CYSC **GERO** HEHE RUDI **SEJA**	3	CYSC **SEJA**	2	CYSC **GERO** HEHE HYPE LALA RUAR **SEJA**	0		0			
2610050	0	3	0			1	CIAR CYSC **GERO SEJA**	2	CIAR CIVU CYSC **GERO** HYPE **SEJA**	0		0			
2610040	0.6	9	2	3,0 00	**SEJA**	4	CIAR CYSC **GERO SEJA**	1	CIVU CYSC **GERO** HYPE LALA **SEJA**	2	**GERO** HYPE **SEJA**	0			
2610012	2.6	1	1	397	**GERO**			0		0		0			
2610010	0.9	3	0			0		2	**COAR GERO** HYPE ILAQ **SEJA**	1	**COAR GERO SEJA**	0			
2610000	5.4	11	5	6,5 70	**CEMO** CIAR CIVU CYSC **GERO** RULA **SEJA**	2	CIAR CYSC **GERO POBO SEJA**	2	CIAR CIVU CYSC **GERO** HYPE **POBO SEJA**	2	CIAR CIVU **GERO** HYPE LALA POBO RUAR **SEJA**	0			

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
2530000	10.1	4	2			0		2	CIVU CYSC **GERO** HYPE **SEJA**	0		0			
2527000	1.2	2	1			0		1	CIAR CIVU CYSC **GERO** HYPE LALA **POSA SEJA**	0		0			
2510070	6.6	9	3	1,600	**GERO**	2	**GERO**	2	CIAR **GERO** HYPE RUAR **SEJA**	1	CIAR **GERO SEJA**	1		4	GERO
2510065	0.2	5	1			1	**GERO** HYPE **SEJA**	2	CIAR CIVU **GERO**	1	CIAR CIVU **GERO** HYPE	0			
2510060	0.2	2	0			0		2	CIVU **GERO**	0		0	0		
2510012	1	2	1			0		1	**GERO** HYPE, **SEJA**	0		0			
2510000	21	4	1	53	**CEMO** CYSC **SEJA**	3	CIAR CIVU **GERO** HYPE RUDI RULA **SEJA**	2	CIAR CIVU DACA DIPU **GERO** HYPE RULA PHAR **SEJA**	1	CIAR CIVU **GERO** HYPE **SEJA**	0			
2503000	4.3	1	0			0		0		0		0			
2500000	7.85	5	1			2	CIAR CYSC **GERO POBO SEJA**	2	CIAR CIVU CYSC **GERO** HYPE LALA **POBO SEJA**	0		0			
2190220	0.3	1	1	251	COTON **POCU**	0		1	**GERO HYPE SEJA**	0		0			
2190200	0	3	1		**POCU**	2	CIVU CYSC DIPU **POBO SEJA**	0		0		0			
2190170	1.6	1	1			0		0		0					
2190000	12.1	3	1			1		0		0		1	2.1	5.64	**LAGA SEJA**
2100000	8.24	2	2	50	**SEJA**	0		0		0					
2071000		1	0			0		1	**GERO** LALA **POCU** RUDI	0					

ROAD	Road length	Total # Yrs visited	Survey, almost all manual 2002-2006			2007-2010		2011-2014		2015-2018		2019-2020			
			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
TOTALS				**2,618,720**									**222**	**506**	

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

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

*As of 2013 Survey miles recorded for a road only once, retreats or additional visits to complete project, not counted in mileage. Total acres treated may not include areas which were not specifically associated with a road, such as an administrative site. It is not clear whether surveyed miles may have included duplicates in 2014. In 2017, rock sources and additional sites located on a specific road were included in that road's treated acreage and species added to list of those found on a particular road.

	2002-2020 ACCOMPLISHMENT SUMMARY TABLES													
	Acres Treated by Crew-rounded to the nearest whole number													
CREW[A]	**'02-'06[1] manual/ baseline**	**2007-2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
NWCB manual	8.61	**55**	27	21	33	33	7	10	30	51	30	42*	40	99
NWCB chemical		131	195	316	286	338	360	248	259	245	162	204	217	303
NWCB total	8.61[1]	246[2]	222[2]	337[2]	319	371	367	258	289	296	192	204	217	303
OCC-manual	None	412[2*]	78[2]	-	-	-	-	--	-	-	-	-	-	
WCC[5] manual	58.83	22	54	None			2						with FS	
chemical					38	26	8	15	23	0[6]			below	
WCC total	58.83[1]	22[2]	54[2]		38[2]	28[2]	15	15	23	0[6]	N/A	N/A	N/A	
FS+WCC crew							4					90	178	195
Chain Gang	38.68[1]	9[1]	7[1]	0.16[1]	6[2]	25[1]	5	None	None	NA	**N/A**	None	N/A	None
TOTAL Acres Treated	106.12[1]	689[2*]	**361**	**337**	**338**	**372**	418	273	312	296		294	395	498

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

	Number of New/Existing Sites Reported Each Year by NWCB Crews*																	
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
New Sites/Total	**122**	**497/**619	**147/**766	**74/**840	**147/**986	**12/**998	**1/**999	**3/**1002	**29/**1031	**56/**1,060	**22/**1082	**63/**1145	**12/**1157	**25/**1182	**52/**1287	**88/**1375	**15/**1392	**23/**1415

	Road Miles and Acres Surveyed and/or Treated by NWCB Crews																		
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Miles of Roads Surveyed/Treated	192	702	265	113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**136**
Acres Surveyed/Treated	233[3]	851[3]	321[3]	137[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**303**
Miles of Roads Surveyed	N/A	N/A	N/A	N/A	391	369	423	299	222	237	309	149	359	125	95	**64**	**90**	**114**	**136**
Acres Surveyed[6]	N/A	N/A	N/A	N/A	947[4]	894[4]	1,025[4]	724[4]	626[5]	575[5]	613[5]	776[5]	483[5]	438[5]	342	**240**	**240**	**268**	**386**

