Canada thistle is prevented from moving into the heart of Jupiter Meadow

Olympic Peninsula Cooperative Noxious Weed Control 2017 Project Report

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

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An unabridged copy of this report will be posted to our 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 monitoring of noxious weed infestations, and seeking landowner compliance with RCW 17.10 on non-federal lands. Title II of the Secure Rural Schools Act (SRS), which was designed in part to promote cooperation and collaboration between federal and local governments, funds most of the project. Additional dollars from specific FS funds have sometimes augmented additional tasks added to the work plan. Depending on funding levels in any given year, work has been accomplished by crews of varying size and expertise.

2017 Project Goals:
1. Control weeds on areas scheduled for road decommissioning or forest management.
2. Control weeds in quarries and other rock sources.
3. Control weeds in Botanical Areas and other special “critical area” sites.
4. Control weeds in campgrounds, trailheads and other heavily-used sites
5. Revisit previously controlled sites and perform necessary follow-up control work.
6. Identify and treat new populations.

2017 Resources:
- Supervisor (20 hours/week, 4 months)
- 2 Project Specialists (up to 20 hours/week, 3 months)

2017 Accomplishments:
- Examined **240** acres for invasive species, treated **192** weed-infested acres, and monitored **10** treated acres.
- Inspected and treated high priority weeds in **9** FS rock sources; inspected and identified corrective measures for **5** private,**5** state and **11** county rock sources in regard to their potential to spread invasive weeds,
- Distributed native grass seed to **10** sites.
- Compiled data and completed annual Project Report.

Observations and Recommendations:
Weed infestations negatively impact resources both within the Olympic National Forest and on adjacent lands. Restoring diversity and achieving habitat requirements and goals while improving forest productivity and overall ecosystem functioning is the underlying purpose of this invasive plant project. Weed infestation size and density are much reduced where treatments have occurred. This year, several new species were detected and treated before these new invaders could become well established. Treatment success and development of native plant materials allows crews to over-seed previously infested sites with native blue wild rye and a new forb mix provided by the Forest Service. This preventative practice can reduce the probability of weed re-infestation and is being expanded as additional native plant material as becomes available. As some of the long standing backlog of invasives recedes because of this program, we are able to shift toward early intervention and prevention; the most efficient and least expensive weed control methods in the long term. Long-range goals, detailed planning, and consistency 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. The county weed boards provide an efficient, locally based work force with county-wide jurisdiction and long term focus. The expertise and flexibility of locally based weed boards make us best suited to identify and control new or small weed infestations and to act upon rehabilitation projects as they arise.

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

PROJECT SUMMARY

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

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

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; find and treat 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 herbicide methods. Emphasis has been placed on controlling high priority noxious weeds in areas with high potential to spread, such as rock sources or campgrounds, or in particularly sensitive environments including Biological Areas. As the awareness of invasive species has increased throughout the agency, additional tasks have been added such as treating weeds prior to road decommissioning and timber management activities, conducting private rock source inspections to meet contract standards and seeding previously treated sites with native 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. Program goals include public education, surveying for new noxious weed infestations, seeking landowner compliance with RCW 17.10 and WAC 16-750, and encouraging and supporting other public agencies in their efforts to control noxious weeds.

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

2017 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. Both funding constraints and suitable applicants limited crew size. This year's team consisted of two to three members that alternated between Forest Service projects and other County work including in-stream knotweed and county roadside weed control over the course of the treatment season. Crew members had at least 1-5 years of previous weed control experience which reduced training time. The Forest Activity Tracking Sheet (FACTS) form was used to document manual and chemical treatment. Treatment reporting was based on a unique "Reference Number", arbitrarily assigned within 6th field watersheds. The FS provided native seed both grasses and a new forb mix for rehabilitation of treated locations as appropriate.

In 2017, treatments on Forest Service lands were prioritized as follows:

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

2017 Project Resources and Roles:

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

- **CCNWCB**

  Coordinator: **20 hours/week, for 4 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 2018 field season

  Field team: 2 project specialists, (licensed applicators), up to 20 hrs/week for 3 months,
  - Field treatments
  - Data collection, completing forms for treatment, rock source inventory and monitoring

2017 Project Accomplishments:

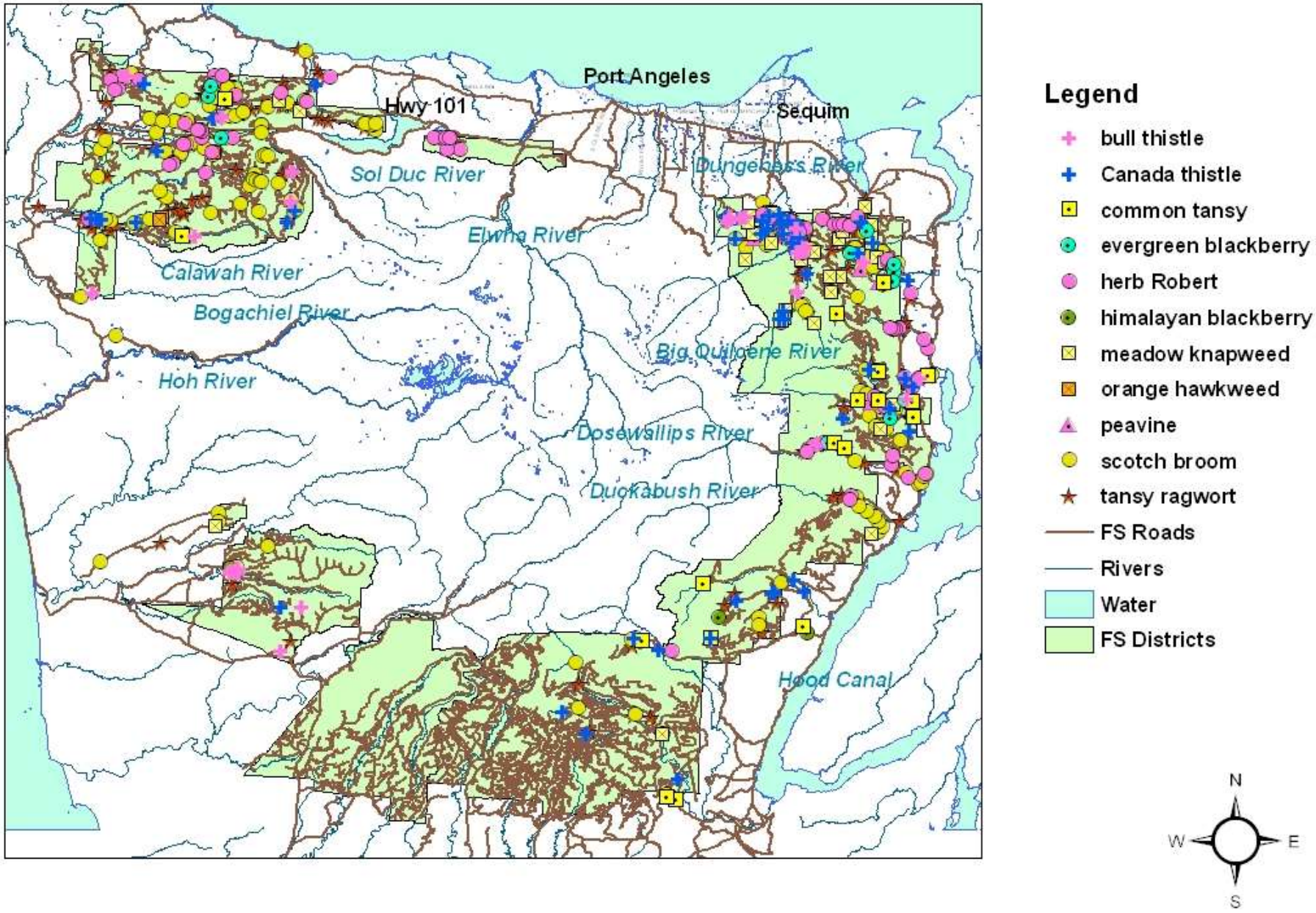
- The Clallam County NWCB examined **240** acres, surveyed **63.5** miles of roads. Crew treated **25** different weed species, **30** acres manually and **162** acres chemically for a total of treated **192** acres. In the course of these treatments we documented **85** new sites.
- Completed and submitted associated FACTS forms for all treated sites
- Inspected, treated, and documented the status of **9** FS, rock sources, inspected and created control plans for **5** state and **4** private rock sources. Treated **12** county rock sources under ancillary Clallam Integrated Weed Management plan which compliments FS prevention protocols.
- Monitored **10** acres, and completed associated Monitor forms
- Rehabilitated **10** sites with native seed.