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

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

PROGRAM HISTORY FROM 2002-2020: A PERSPECTIVE

- Focus: In 2002 the focus was almost exclusively on surveying, with a small amount of manual weed removal. From 2003 to 2005 surveying was still the primary focus, and the use of herbicide was limited by policy. Different crews manually removed thousands of weeds each year. In 2006 some herbicide treatments were allowed. With completion of a new EIS, herbicide treatments expanded and the focus shifted from survey to control. Productivity between years with manual control only and a mix of control methods including herbicide is striking. In a single year crews were able to cover in one year what previously took nearly five. With more riparian, restoration, or habitat projects, productivity may decrease due to long walk in or other logistical complexities.
- Crew Resources: The County has hired a small field crew each year since the inception of the project, but fluctuations in funding have meant that the crew size has ranged from 2 to 5 members. Some years a WCC crew has been made available to the Counties. From 2007 to 2009 an Olympic Corrections Center (OCC) crew was used, mainly to pull Scotch broom from pits, quarries and roadsides. A Clallam County Sheriff's Chain Gang has been funded for mixed purposes, sometimes weed control. Their efforts were not always coordinated with the Weed Control program. When provided, their data has been incorporated into our report. Since the FS has directly managed a small weed crew based in Olympia.
- Reporting: Protocols have changed during the life of the project. From 2002 to 2005 we reported miles of roads surveyed and/or treated and number of weeds manually removed. Acres treated and/or surveyed were estimated, based on the road miles.
- In 2006, when herbicide treatments began, reporting was acres treated. However, crews or office staff tracked miles surveyed, for some reporting consistency across project years. Most roads are surveyed multiple times during the year, when different plant species are apparent. Because 2006 was a transition year crews reported manual treatments both as acres treated and number of weeds removed. County crews have not reported number of weeds removed since 2006; the WCC crew made the change in 2005. The Chain Gang still reports number of weeds removed but in 2011 they also reported acres treated. Chain Gang reporting in 2012 was chaotic and inconsistent; none has been reported to us since 2014. The Chain Gangs reporting preference has been number of weeds pulled, based on an estimated plants pulled/hr.
- Estimating acres treated has always been problematic. In 2007 the OCC crew reported treating 337 acres, which we suspect is an inflated figure, because of confusion about protocol. Still, that figure has been retained in the table as reported.
- Each year, some of our documented work is for re-treatments. When compiling acreage figures for each year we record re-treatments and subtract them from the total, however, the work involved should somehow be acknowledged as it shows a new kind of success; time in the season to do needed follow-up work.. Re-treatments are a significant factor in effective control of certain species such as herb Robert.
- Changes in the FACTS sheets over the years have made comparisons of acreage treated from year to year difficult. From 2007 to 2009 we used the "Infested Area Treated" figure from the FACTS sheets to sum up acres treated. In 2010 the forms were changed and "Infested Area Treated" was no longer on the form, so in that year we used the "Application Area" figure from the back of the form. In 2011 this total reverted back and "Infested Area Treated" was again used. Further, in 2010 "Acres Examined for Weeds" was on the FACTS sheet, so that figure was used for "Acres Surveyed" in the table below, rather than extrapolating it from "Miles Surveyed".
- In 2011 we began to break down acres treated chemically and acres treated manually in the summary table.
- In 2012, there was a notable emphasis on restoration, habitat, or prevention projects that are more logistically complicated, and therefore, more labor intensive and expensive. Weed infestations are significantly reduced, re-introduction of native plants has begun, some treatments are now needed only every other year.
- In 2013 there were many changes; monitoring was added as a weed board task, we reseeded some sites, three PSC enabled additional treatment. Chain Gang focus shifted to other tasks, weed work was unfunded. Forest Service created their own two person invasive crew but there were insufficient resources for some of the larger weed control projects that remain. Coordination which has become increasingly complicated is even more essential than before.
- In 2014 we were short staffed and the Jefferson NWCB's coordinator retired but was not replaced. We focused heavily on infrequent high priority species and herb Robert sites. Our totals are less for this year than in years with more staffing.
- In 2015 we hired less staff in response to anticipated funding shortages and focused heavily on infrequent high priority species and herb Robert sites.
- In 2016 we hired a two man team, but had a shorter season due to funding limitations and college start dates.
- In 2017 team size was small, limiting number of treatment days and activities. We expanded the use of Milestone (aminopyralid). High priority was given to anticipated road decommissioning, forestry disturbance activities, and low frequency invasive species. Several new invaders were detected.
- In 2018 aminopyralid was the primary herbicide used with only occasional use of triclopyr. A FS-led team treated a number of high priority projects within the scope of our project area. *Expanded, coordinated treatments on county roads under a new integrated weed management policy protect adjacent Forest Service lands from weed invasion*
- In 2019-2020 remote habitat areas were a focus. FS-led team again treat projects within Clallam and Jefferson County. *County roadside treatments and prevention measures are coordinated to maximize protection of Forest Service lands- these treatments shown in report map.*

APPENDIX E: COUNTY ACCOMPLISHMENTS-A SNAPSHOT

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

Clallam NWCB actively controls roadside infestations on the Mary Clark Road, protecting FS lands.

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. Many of our roads lead directly into the National Forest and many go through the Forest into the popular Olympic National Park. The Clallam Noxious Weed Control Board (CNWCB) has a stable, assessment-funded weed program. The CNWCB implemented its fourth season of an integrated weed management (IWM) plan for Clallam County's road department. CCNWCB treated 188 miles of county roads for a broad array of invasive species (39) which pose a direct threat to adjacent Forest Service land. We also treated 182 acres within 25 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 a small infestation of rush skeletonweed on one of our main highways; the first known infestation of this species on the Penninsula. After notification, the site was thoroughly treated by WSDOT staff. Additionally, with significant help from volunteers, we supplemented two pollinator habitat augmentation project begun last year by planting well over 8000 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, 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.