The 2002-2017 Accomplishment Summary Table in Appendix D provides prospective on 2017 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. 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. Adding rehabilitation activities such as overseeding with native material has been the next step in overall goal to reduce weed impacts and support multiple, but sustainable forest activities. For more detail, please see the end of Appendix D for a brief history of FS policies, program focus and available resources which shaped overall program direction and accomplishments in different years. Appendix A provides detailed information about specific 2017 treatments.

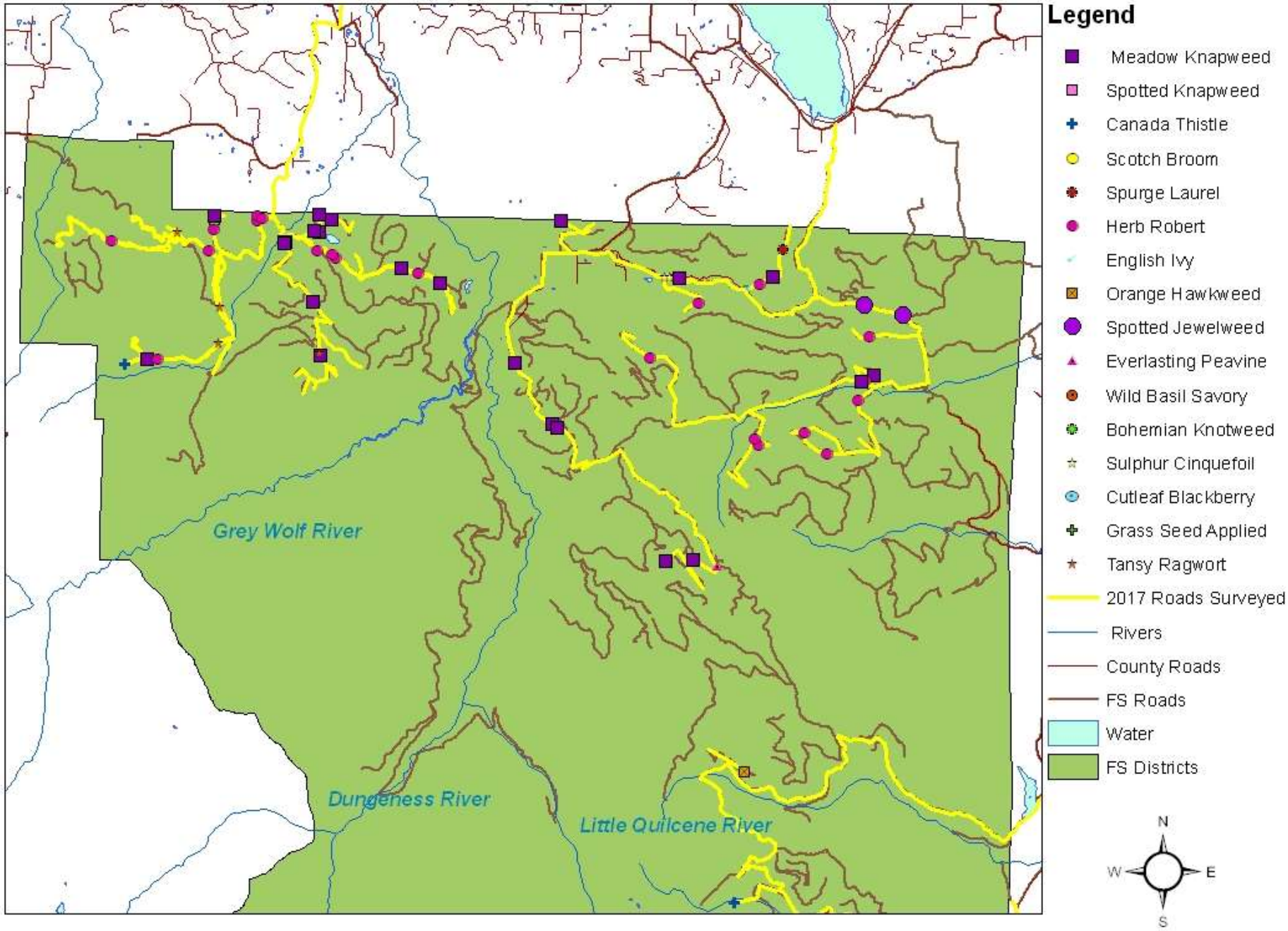
MAPS

- Four maps are shown—an Overview of the Olympic National Forest, two covering activities in the Hood Canal District from north to south and one showing activities in the Pacific North district.
- The Overview Map shows baseline weed sites, documented from 2002- 2005.
- Roads where Weed Board crews worked in 2017 are shown in yellow. The Roads Surveyed 2017 layer was based on GPS track logs.
- The 2017 activity maps show weed sites newly documented in 2017; they are not necessarily all newly discovered sites. The new weed layers are based on points taken by the field crew, using a Garmin 78. Office staff converted the points to shape files, using the Minnesota DNR public domain software DNR GPS version 6.0.0.15, which were then overlaid on all previous species shape files to ascertain which infestations were new.