Clallam County 2020 Snapshot	
Number of Known Noxious Weed Species	74
Number of Regulated Noxious Weed Species	46
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, gorse, perennial sowthistle, **rush skeletonweed,** shiny geranium
Total Number of Sites (Regulated Species Only)	2,315-1334 surveyed, (this does not include rechecks) -of sites surveyed, less than 5% were not controlled by year's end, nearly every county-owned or managed site was treated.
Number of Landowner Contacts	392
Educational Events	5 (many additional outreach events cancelled due to the pandemic)
Public Contacts (Phone Calls, Walk-Ins, Emails)	723
Web-Site Hits	1770
Volunteer Hrs (planting, surveys, research)	5-over 500 hrs
Area of Weeds Controlled by Weed Board Staff	5,223individual plants removed from multiple private properties and many thousands more from county managed lands.

Jefferson County is larger than Clallam County, covering 1,397,760 acres on the eastern edge of the Olympic Peninsula. However, more than half of Jefferson County is in federal ownership and the county is split into two sections with federal land in the center. The western portion is sparsely populated and is 120 miles from Port Townsend, the county seat. Consequently, Jefferson County weed board operates almost exclusively in the eastern portion of the county, comprising roughly 300,000 acres. 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. Because of this disconnect, there is no snapshot of Jefferson County weed status and control efforts..

APPENDIX F: WEED SPECIES REPORTED 2002-2020 ON FOREST SERVICE LAND IN CLALLAM OR JEFFERSON COUNTIES

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

Common Name	*Botanical Name*	Plant Code
bishop's weed	*Aegopodium podgraria*	AEPO
common burdock	*Arctium minus*	ARMI2
cheatgrass	*Bromus tectorum*	BRTE
butterfly bush	*Buddleja davidii*	BUDA
hedge bindweed	*Calystegia sepium*	CASE13
meadow knapweed	*Centaurea moncktonii*	CEMO6
diffuse knapweed	*Centaurea diffusa*	CEDI
spotted knapweed	*Centaurea stoebessp. micranthosi*	CESTM
Canada thistle	*Cirsium arvense*	CIAR4
bull thistle	*Cirsium vulgare*	CIVU
wild basil savory	*Clinopodium vulgare*	CLVU
rockspray cotoneaster	*Cotoneaster*	COTON
poison hemlock	*Conium maculatum*	COMA
Scotch broom	*Cytisus scoparius*	CYSC4
spurge laurel	*Daphne laureola*	DALA11
wild carrot	*Daucus carota*	DACA6
Fuller's teasel	*Dipsacus fullonum*	DIFU
herb Robert	*Geranium robertianum*	GERO
English ivy	*Hedera helix*	HEHE
orange hawkweed	*Hieracium aurantiacum*	HIAU
yellow hawkweed	*Hieracium caespitosum*	HICA10
European hawkweed	*Hieracium sabaudum*	HISA4
St. Johnswort	*Hypericum perforatum*	HYPE
English holly	*Ilex aquifolium*	ILAQ80
spotted jewelweed	*Impatiens capensis*	IMCA
yellow flag Iris	*Iris pseudacorus*	IRPS
yellow archangel	*Lamiastrum galeobdolon*	LAGA
everlasting peavine	*Lathrus latifolius*	LALA4
oxeye daisy	*Leucanthemum vulgare*	LEVU
common toadflax	*Linaria vulgaris*	LIVU2
purple loosestrife	*Lythrum salicaria*	LYSA2
reed canary grass	*Phalaris arundinacea*	PHAR3
ribbon grass*	*Phalaris arundinacea,* variegated	PHAR3
Japanese knotweed	*Polygonum cuspidatum*	POCU6
giant knotweed	*Polygonum sachalinense*	POSA4
Bohemian knotweed	*Polygonum x bohemicum*	POBO10
sulfur cinquefoil	*Potentilla recta*	PORE
English laurel	*Prunus laurocerasus*	PRLA
dog rose	*Rosa canina*	ROCA3
Himalayan blackberry	*Rubus armeniacus*	RUAR9
cutleaf blackberry	*Rubus laciniatus*	RULA
tansy ragwort	*Senecio jacobaea*	SEJA
comfrey	*Symphytum officinale*	SYOF
common tansy	*Tanacetum vulgare*	TAVU
common mullein	*Verbascum thapsus*	VETH
periwinkle	*Vinca minor*	VIMI

A 2020 report of false brome on Palo Alto Rd, would be a first sighting in either Clallam or Jefferson County (photo from King Co NWCB)

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

wild chervil	*Anthriscus sylvestris*	ANSY
giant reed	*Arundo donax*	ARDO
hoary alyssum	*Berteroa incana*	BEiN
False brome (not confirmed)	***Brachypodium sylvaticum***	**BRSY**
Italian thistle	*Carduus pycnocephalus*	CAPY
rush skeletonweed (new in 2020)	***Chondrilla juncea***	**CHJU**
English hawthorn	Crataegus monogyna	CRMO
hairy willowherb	*Epilobium hirsutum*	EPHI
shiny geranium	*Geranium lucida*	GELU
common hawkweed	*Hieracium lachenalii*	HILA
hairy whitetop	*Lepidium appelianum*	LEAP
common reed	*Phragmites australis*	PHAU