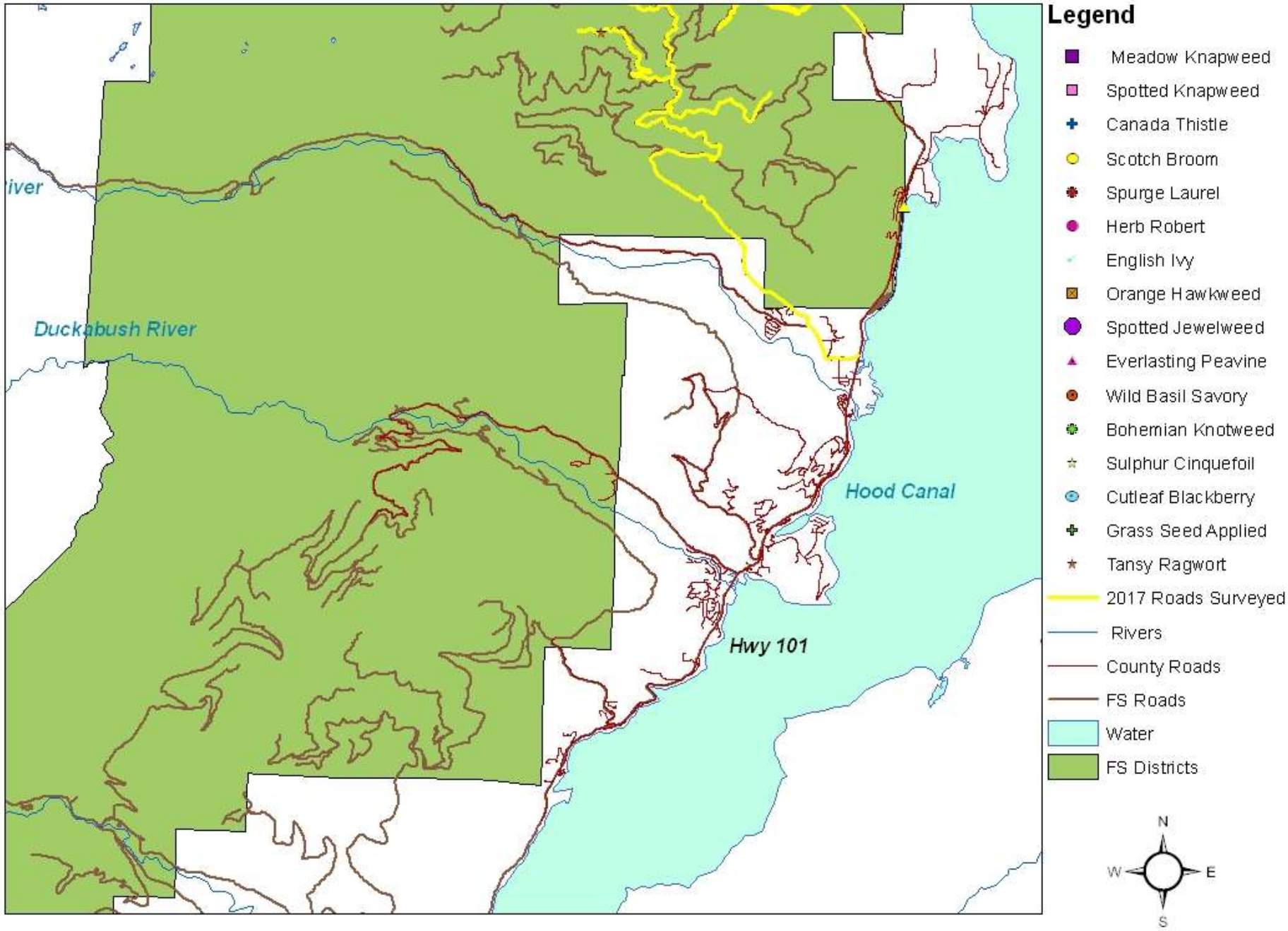
Olympic National Forest Overview, with Baseline Weed Sites



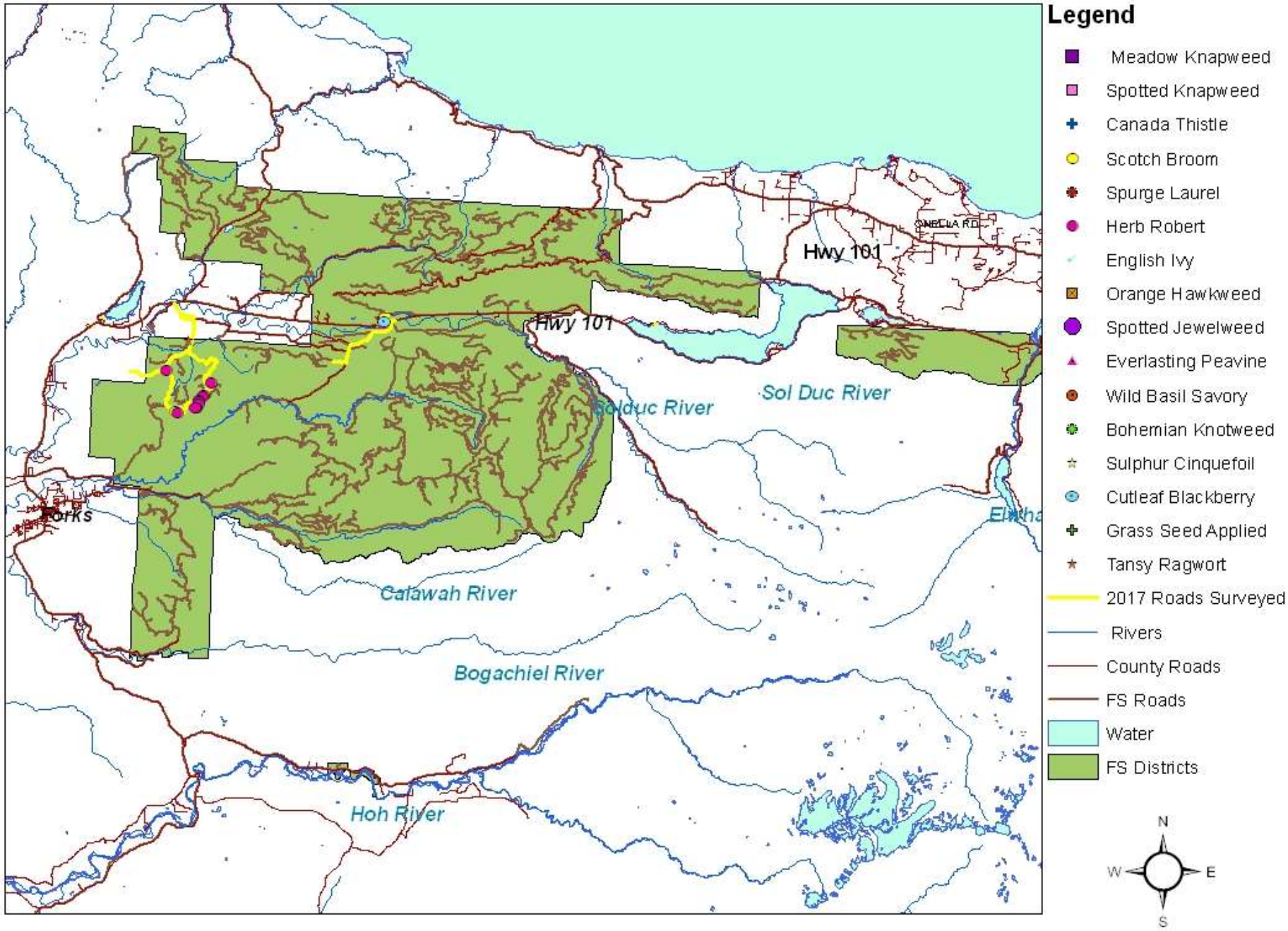
Hood Canal North - Roads Surveyed and New Weed Sites, 2017



Hood Canal South - Roads Surveyed and New Weed Sites, 2017



Pacific North - Roads Surveyed and New Weed Sites, 2017



PROJECT SPOTLIGHT: MANAGING WEEDS ACROSS BORDERS

Clallam County Integrated Weed Management plan
All Olympic National Forest (ONF) land in Clallam County is accessed via the county road system. These road systems can therefore serve as a significant vector for the spread of undesirable exotic species that imperil natural resources, habitat, and ecosystem function.

Since 1990, Clallam County's right-of-way policy has relied extensively on mowing and brushing to manage vegetation. As evidence mounted about the spread (and impacts) of noxious weeds in the absence of a comprehensive plan to prevent and control them, the Board of Clallam County Commissioners (BOCC) consented to a re-examination of this policy.

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

In January 2017, the BOCC adopted an ordinance that requires all county departments with land management responsibilities to assess and develop an Integrated Weed Management plan to deal with noxious and invasive plants of special concern. All plans shall are to be brought annually for review before the Noxious Weed Control Board prior to adoption.

The Clallam Road Department is the first with a plan, but IWM plans are now in the works for other county departments. The Road Department's Integrated Weed Management (IWM) plan is designed to promote low maintenance, self-sustaining plant communities'; preferably native, pollinator-friendly species. The plan incorporates multiple tools to achieve this goal, including manual, chemical preventative and cultural practices. This plan is consistent with and compliments the National Forest Northwest Region Invasive Plant Program. Indeed, the FS has led the way in shaping thoughtful and effective practices to cope with invasive plant issues on a landscape scale and upon which the new IWM plan is modeled.

Clallam County Chain Gang cleaning up county rock sources

Acknowledging impacts to adjacent lands, Clallam County has committed to being both a responsible steward and a good neighbor. In this inaugural year, we treated 33 invasive plant species across approximately 100 miles of road, many of which directly lead to or cross Forest Service land. A number of these species have not yet been found on Forest Service lands. We invite the Forest and the public to suggest border areas that need noxious weed control. Suggestion will be considered and incorporated into next year's plan.

Smoothly managing weeds across jurisdictional borders has huge implications for both the County and the Forest. We are on a new road to success!

The County, Olympic National Park, and Olympic National Forest are partnering to develop locally sourced native plant material

POST-SEASON OBSERVATIONS

A sudden explosion of wild basil savory (*Clinopidium vulgare)* in north-east portion of Forest is cause for concern

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

The Forest Service, in consultation with the local Weed Boards, creates an annual work plan identifying high priority sites based on known problems or anticipated needs. These include the potential for weed invasion during road decommissioning, thinning, or other forest health and maintenance projects. This year, the NWCB crew treated **40** of 47 high priority, **14** additional lower priority, and **5** Early Detection projects for a total of **59** projects.

An early detection and rapid response strategy has proven to be effective. Species such as ribbon grass, which was found and treated just as it was starting to invade the forest, has been eradicated. A small patch of Canada thistle in the same location was newly detected and treated before expanding. Infrequent high priority species such as orange and European hawkweed, sulfur cinquefoil, meadow knapweed and knotweed were specifically targeted again this year. Of the 21 occasions where knapweed was found this season, all but two had no more than a single plant or two. Only 2 sites had spotted knapweed, only 2 had knotweed. Several new species were detected this year including laurel spurge, spotted jewelweed, and a single incidence of diffuse knapweed. European mountain ash was found more frequently than noted before, especially in one of the west end campgrounds. Wild basil savory which had not been observed as problematic in the past has suddenly become very pervasive in the northeastern portion of the Forest. Next season we will see how effective our treatments of it were as we decide how to combat this unexpected outbreak.

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 **9** Forest owned rock sources, and also provided certification services free of cost for **5** of the privately owned rock pits that may provide material for Forest projects in the future. **12** county rock sources were treated under the County's new IWM plan and **5** quarries owned by the Department of Natural Resources were inventoried and custom plans for noxious weed removal were tailored for the agency. The results of these surveys are summarized in Appendix B.

Over the past fifteen years, weed infestation size, density, and diversity have declined significantly. There are many examples of progress. Long range goals, detailed planning and consistency have been the key to our successes to date.

Although we are making progress, herb Robert continues to be problematic. We are planning for another round of herb Robert-specific research conducted by Washington State University to tests additional products, building on previous trials that explored options for both good control of herb Robert and minimal impact to desirable species.

Invasive Weed Populations:

- The most commonly recorded invasive species continue to be herb Robert, everlasting peavine, tansy ragwort, Canada thistle, and bull thistle. The most infrequently recorded species are teasel, bishops weed, comfrey, sulfur cinquefoil, hawkweeds, knotweed, ribbon grass, English ivy and poison hemlock. There were limited infestations of some new weeds as noted above.

- The crew took waypoints of approximately **87** new sites this year. This reflected a number of random, small infestations, especially knapweed, some new species, as well as small patches of infrequently found species.
- Most treatments included the use of Milestone. We will check its efficacy next season on herb Robert and compare its efficacy on everlasting peavine and Canada thistle with that of Transline.
- We did not have an opportunity to try Oust in a roadside setting.
- We discovered a significant stretch of sulfur cinquefoil (285500) near private property off Jimmy-come-lately Rd. It may be the source we've been looking for.
- Tansy abundance is down in areas where there has been consistent follow-up, especially in the Dungeness Watershed. Tansy ragwort on Mt. Walker Rd improved considerably after treatment last year.
- European hawkweed treatments last year were very effective. We explored adjacent 2700-281 and were surprised to find a small, but consistent number of plants all the way to the end of the spur. This is a late bloomer and mid-late surveys may be effective in finding new plants. This should be a priority for next year!
- Wild basil savory is rampant for several miles of Mt Walker Rd. It was also heavy in Fallsview Campground.
- Canada thistle treatments that took place three years ago in a number of wetlands needed follow-up. That cycle is doable! See list of recommended sites for 2018 in Appendix C.
- The number of herb Robert infestations remains concerning. On the bright side, small herb Robert patches treated last year responded very well to treatment. Follow-up is extremely important.
- In general, the condition of rock sources on FS land is better every year. However, the amount of foxglove in the newly expanded area of Grindstone Pit was alarming. We treated and will be interested in seeing efficacy next year.
- Small populations of purple loosestrife, yellow and common hawkweed, hoary alyssum, hairy willowherb, wild chervil, chicory and common reed are all present on Jefferson and/or Clallam County roadsides. We consider control of all of these plants—as yet unrecorded on Forest Service land —a high priority to prevent their spread. In particular, chicory has heavily infested several county roads close to the Forest. We have begun treatment of it on county roads.
- The implementation of Clallam County's Integrated Weed Management plan will be incredibly beneficial to manage weeds on roads leading to the Forest, now and into the future.

Survey, Treatment, and Monitoring

- We hired fewer crew this year due to funding and recruitment limitations.
- NWCB crews treated **40** priority 1A or 1 projects listed for Jefferson/Clallam in the 2017 work plan. An additional **14** priority 2 projects and **5** non-priority were treated and listed as EDRR. To date, we disbursed native grass seed to **10** locations and will do more in December. An additional 48 priority 1A or 1 projects were listed on the project sheet in our area to be completed by Forest Service crew. We do not know the results of their treatment season.
- The Forest Service deliberately limited the number of 1A and 1 priority projects in the work plan for weed board which gave us considerable flexibility to adapt priorities.
- Multiple construction projects made travel to far edges of the project area time consuming, difficult and frustrating; Lake Crescent in particular. Most high priority sites that were not addressed were in south eastern Jefferson County and far western Clallam County. Fortunately, the majority of high priority sites were focused in central part of the Forest.
- A number of lower priority roads adjacent to 1 or 1A sites often yielded single plant infestations of high priority weeds, underscoring the importance of regular surveys for early intervention.
- We were not able to follow up on knotweed infestations in the Dosewallips watershed this year. We monitored few sites this season due to limited resources as noted.
- It would be beneficial to cooperatively identify potential WCC sites in advance-everlasting peavine on the 2700 and 2800 were excellent choices.
- 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 well organized and helpful.
- The Forest Service provided excellent pre-season planning documents and files. Shape files for previous year treatments were invaluable as was the layer for decommissioned roads. Thank you!

RECOMMENDATIONS

Crew returns for follow-up treatment at Sink Lake-finds small Canada thistle infestation

Future Direction of the Project
The Secure Rural Schools Act has provided the opportunity and impetus to develop a collaborative relationship between the Forest Service and local weed boards to address invasive plant issues.