APPENDIX G: CONTROL RECOMMENDATIONS BY WEED SPECIES

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

- Annuals like herb Robert, especially at campgrounds, should be treated as early in the season as possible. With herb Robert in particular multiple treatments within the season are preferable. Preliminary studies suggest herb Robert good germination control with Oust (sulfometuron ethyl); subsequently this herbicide may be considered for roadside herb Robert populations in the future. Esplanade may also be an option.
- Early blooming perennials, such as orange and yellow hawkweed should be treated as early as possible.
- Biennials like tansy ragwort are often difficult to treat effectively with either chemical or manual treatment alone; once plants have bolted it may be most effective to pull and deadhead flowering stalks then spray first year rosettes.
- Scotch broom and other 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	*Aegopodium podgraria*	Foliar application of imazapyr, or triclopyr
ANSY	wild chervil	*Anthriscus sylvestris*	Manual removal; spot herbicide application
ARMI2	common burdock	*Arctium minus*	Where minimal occurrence, manual removal; spot herbicide application to rosettes by early spring; or to second year growth, before budding
BUDA	butterfly bush	*Buddleja davidii*	Manual removal small plants, or cut-stump/foliar treat with triclopyr, or glyphosate,
CESTM	spotted knapweed	*Centaurea stoebe*	Manual removal very small sites; spot application with selective herbicide - clopyralid preferred
CASE13	hedge bindweed	*Calystigia sepium*	Herbicide application combined with manual removal. Very difficult to eradicate.
CEMO6	meadow knapweed	*Centaurea moncktonii*	Foliar herbicide application with selective herbicide, late season - clopyralid preferred
CEDI3	diffuse knapweed	*Centaurea diffusa*	Manual removal for very small sites; foliar herbicide application - clopyralid preferred
CIAR4	Canada thistle	*Cirsium arvense*	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	*Cirsium vulgare*	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	*Clinopoduma vulgare*	Foliar application necessary, it is unclear at this time which product works best. Aminopyralid may be ineffective; triclopyr or imazapyr may be required.
COMA	Poison hemlock	*Conium maculatum*	Manual removal very small sites; spot application with triclopyr
COTON	rockspray cotoneaster	*Cotoneaster horizontalis*	Manual removal; herbicide treatment only if size of infestation increases
CYSC4	Scotch broom	*Cytisus scoparius*	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	*Daucus carota*	Manual removal; spot herbicide application triclopyr
DALA11	spurge laurel	*Daphne laureolus*	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	*Dipsacum fullonum*	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 2nd year. May require triclopyr or imazapyr.
GERO	herb Robert	*Geranium robertianum*	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	*Hedera helix*	Manual removal; cut stump or foliar herbicide application. Higher end surfactant rates may be needed.
HIAU HICA HISA	orange hawkweed	*Hieracium aurantiacum* *Hieracium caespitosum* *Hieracium sabatum*	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	*Hypericum perforatum*	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	*Ilex aquifolium*	Manual removal; cut stump or foliar herbicide treatment. May be best treated with imazapyr.
IMCA	spotted jewelweed	*Impatiens capensis*	Manual removal; early foliar herbicide when there are many plants.
IRPS	yellow flag Iris	*Iris pseudacorus*	Manual removal for small infestations, foliar herbicide, imazapyr may be preferred
LAGA2	yellow archangel	*Lamiastrum galeobdolon*	Foliar herbicide application –triclopyr, glyphosate, or a combination
LALA4	everlasting peavine	*Lathyrus latifolius*	Foliar herbicide application - clopyralid preferred
LEVU	oxeye daisy	*Leucanthemum vulgare*	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	*Linaria vulgaris*	Spot herbicide application
LYSA2	purple loosestrife	*Lythrum salicaria*	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	*Phalaris arundinacea*	Glyphosate or imazapyr in mid-June and mid-Sept. Imazapyr may porvide superior control.
POBO10 POSA or POCU	knotweed species	*Polygonum spp.*	Injection with glyphosate; and/or foliar application of glyphosate or imazapyr
PORE	sulfur cinquefoil	*Potentilla recta*	Selective herbicides preferred. Will need several years of re-treatment Small, but long-time plants may need to be dug; plant surface may be insufficient to fully control large root system.
RUAR9	Himalayan blackberry	*Rubus armeniacus*	Cut stump with glyphosate or triclopyr or foliar application as appropriate to site. Triclopyr preferred
RULA	evergreen blackberry	*Rubus laciniatus*	Cut stump or foliar herbicide application - triclopyr preferred
SEJA	tansy ragwort	*Senecio jacobaea*	Will require systematic removal from roadsides and follow-up; manual removal before full bloom (after full bloom, flower heads need to be removed and disposed of); selective herbicide application in first year or pre-bloom in 2nd year.
SYOF	common comfrey	*Symphaticum officinale*	Minimal occurrence, but expanding; spot herbicide application.
TAVU	common tansy	*Tanacetum vulgare*	Spot herbicide application-may require triclopyr.
VIMA VIMI12	bigleaf periwinkle common periwinkle	*Vinca major* *Vinca minor*	Thorough spot herbicide application, triclopyr or imazapyr recommended