We 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. The first non-grass mixes are available this season. Continued development of diverse native plant materials including a variety of forbs will be a focus in coming years.

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

Surveys in remote location found small patch of herb Robert at new culvert installation

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

Specific recommendations for next year are listed below.

Program Development

- Pursue an extension of the Master Participating Agreement currently in place for only one year. Previous master agreements have been for at least four years.
- 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.
- Collaborate with ONP and ONF on a native plant material consortium.
- Pursue a formal CWMA with federal partners which may open new funding sources for work across jurisdictional boundaries.
- Apply information garnered from herb Robert research conducted by WSU weed scientists. Additional research on this issue is in planning stages.

Crew reseeds treated everlasting pea vine site

Survey and Treatment

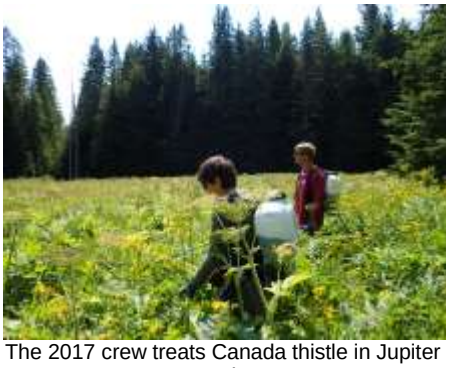
- Continue to focus on infrequent, high priority invasives.
- Identify locations where ground disturbance is planned and bare ground is expected as a result.
- Develop an agreement with Coastal Restoration Crews if there is funding for this have program next year.
- Treat sites indicated as high priority by crew on FACTS sheets.
- Survey and treat areas as recommended in Appendix C especially herb Robert sites that were not treated this year.
- Obtain key to gate that blocks access to the Louella LuLu Quarry so crews can survey and treat for the first time in several years.
- Continue to include a survey component in the work plan.
- Ask crews to identify areas that would benefit from re-planting to reduce erosion and possible sediment pollution into streams. .
- Report FS crew weed control activities during the treatment season.

Documentation

- Changes to the FACTS forms continue to be useful and constructiv
- Add a check box to FACTS form so crew can note when project wo reseeding. Include instructions on how to make that determination.
- Please continue to provide the excellent project disc provided at the beginning of the season.
- A post season meeting will be helpful.

Cheryl Bartlett, ONF botanist, examines successful germination of native plantings at Quilcene Ranger Station. Blue-eyed Mary (below) was an early performer at this site

2017 PROTOCOLS



The 2017 crew treats Canada thistle in Jupiter meadow

1. **Team and Project Dates**
   This year's project focused almost entirely on treatment but had time for limited seeding after onset of seasonal rains with material provided by FS. Treatments were performed by a crew consisting in various combinations of Cathy Lucero (Clallam County Coordinator), and field technicians Rachel Bowen and Jim Knape. 2017 fieldwork began in July and continued through mid October.

2. **Invasive Species Recorded**
   Treatment and surveys focused on Class A and B-designate weeds on the Washington State Noxious Weed List (see Appendix H), and additional species that are of concern to the Forest Service. In most cases, Class B non-designate, Class C, and other low priority non-native weeds were only documented when an infestation was in a site of particular concern (e.g. a Botanical Area), when the infestation was of notable size, or when a new species was found. Exceptions were made for especially invasive species, such as herb Robert or knotweeds, which threaten undisturbed areas. See Appendix G for a complete listing of species recorded from 2002 to 2017. Treatment and surveys were not intended to target every non-native species.

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

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

   b. Trailheads, campground parking areas, and gravel pits were surveyed on foot and area surveyed or treated was estimated by using measurement functions on a Garmin GPS unit or by other predetermined figures.
   c. From 2007 through 2012 miles surveyed were estimated from treatment sites (recorded on FACTS forms) and roads taken to get to those treatment sites. Beginning in 2013, surveyed miles **only includes** a single trip on a road, even though it may have been traveled and surveyed many times during the season. Additionally, **only treated** roads documented on FACTS forms were included, **not** additional roads that were viewed on the way to a project.
   d. Small tap rooted weed infestations were often treated manually on rainy days. Seeded plants were dead-headed; heads were bagged and disposed of off-site, during late season treatments.
   e. Herbicide treatments were applied based on guidelines established in the 2008 EIS which allow the use of 10 different herbicides.
      i. A legal notice listing all sites under consideration for herbicide treatment (see Appendix I) was published in the Peninsula Daily News. Herbicide applications were carried out between July 12th and October 11th.
      ii. Backpack sprayers were calibrated prior to use on FS lands per federal NPDES standards. A sample calibration sheet and the calibration methodology can be seen in Appendix K.
      iii. Foliar herbicide applications were made using 0.125% Milestone, 1.5% Element or 1% Vastlan (both triclopyr), 0.5% Transline (clopyralid), or 1.0% Polaris (imazapyr) and 0.5% Competitor or Liberate (surfactants) and 0.25% Blazon (marker dye).

iv. On-site notices (see Appendix H) were posted prior to treatments and left in place for at least 24 hours afterwards. Treatments in high-use areas such as campgrounds were avoided during busy times (near weekends or holidays), Forest Service recreational personnel were contacted prior to commencing treatment, and sites were posted a week before treatment.

4. Data Collection

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

Forest Activity Tracking Sheet (FACTS)

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

Invasive Plant Inventory for Rock Sources

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

Invasive Plant Treatment Monitoring

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

Olympic NF Invasive Plant Inventory Data Collection Form NRIS

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

5. Spatial Data Collection and Mapping:

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

a. NWCB crew carries a Garmin 78 pre-loaded with Topo US 24K or a Montana Hunt chip, which identifies landowners. The automatic track log function is enabled.
b. Meta data is set to NAD83 Harn, State Plane North 4601, statute feet. Newer Garmin units that don't allow for this projection are set to UTMs, statute feet.
c. Crew is instructed to turn and leave on units, just prior to entering project area.
d. Crew is directed to take waypoints for significant events or sites, such as beginning or end of treatments, new weed locations, or to document named locations such as quarries.
e. Individual weed sites are plotted as points. If there is no existing waypoint, crew marks a location using a pre-designated symbol and then records the four letter plant code and size of infestation in feet in the comment field.
f. New layers are produced post-season showing where treatment occurred. Waypoints and tracklogs were downloaded in the office and converted into shape files through the Minnesota DNR public domain software DNRGarmin version 6.0.0.15.

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

6. Data Reporting

Office staff reviewed FACTS, Monitor, and Rock Source Survey forms and submitted copies 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 2017 treatments by acreage, date and species. It is a comprehensive account of work accomplished in 2017.
b. **Appendix B** is summary of this year's rock source inspections and treatments.
c. **Appendix C** shows weed sites recommended for next season's project area list.
d. **Appendix D** is a master list of the roads surveyed and treated since the inception of our SRS, Title II projects. This list shows the amount of survey completed on each road, and totals for each year, as well as the number of weeds pulled manually for each year up to 2006. It also lists the area of treatment, by road, completed from 2007 through 2017, 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 2017 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: 2017 PROJECT LIST ACTIONS-

This table is based on the Project List developed by the Forest Service, which served as the work plan for the Clallam Counties Noxious Weed Control Board (CCNWCB). The list was categorized into Priority 1A, 1, 2, S (survey need), or no priority. This table includes all Clallam and Jefferson Priority 1A and Priority 1 sites; Priority 2 sites are only shown when treated. Sites shown as Early Detection Rapid Response were originally listed as survey, no priority, or were not shown. We did not have information about sites that may have been treated by Forest Service crews or by WCC under Forest Service supervision; therefore that information is not contained in the following table or elsewhere in this report. To the best of our knowledge, there were no sites treated by a Clallam County Chain Gang this year.

The table is sorted by road number; smallest to largest. It shows the acreage treated each date the crew was on site and whether the treatment was manual, chemical or a combination of both. All told, we treated **240** acres, manually or chemically.

Crew treated a total of **59** projects. All but 1 Priority 1A and 6 Priority 1 sites (85%) were treated. These 7 high priority sites are called out for treatment in 2018, as shown in the table in appendix C. Sites shown as ED/RR may have been requested mid-season by FS staff or were newly discovered and treated; these are highlighted in red. The table includes each visit to a specific project this year.

Note the *Acres Monitored* column. As time and resources allow, the crew will re-treated monitored sites as needed. Because of the small crew size this year and limited funding, we did little monitoring to date and no sites were retreated. We anticipate more monitoring when seeding treated sites in late fall.

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

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

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	2018 Priority?	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Species	Comments
306	EDRR	Lower Dosewallips River	2620050			7/17	10.2	10.2		herbicide; Milestone, manual	2	10.2	CIAR, CIVU, DIPU, HYPE, **SEJA**	
653	1	Lower Big Quilcene River	2650000			7/17	6.9	6.9		herbicide; Milestone	1		CIVU, HYPE, **SEJA**,	
199	EDRR	Little Quilcene River	2700000			9/14	0.1	0.1		herbicide; Milestone Vastlan, manual	6	0.1	LALA, **SEJA**	
201	1	Little Quilcene River	2700280		**Y**	9/14	2.9	2.9		herbicide Milestone Vastlan	28		CIAR, DIPU, **HISU**, HYPE	Bad HYPE, HISU on slopes and in middle rd

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	2018 Priority?	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Species	Comments
202	1	Little Quilcene River	2700281		**Y**	9/14	1.5	1.5		herbicide; Milestone Vastlan, manual	7		CIAR, CIVU, CYSC, **HISU**, SEJA	sm amounts HISU consistently to end of spur
297	1	Lower Big Quilcene River	2730000			7/13	5.2	5.2		manual		5.2	**CLVU, GERO, SEJA,**	very bad CLVU!
292	1A	Lower Big Quilcene River	2730200	**Falls View CG**	**Y**	7/12	10	10		herbicide; Vastlan	27		**CLVU, GERO**, HYPE, **HEHE**, CIVU, LEVU	heavy CLVU in places
766	1	Upper Big Quilcene River	2760000	**Sink Lake**		9/14	3	3		herbicide Polaris	2		CIAR, PHAR	patch of CIAR encroaching from forest edge, treated
687	EDRR	Canyon Creek /Pats Creek	2800000		**Y**	8/15	5.8	2		herbicide; Milestone Element 3A	0.4		**CEDE**	Not completed! Only CEDE treated
907	1A	Middle Dungeness River	2800120			8/15	3.75	3.75		herbicide; Milestone Transline Element 3A	36		CIAR, CIVU, HYPE, LALA, **SEJA**	Heavy heavy peavine from mp 1.3-3
108	1A	Middle Dungeness River	2800130		**Y**	8/15	1.7	1.7		herbicide; Milestone Element 3A	5		**CEDE**, CIAR, CIVU, HYPE, LALA, **SEJA**	This includes two beautiful small meadows (1 acre total)
101	2	Middle Dungeness River	2800130	**Lost Pit (aka Canine Pit)**		8/15	4.5	4.5		herbicide; Milestone Element 3A, manual	3		CIAR, CYSC, **GERO**, HYPE, LALA, **SEJA**	
109	1A	Middle Dungeness River	2800132			8/15	0.5	0.5		herbicide; Milestone Element 3A, manual	2		**CEDE**, CIAR, CIVU, **SEJA**	No peavine!
75	1	Jimmy-come-lately Creek	2800350	**Louella Work Center**	**Y**	8/15	1	0.18		herbicide Milestone Element 3A	1		**CEDE**, HYPE	Very little knapweed left!
65	2	Jimmy-come-lately Creek	2800351		**Y**	8/15	1.55	1.55		herbicide Milestone Element 3A, manual	2		**CEDE**, CIAR, CIVU, HYPE	

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	2018 Priority?	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Species	Comments
58	2	Jimmy-come-lately Creek	2800351	**Louella Rock pit**		8/15	0.5	0.5		herbicide; Milestone Element 3A	1		**CEDE**, CIVU, HYPE, **SEJA**	
502	EDRR	Snow Creek/Salmon River	2840000			8/17	0.15	0.15		herbicide; Milestone Element 3A	3		CYSC, LALA, **SEJA**	just one bad patch of broom and peavine
80	1A	Jimmy-come-lately Creek	2840034		**Y**	8/22	6.2	6.2		herbicide Milestone Element 3A, manual	22	H, M	CIAR, CIVU, **GERO**, HYPE, SEJA	
68	2	Jimmy-come-lately Creek	2840080		**Y**	8/22	1	1		herbicide Milestone Element 3A, manual	2	1	CIAR, CIVU, **GERO**, HYPE, **SEJA**	
57	1	Jimmy-come-lately Creek	2840080	**Coho Pit**		8/22	1.9	1.9		herbicide Milestone Element 3A, manual	1	1.9	CIAR, CIVU, CYSC, HYPE, LALA, **SEJA**	
914	1	Snow Creek/Salmon River	2840150		**Y**	8/17	1.1	1.1		herbicide; Milestone Element 3A	2		**CEDE**, CIVU, DIPU, **GERO**, HYPE, **SEJA**	
845	2	Snow Creek/Salmon River	2845000			8/17	2.5	2.5		herbicide Milestone Element 3A, manual	1		CIAR, CIVU, **GERO**, HYPE, **SEJA**	
147	2	Snow Creek/Salmon River	2845070			8/17	1	1.21		manual		1.21	**CEDE**, CIVU, **GERO**, HYPE, **SEJA**	
148	1A	Snow Creek/Salmon River	2845073		**Y**	8/17	2.7	2.7		herbicide Milestone Element 3A, manual	4	2.7	CIAR, CIVU, CYSC **GERO**, HYPE, LALA, **SEJA**	Actually, 070 near pit had the knapweed.
61	1	Jimmy-come-lately Creek	2845073	**2845073 spur pit**		8/17	1	1		herbicide Milestone Element 3A, manual	4	0.25	CIAR, CIVU, CYSC, DIPU, HYPE, **SEJA**	No knapweed found this year. Only along spur 073

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	2018 Priority?	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Species	Comments
84	2	Jimmy-come-lately Creek	2850000			8/24	2.76	2		herbicide Milestone Element 3A, manual	1	2	CIAR, CYSC, **GERO**, HYPE, **SEJA**	
528	1	Jimmy-come-lately Creek	2850090		**Y**	8/24	2.1	2.1		herbicide Milestone Element 3A, manual	4	0.5	**GERO**	
63	1A	Jimmy-come-lately Creek	2855000		**Y**	10/11	3.4			herbicide; Milestone	5		CIAR, CIVU, **CEDE**, CLVU, **GERO**, HYPE, **PORE**, **SEJA**	PORE discovered near intersection with Jimmy Come Lately Rd. Suspect near-by farm. CLVU starts to get heavy. BAD GERO
64	1A	Jimmy-come-lately Creek	2855070		**Y**	8/29	3.5	3.5		herbicide; Milestone Element 3A	18		**CEDI**, **CEST**, CIAR, CIAR, CIVU, CYSC, **DALA**, **GERO**, **HEHE**, HYPE, LALA, RULA, **SEJA**	could be closed past pit, just a little GERO past pit
60	1A	Jimmy-come-lately Creek	2855070	**Raccoon Pit**	**Y**	8/29	1.5	1.5		herbicide; Milestone Element 3A manual	7		CIAR, CIVU, **CEDE**, CYSC, **GERO**, LALA, **SEJA**	Very clean in general, single CEDE at top of pit
66	1A	Jimmy-come-lately Creek	2855100		**Y**	8/24	2.1	2.1		herbicide Milestone Element 3A, manual	7	2.1	CIVU, **GERO**, **SEJA**	
66	1A	Jimmy-come-lately Creek	2855100			8/29	1.1	1.5		herbicide; Polaris	20	2.1	CIAR, **GERO**	very bad sections at beginning of spur
66	1A	Jimmy-come-lately Creek	2855100			8/29	1	1		herbicide; Milestone, manual	1	2.1	CIAR, **GERO**	finished remaining .2 miles. Suspect bad GERO due to neighboring property.