APPENDIX H: 2020 STATE WEED LIST

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

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

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

Class A Weeds
Eradication is required

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

Class B Weeds

blueweed	*Echium vulgare*
Brazilian elodea	*Egeria densa*
bugloss, annual	*Anchusa arvensis*
bugloss, common	*Anchusa officinalis*
butterfly bush	*Buddleja davidii*
camelthorn	*Alhagi maurorum*
common fennel, (except bulbing fennel)	*Foeniculum vulgare* except *F. vulgare* var. *azoricum)*
common reed (nonnative genotypes only)	*Phragmites australis*
Dalmatian toadflax	*Linaria dalmatica* ssp. *dalmatica*
Eurasian watermilfoil	*Myriophyllum spicatum*
European coltsfoot	*Tussilago farfara*
fanwort	*Cabomba caroliniana*
gorse	*Ulex europaeus*
grass-leaved arrowhead	*Sagittaria graminea*
hairy willowherb	*Epilobium hirsutum*
hawkweed oxtongue	*Picris hieracioides*
hawkweed, orange	*Hieracium aurantiacum*
hawkweeds: All nonnative species and hybrids of the meadow subgenus	*Hieracium*, subgenus *Pilosella*
hawkweeds: All nonnative species and hybrids of the wall subgenus	*Hieracium*, subgenus *Hieracium*
herb-Robert	*Geranium robertianum*
hoary alyssum	*Berteroa incana*
houndstongue	*Cynoglossum officinale*
indigobush	*Amorpha fruticosa*
knapweed, black	*Centaurea nigra*
knapweed, brown	*Centaurea jacea*
knapweed, diffuse	*Centaurea diffusa*
knapweed, meadow	*Centaurea* x *moncktonii*
knapweed, Russian	*Rhaponticum repens*
knapweed, spotted	*Centaurea stoebe*
knotweed, Bohemian	*Polygonum* x *bohemicum*
knotweed, giant	*Polygonum sachalinense*
knotweed, Himalayan	*Persicaria wallichii*
knotweed, Japanese	*Polygonum cuspidatum*
kochia	*Bassia scoparia*
lesser celandine	*Ficaria verna*
loosestrife, garden	*Lysimachia vulgaris*
loosestrife, purple	*Lythrum salicaria*
loosestrife, wand	*Lythrum virgatum*
Malta starthistle	*Centaurea melitensis*
parrotfeather	*Myriophyllum aquaticum*
perennial pepperweed	*Lepidium latifolium*
poison hemlock	*Conium maculatum*
policeman's helmet	*Impatiens glandulifera*
puncturevine	*Tribulus terrestris*
Ravenna grass	*Saccharum ravennae*
rush skeletonweed	*Chondrilla juncea*
saltcedar	*Tamarix ramosissima*
Scotch broom	*Cytisus scoparius*
shiny geranium	*Geranium lucidum*
spurge flax	*Thymelaea passerina*
spurge laurel	*Daphne laureola*
spurge, leafy	*Euphorbia virgata*
spurge, myrtle	*Euphorbia myrsinites*
sulfur cinquefoil	*Potentilla recta*
tansy ragwort	*Jacobaea vulgaris*
thistle, musk	*Carduus nutans*
thistle, plumeless	*Carduus acanthoides*
thistle, Scotch	*Onopordum acanthium*
velvetleaf	*Abutilon theophrasti*
water primrose	*Ludwigia hexapetala*
white bryony	*Bryonia alba*
wild chervil	*Anthriscus sylvestris*
yellow archangel	*Lamiastrum galeobdolon*
yellow floatingheart	*Nymphoides peltata*
yellow nutsedge	*Cyperus esculentus*
yellow starthistle	*Centaurea solstitialis*

Class C Weeds

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

Class C Weeds continued

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

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

WA State Noxious Weed Control Board
P.O. Box 42560
Olympia, WA 98504-2560
(360)-725-5764

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

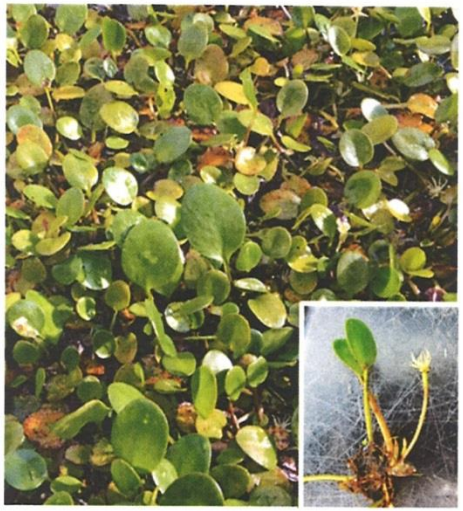
Or

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

Or

Clallam County Noxious Weed Control Board
223 E 4th St., Suite 15
Port Angeles WA 98362
Website: http://www.clallam.net/weed
(360) 417-2442

2020
Washington State Noxious Weed List



South American spongeplant, *Limnobium laevigatum*, is a new Class A noxious weed for 2020. Eradication in Washington is now required of this floating, aquatic perennial plant.

Cover photos of South American spongeplant infestation and plant with female flower by Jenifer Parsons, WA Department of Ecology

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

Washington State Noxious Weed Control Board

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

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

LEGAL NOTICE

The Pacific and Hood Canal Ranger Districts, Olympic National Forest, may be applying the herbicides glyphosate, clopyralid, triclopyr, aminopyralid, sulfometuron methyl, or imazapyr to noxious weeds or other invasive plant species at the following Forest Service sites in Jefferson and Clallam Counties April 20 – November 20, 2020. Applications will be conducted as planned in the Final EIS-Olympic National Forest Site Specific Invasive Plant Treatment Project, which was finalized in 2008. Notices indicating that formulations containing glyphosate, clopyralid, triclopyr, aminopyralid, sulfometuron methyl, or imazapyr will be applied will be posted at entrances to the target road systems and/or individuals sites. For questions about applications or to receive a complete list of individual sites contact Cathy Lucero, Clallam County Noxious Weed Control Board, at 360-417-2442, or Nick Jarvis, Invasive Plant Program Coordinator for the Olympic National Forest at (360) 956-2319.