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	2018 Priority?	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Species	Comments
32	2	Canyon Creek /Pats Creek	2870000	**unnamed gravel pit**		8/10	2	2		herbicide; Milestone Vastlan, manual	1	0.01	**CEDE**, CIAR, CIVU, CYSC, HYPE, LALA, RULA	No PORE found this year. Getting very clean.
24	2	Canyon Creek /Pats Creek	2870000			8/3	2	2		herbicide; Milestone Vastlan	5		CIAR, CIVU, CYSC, HYPE, LALA, **SEJA**	
24	2	Canyon Creek /Pats Creek	2870000			8/10	0.02	0.02		manual		0.02	**GERO**	
24	2	Canyon Creek /Pats Creek	2870000			8/3	2	2		herbicide; Milestone Vastlan	5		CIAR, CIVU, CYSC, HYPE, LALA, **SEJA**	
19	2	Canyon Creek /Pats Creek	2870000	**Lower Caraco Quarry**	**Y**	8/7	3	3		herbicide; Milestone Vastlan	3		**CEDE**, CIAR, CIVU, DACA, **GERO,** SEJA	
19	2	Canyon Creek /Pats Creek	2870000	**Lower Caraco Quarry**		8/10	0.25	0.25		herbicide; Milestone Vastlan, manual	.5		**GERO**	
23	1A	Canyon Creek /Pats Creek	2870030			8/10	2.6	2.6		herbicide; Milestone Vastlan	4		**CEDE**, CIAR, CIVU, HYPE, **SEJA**	5 CEDE plants found
11	1A	Canyon Creek /Pats Creek	2870050		**Y**	8/3	3.9			manual, herbicide; Milestone Vastlan	.5	3.7	CIAR, CIVU, **GERO**, LALA	
11	1A	Canyon Creek /Pats Creek	2870050		**Y**	8/8	2.5	2.5		herbicide; Milestone Vastlan, manual	5	0.5	**CEDE**, CIAR, CIVU, **GERO**, HYPE	
25	1A	Canyon Creek /Pats Creek	2875000			8/1	3	2.5		herbicide; Milestone	1		CIAR, CIVU, DIPU, LALA, **SEJA**	
25	1A	Canyon Creek /Pats Creek	2875000			8/3	3.2	3.2	3.2	herbicide; Milestone Vastlan, manual	2		CIAR, CIVU, DIPU, LALA, **SEJA**	
5	1	Canyon Creek /Pats Creek	2875000	**Canyon Pit**	**Y**	8/1	3.8	3.8	3.8	herbicide; Milestone	1		**CEDE**, CIVU, CIAR, HYPE	

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	2018 Priority?	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Species	Comments
27	1A	Canyon Creek /Pats Creek	2875020		**Y**	8/3	1.5	1.5		herbicide; Milestone Vastlan	3		**CEDE**, CIAR, CIVU, **GERO**, LALA, **POBO**	Sm. Patch POBO found and treated.
37	1A	Canyon Creek /Pats Creek	2875070			8/1	2.7	2.7		herbicide; Milestone	1		**CEDE**, CIAR, CIVU, CYSC, **GERO** HYPE	
697	1A	Canyon Creek /Pats Creek	2875070	**Juniper Meadow**		8/1	7	7		herbicide; Milestone	1		CIAR, LEVU	
98	2	McDonald Creek/Siebert Creek	2877000			9/13	6	6	3.1	herbicide Transline	1	4	CIAR, CIVU, **GERO**, HYPE, **SEJA**	sm patches GERO controllable!
99	1	McDonald Creek/Siebert Creek	2877000	**Pat's Prairie**	**Y**	9/13	28	14		herbicide; Milestone Transline	17		CIAR, CIVU, DIPU, LEVU	CIAR regrowth? Sm amounts LEVU, very trace CIVU
614	1A	McDonald Creek/Siebert Creek	2877050			10/11	1.5	0.001		manual			CIVU, DIPU	very clean, decommission! Connects to DNR roadsystem
913	1A	McDonald Creek/Siebert Creek	2877052			10/11	0.38	0.38		herbicide; Milestone Element 3A, manual	1		CIVU, CIAR, CYSC, DIPU, **GERO**, LEVU, RULA, **SEJA**	single GERO, LEVU oddly heavy
904	1A	McDonald Creek/Siebert Creek	2877090			10/11	1.5	0.001		manual			**I plant SEJA**	blocked at 1.3, washout past. Very clean
26	2	Canyon Creek /Pats Creek	2878000		**Y**	9/12	3.4	3.4		herbicide Transline	13		CIAR, CIVU, **CEDE**, LALA, **SEJA**	MP 2.3-.9
29	2	Canyon Creek /Pats Creek	2878100		**Y**	9/12	3.9	3.9		herbicide; Transline	3		CIAR, CIVU, **CEDE**, LALA, **SEJA**	CEDE found
905	1A	Lower Gray Wolf River	2878100		**Y**	9/12	3.4	3.4		herbicide; Transline	6		CIVU, LALA	
607	2	Canyon Creek /Pats Creek	2878101			9/12	0.25	0.25		herbicide; Transline	0.06		LALA	
603	2	Canyon Creek /Pats Creek	2878102			9/12	1.5	1.5		herbicide; Transline	0.16		CIVU, LALA	
604	1A	Canyon Creek /Pats Creek	2878108			9/12	0.4	0.4		herbicide; Transline	0.3		LALA	
605	1A	Canyon Creek /Pats Creek	2878109			9/12	1	1		herbicide; Transline	1		CIAR, CYSC, LALA	