Bockman Creek Watershed, 2902,2903 Rds and spurs; Bockman pit; **Canyon Creek /Pats Creek Watershed**, 28,2870,2875,2877,2878 Rds and spurs; Cranberry Bog, Juniper Meadow, Slab Camp/Deer Ridge TH, Schmits Knob meadow, and Caraco Cat units; Upper and Lower Caraco, Canyon, and Ned Hill Pits; **Fulton Creek/Waketickreh Ceek Watershed,** 2510 Rd; **Jimmy-come-lately Creek Watershed**, 28, 2840,2850, 2855 Rds and spurs; Louella Work Center; Louella, Louella LuLu, Louella Rock Pit; Coho, Raccoon, Wolf 2, 2845073 Spur Pits; **Little Quilcene River Watershed**, 27, 28, 2820 Rds and spurs; Bon Jon Quarry; **Lower Big Quilcene River Watershed,** 2620, 27, 2740 Rds and spurs; PT Muni WS caretakers cabin, Lower Big Quilcene Trail, Falls View CG and the Quilcene Ranger Station; **Lower Dosewallips River Watershed,** 2610, 2620 Rds and spurs; Elkhorn CG and Lower Dosewallips riparian area; **Lower Duckabush River Watershed,** 2510 Rd; Collins CG; **Lower Gray Wolf River Watershed**, 2870,2878, Rds and spurs; Armpit Pit; Dungeness Forks CG; **Matheny Creek Watershed,** 21,2140,2160,2170,2180,2190 Rds and spurs; Arlo, Calvin, Cloud, Empire, Frog, Hard Turn Hobbs, Jupiter, Loki, Matheny Creek, Mercury, Newt, and Toad Pits; **McDonald Creek/Siebert Creek Watershed,** 2877 Rd and spurs; Pat's Prairie; **Middle Dungeness River Watershed**, 28,2820,2870 Rds and spurs; Lost Pit; **Middle Queets River Watershed,** 2170,2180 Rds and spurs; Park pit; **Middle Quinault River Watershed,** 2140, 2190 Rds and spurs; Neptune pit; **Middle Sol Duc River Watershed**, 2923, 3040, 31 Rd and spurs; Snider Work Center; **North Fork Calawah Watershed**, 29,2922,2923 Rds and spurs; Calawah and Grindstone Pits; **Pysht River Watershed,** 31 Rd and spurs; **Salmon River Watershed,** 2140 Rd and spurs; North Salmon, Salamander Pit; **Sam's River Watershed,** 2170 Rd and spurs; **Snow Creek/Salmon River Watershed,** 2840,2845,2850, 2852 Rds and spurs; **South Fork Calawah Watershed**, 29,2922,2923,2932,2952 Rds and spurs; Elk pit, Klahanie CG; **Upper Big Quilcene River Watershed,** 27,2740,2760 Rds and spurs; Sink Lake, Upper Big Quilcene trail; **Upper Dungeness River Watershed,** 2870 Rd and spurs; Dungeness and Heather Basin trails, Camp Handy; **Upper Sol Duc River Watershed**, 29,2929,2978, Rd and spurs; Mt Muller, Snider Ridge trail; Klahowya CG; Bonidu, Littleton Mt Muller TH pits.

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.

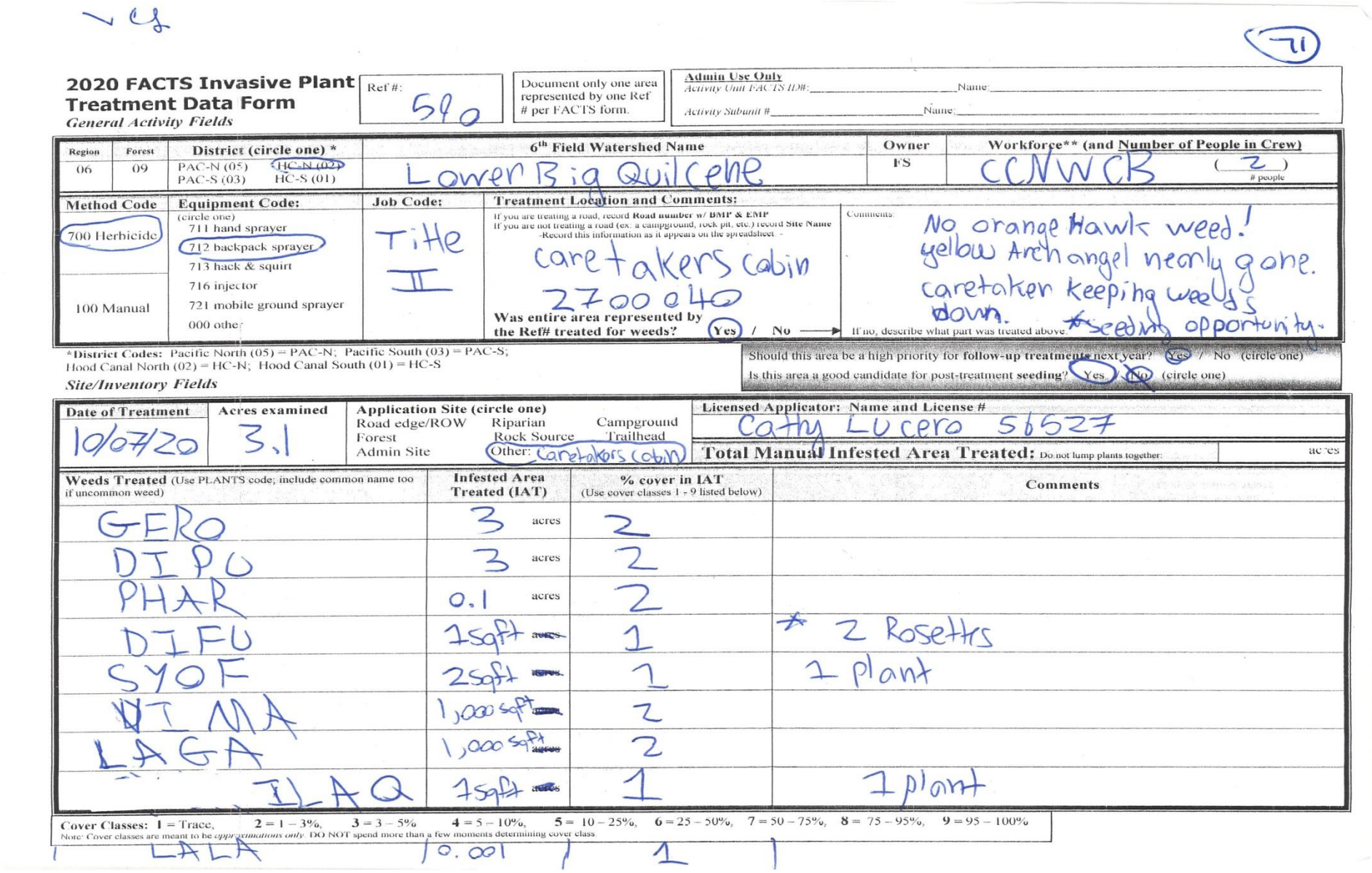
FOR MORE INFORMATION CONTACT:

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



2020 FACTS Invasive Plant Treatment Data Form

General Activity Fields

Ref #: 590

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

Admin Use Only
Activity Unit FACTS ID#: _____ Name: _____
Activity Subunit # _____ Name: _____

Region	Forest	District (circle one) *	6th Field Watershed Name	Owner	Workforce** (and Number of People in Crew)
06	09	PAC-N (05) HC-N (02) PAC-S (03) HC-S (01)	Lower Big Quilcene	FS	CCNWCB (2 # people)

Method Code	Equipment Code: (circle one)	Job Code:	Treatment Location and Comments:
700 Herbicide	711 hand sprayer 712 backpack sprayer 713 hack & squirt 716 injector	Title II	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 - caretakers cabin 2700040 **Was entire area represented by the Ref# treated for weeds?** (Yes) / No →
100 Manual	721 mobile ground sprayer 000 other:		Comments: No orange Hawk weed! yellow Archangel nearly gone. caretaker keeping weeds down. *seeding opportunity. 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 #
10/07/20	3.1	Road edge/ROW, Riparian, Campground, Forest, Rock Source, Trailhead, Admin Site, Other: Caretakers cabin	Cathy Lucero 56527

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
GERO	3 acres	2	
DIPU	3 acres	2	
PHAR	0.1 acres	2	
DIFU	1sqft ~~acres~~	1	* 2 Rosettes
SYOF	2sqft ~~acres~~	1	1 plant
HYPE	1,000 sqft ~~acres~~	2	
LAGA	1,000 sqft ~~acres~~	2	
ILAQ	1sqft ~~acres~~	1	1 plant
LALA	0.001	1	

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

- FACTS Manual/Herbicide Treatment Data Form-back side

Daily Log

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:
10/7/20	10:30	1:00	62°	<2	W	Sun	

Total Volume of Mix Applied	UOM	Mix (ounces herbicide per 1 gallon water)	Dilutant	Applicators Names
2.5	Gallons	1. 5ml / gal 2. 1 oz/ gal	Water	Hunter Kawie

Herbicide Product Name	Amount of this herbicide product that was applied	Percent Solution	Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution	Total Application Area (Acres):
1. Milestone	0.42ml	.125 %	Competitor	1.0 1.7 oz	.5 %	1.5
2. Vastlan	2.5 oz	.75%	Blazon	.85 oz	.25 %	Area treated in Riparian Reserves: 1.5
	oz	%		oz	%	Area Treated within 5 feet of Standing Water: ∅

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
3	Gallons	1. 5ml / gal 2. 2 oz/ gal	Water	cathy Lucero

Herbicide Product Name	Amount of this herbicide product that was applied	Percent Solution	Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution	Total Application Area (Acres):
1. Milestone	15ml	.125%	Competitor	2 oz	.5 %	1.5
2. Vastlan	6 oz	1.5%	Blazon	1 oz	.25 %	Area treated in Riparian Reserves: 1.5
	oz	%		oz	%	Area Treated within 5 feet of Standing Water: ∅

(From front page) Ref #:_____

Notes:

.5 gallon polaris
.6oz polaris

0.1 Acre
.33 Competitor
.16 Blazon

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

2020 FACTS Invasive Plant Treatment Data Form
Page 2 of 2 modified 04/25/2020

Invasive Plant Inventory for Rock Sources, Olympic National Forest

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

CHECK ONE:

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

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

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

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

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

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

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

Cathy Lucero _____ **9/23/2019**

Signature Date

Name of Rock Source: **Coho Pit**

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

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

Name and Title of Inspector: Cathy Lucero **Date of Inspection: 9/23/19**

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

This pit is pretty clean, and could easily achieve an option B instead of a C, with some follow-up next year. Minor amounts of tansy ragwort are easily isolated.

Let us know plan, if storage or extraction, to help us better prepare this pit for FS use.
Name of Rock Source: Coho Pit Date inspected: 9/23/2019

Species present:

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

DON'T FORGET TO FILL OUT THIS SECTION!

Estimated size of pit:_____1.9_____**acres**
(**1 acre** = 43560 ft^2, or approximately 209 ft x 209 feet. **1/10 acre** = 4356 ft^2 , or 66 ft x 66 ft, or approximately 435 ft x 10 ft)

Percent of pit occupied by invasive plants_____2_ %
This percent should indicate the percent of the pit that is NOT usable as a rock source as you find it on the day of the inspection. This includes area occupied by weeds AND the area potentially contaminated with seeds or other propagules.

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

Has this pit been treated for weeds before? Yes **/ No / Don't know If yes, what year? 2018**

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

Name of Rock Source: Coho Pit **Date inspected 9/23/19**

Sketch of pit (or aerial photo .jpegs of pits can be pasted in the space below prior to going into field) :
Include information such as areas of pit that are clean and usable, distribution and location of weed species, a north arrow and scale bar, road numbers or landmarks to assist in finding pit and/or weeds of particular concern, etc. Comments are encouraged!

Rock Pit Inspection: Coho Pit

Clallam County
2840080 road, MP 0.3
Approx 1.9 acres

Date of Inspection:_____(include year)

Olympic National Forest Invasive Species List

Code	Scientific Name	Common Name	Treatment Priority
AEPO	*Aegopodium podagraria*	Bishop's weed, goutweed	1
ARMI2	*Arctium minus*	lesser burdock	1
BOOF	*Borago officinalis*	common borage	1
BRTE	*Bromus tectorum*	cheatgrass	1
BUDA2	*Buddleja davidii*	butterfly bush	1
CEDE5	*Centaurea debeauxii*	meadow knapweed	1
CEDI3	*Centaurea diffusa*	diffuse knapweed	1
CEJA	*Centaurea jacea*	brownray knapweed	1
CESTM	*Centaurea stoebe* ssp. *micranthos*	spotted knapweed	1
CLVU	*Clinopodium vulgare*	wild basil	1
DALA11	*Daphne laureola*	spurge laurel	1
DIFU2	*Dipsacus fullonum*	Fuller's teasel	1
GELU	*Geranium lucidum*	shiny geranium	1
GERO	*Geranium robertianum*	herb Robert, stinky Bob	1
HEMA17	*Heracleum mantegazzianum*	giant hogweed	1
HIAU	*Hieracium aurantiacum*	orange hawkweed	1
HICA10	*Hieracium caespitosum*	meadow (yellow) hawkweed	1
HISA4	*Hieracium sabaudum*	European hawkweed	1
IMCA	*Impatiens capensis*	spotted jewelweed	1
LAGA2	*Lamiastrum galeobdolon*	yellow archangel	1
LIVU2	*Linaria vulgaris*	yellow toadflax, butter and eggs	1
LYPU2	*Lysimachia punctata*	large yellow loosestrife	1
LYVU	*Lysimachia vulgaris*	garden yellow loosestrife	1
MEPI	*Mentha × piperita*	peppermint	1
ORVU	*Origanum vulgare*	oregano	1
POCU6	*Polygonum cuspidatum*	Japanese knotweed	1
POPO5	*Polygonum polystachyum*	Himalayan knotweed	1
POSA4	*Polygonum sachalinense*	giant knotweed	1
POBO10	*Polygonum x bohemicum*	Bohemian knotweed	1
PORE5	*Potentilla recta*	sulphur cinquefoil	1
SEJA	*Senecio jacobaea*	tansy ragwort	1
SILAA3	*Silene latifolia ssp. alba*	bladder campion	1
SYOF	*Symphytum officinale*	common comfrey	1
TUFA	*Tussilago farfara*	European coltsfoot	1
VETH	*Verbascum thapsus*	common mullein	1
VIMA	*Vinca major*	bigleaf periwinkle	1
VIMI2	*Vinca minor*	common periwinkle	1
CIAR4	*Cirsium arvense*	Canada thistle	2
CIVU	*Cirsium vulgare*	Bull thistle	2
COAR4	*Convolvulus arvensis*	field bindweed	2
CYSC4	*Cytisus scoparius*	Scot's broom	2
DACA6	*Daucus carota*	Queen Anne's lace	2
HEHE	*Hedera helix*	English ivy	2
HYPE	*Hypericum perforatum*	common St. Johnswort	2
ILAQ80	*Ilex aquifolium*	English holly	2
LALA4	*Lathyrus latifolius*	everlasting peavine	2
PHAR3	*Phalaris arundinacea*	reed canarygrass (including ribbon grass)	2
PRLA5	*Prunus laurocerasus*	English laurel	2
RUAR9	*Rubus armeniacus*	Himalayan blackberry	2
RULA	*Rubus laciniatus*	cutleaf blackberry	2
TAVU	*Tanacetum vulgare*	common tansy	2
DIPU	*Digitalis purpurea*	purple foxglove	Tolerate
HYRA3	*Hypochaeris radicata*	hairy catsear	Tolerate
LEVU	*Leucanthemum vulgare*	oxeye daisy	Tolerate

Calibration Verification

Agency/Organization: Clallam Noxious Weed Control Board Date: 4-18-19

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

Signature: _____ Position: Noxious Weed Inspector

Equipment ID	Equipment Type	Calibrated GPA	Working Condition?	Comments	Examiner Initials
71	Backpack sprayer	47	Yes		
1	↓	42	Yes		
72		39	Yes		
73		40	Yes		

APPENDIX K: CALIBRATION METHODOLOGY

Followed Method 2

Method 1-Hand Sprayer Calibration Method
It is just as important to calibrate manual sprayers as it is to calibrate power sprayers. Generally, these sprayers are calibrated by determining the amount of liquid required to adequately cover the intended target.
Step 1: Area Measurement Measure and mark off an area 20 feet by 50 feet (1,000 square feet). Practice spraying the area with water. Spray the area twice for a uniform application. Walk in one direction, swinging the nozzle back and forth. When you finish, go over the area again, this time walking at a right angle to the direction you walked before. For example, walk from north to south for the first application, and from east to west for the second.

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

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

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

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

Change Delivery Rate

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

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

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

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

Method 2-Calibration of Small Volume & Hand Held Sprayers

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

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

3. Measure the amount of water delivered to this strip by spraying into a bucket for the same amount of time as in step #2. Also keep your pressure the same as when you sprayed the strip.

4. The amount of water collected in fluid ounces equals the output or GPA. (Ounces = GPA)

This method works because of the relationship between a square that is 128th of an acre and the fact that there are 128 ounces in a gallon.