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	2018 Priority?	Date	Acres Examined	Acres Treated	Acres Monitored	Method	Herbicide Amount (oz)	Manual acres	Species	Comments
166	1A	Upper Sol Duc River	2900990	**Klahowya CG**	**Y**	9/28	6	6		herbicide; Milestone, manual	3	0.01	CIAR, CYSC, DIPU, HYPE, LEVU, HYPE, RULA	quite a few European mountain ash, hand pulled
645	1A	Bockman Creek	2902000			9/28	6.6	6.6		herbicide; Milestone Element 3A, manual	7		CIAR, CIVU, CYSC, **GERO**, HYPE, RULA, SEJA	very clean road overall. Very sm amounts GERO
588	1A	Bockman Creek	2902000	**Bockman Pit**		9/28	1	1		herbicide; Milestone Element 3A, manual	5		CYSC, DIPU, HYPE, LEVU, RUAR, **SEJA**	Unusual amount of DIPU, treated.
648	1A	Bockman Creek	2903000		**Y**	9/28	0.75	0.75		herbicide Milestone Element 3A	7		**GERO**	
648	1A	Bockman Creek	2903000		**Y**	10/5	14.2	14.2		H, M	8		CIAR, CIVU, CYSC, **GERO**, HYPE, **SEJA**	patchy GERO throughout 3/4 of project
133	1A	North Fork Calawah River	2923070	**Grindstone Pit**	**Y**	10/5	5.1	5.1		herbicide; Milestone Element 3A	10		CYSC, DIPU, HYPE, LALA, LEVU, RULA	EXTRAORDINARY amount of DIPU
EDRR	EDRR	Jimmy-come-lately Creek	2800353		**Y**	8/15	0.6	0.6		herbicide; Milestone Element 3A	3		**CEDE**, CIVU, HYPE	Ensure this spur is correctly ID, is a source of CEDE to whole area-trail to Burnt Hill-treated several times in past, CEDE much improved.
EDRR	EDRR	Middle Sol Duc River	2036	**Mary Clark Pit**	**Y**	10/5	20	1		herbicide; Polaris	3		**HIAR**, LAGA, PHAR, **POBO**, RUAR, RULA	Important gravel source, several high priority species present including POBO, HIAR, LAGA
							240	192	10		345 oz.	41		
											3 gal			

APPENDIX B: ROCK SOURCE SURVEYS AND TREATMENT

9 FS rock sources were inspected and treated by CCNWCB. One that was identified as a priority by 2014 crew has still not been found this year. We discovered an unmarked pit in excellent condition on the 2800-120/210 spur. It is neither noted on the brownline maps nor included in any rock source lists-it is shown in the table below in red, named "*Unmarked"*. In general, sites that have been treated for several years are in very good condition. A rock source inventory provided by the FS in 2008 indicates there are over 90 rock sources in the Olympic within Jefferson and Clallam counties; many appear to no longer exist. As the Forest Service prepares for future harvest and road building additional surveys to locate rock sources and confirm status will allow us to prepare these sources for use when needed. Dates, treated species, and suitability are given here. Rock Source Index numbers and codes, when available, have been added because they are helpful when locating sites.

We have made a concerted effort to survey most prominent private quarries in Clallam County; certifications are shown as *not current* if they were not updated this year. The results of those surveys is summarized in the table below, and is intended to be used as a resource for FS personnel gauging the suitability of a wide variety of rock sources. Further investigation may be warranted. (The status of non-FS rock sources is listed after FS-managed). At least 3 private quarries have current certifications, while 1 failed to pass an inspection precipitating the need to identify an alternative source. We made substantial weed control progress on county managed rock sources as a prevention strategy of the new county IWM plan (**12** treated this year**)**. Importantly, the DNR has begun the long process of bringing their rock sources up to speed in advance of forestry projects **(5** new locations were inspected/plan created, this year). Most of the non-Forest rock sources shown in the table are in Clallam County. 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, 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 inspection by a non-weed board crew and possibly not inspected by qualified staff. Orange indicates the current status is unknown **or** was not inspected this year, but the date of the last inspection and information of past status is provided when known.

Sign in Loop Quarry AKA Unnamed Pit provides a warning:
"ATTN: Shooters
Don't give them a reason to close this pit for your shooting pleasure!!
Pick up your garbage!
THANKS! Your fellow shooter"

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
Armpit Quarry		28701500	2870150	586	2	CIVU, LALA	Treated in 2016	Chemical -FS crew-results N/A In 2016, met standard B; treat LALA along road.	1.0
Bockman Pit	76	29020009	2902	588	1A	CYSC, DIPU, HYPE, LEVU, RUAR, **SEJA**	9/28/17	Chemical meets standard B	1.0
Bonidu Pit	8	290000037	2900	165	1A	CIVU, CYSC**, GERO,** HYPE, RUAR, **SEJA**	Treated in 2016	Chemical- FS crew-results N/A met standard C- GERO diminished, not in main body.	5.5
Bon Jon Quarry		260000004	2600	194	1A	CIVU, LALA, **SEJA**	Treated in 2016	Chemical **Very clean**	0.6
Calawah Pit	133	290001500	2900	152	1A	CYSC, **HIAR, POBO**, **SEJA**	Treated in 2016	Chemical-FS crew-results not available	8
Canyon Pit	139	287500001.4	2875	5	2	**CEDE,** CIAR	8/1/17	Chemical not suitable-almost ready!	3.8
Coho Pit			2840080	57	1A	CIAR, CIVU, CYSC, HYPE, LALA, **SEJA**	8/22/17	Chemical Meets standard B; very sm amount of weeds,	0.8
Grindstone Pit	122	292307000.1	2923070	133	1A	CYSC, DIPU, HYPE, LALA, LEVU, RULA	8/17/16	Chemical Extraordinary amount of DIPU	5.1

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
								especially on berms and edges. May have occurred since pit was expanded.	
Littleton Horsecamp stockpile		307100000.0	3017000.3	173	2	CYSC, HYPE, LALA	Treated in 2016	Chemical Met standard A last year; minimal GERO and LALA along road	0.5
Loop Quarry aka-spur (unnamed) Pit		284507300.9	2845073	61	1	CIAR, CIVU, CYSC, DIPU, HYPE, **SEJA**	8/22/17	Chemical CEDE and SEJA are almost gone but some CYSC still present, significant SEJA still on road.	1
Louella Rock Pit		280036000.4	2800351	58	2	**CEDE**, CIVU, HYPE, **SEJA**	8/15/17	Chemical A single knapweed outside pit but found farther up on road	0.5
Lost Pit (aka Canine Pit)			2800130.6	101	1A	CIAR, CYSC, **GERO**, HYPE, LALA, **SEJA**	8/15/17	Chemical Meets requirements- still some GERO in back corner in woods	1
Lower Caraco Quarry	144	287000001.0	2870000	19	1A	**CEDE**, CIAR, CIVU, DACA, **GERO, SEJA**	8/7/17 8/10/17	Chemical not suitable largely because of GERO extensively around perimeter	0.5
Mt Mueller TH Gravel Pile		307100000.3	3071000.3	612	1A	CIVU, HYPE, LALA, RUAR	Treated in 2016	Chemical met standard A; trace amounts of weeds only	0.75
Mystery Pit		2900200.?			1A	**POBO**		Did not locate.	
Ned Hill Quarry (aka Sandstone Quarry)	138	287812500.5	2878125	20	1A	CIVU, CYSC, LALA	Treated in 2016	Chemical-FS crew-results N/A In 2016 met standard B Few weeds present	2.5
Raccoon Pit		285507001.3	2855070	60	1A	CIAR, CIVU, CYSC, **GERO,** LALA**, SEJA**	6/29/16	Chemical Use caution; GERO is still present in significant quantities on “road” just past pit entrance, and on road to pit. A single CEDE seen, some CEST , single CEDI, and DALA on road	0.3
Tom Creek Pit	51	293100000.2	2931	168	2	CIVU, HYPE**,** TAVU	Treated in 2016	Chemical meets requirements-no CEDE or PHAR found	5
Unmarked Pit		**280012001.3**	**2800120/ 2800210**	**?????**	1A	LALA	8/15/17	Chemical-meets Standard B Very sm amounts of LALA	1
Unnamed Gravel Pit			Junction 2878 X 2870	32	2	**CEDE**, CIAR, CIVU, CYSC, HYPE, LALA, RULA	8/10/17	Chemical Meets standard B, but some caution because of very limited CEDE.	0.75
Upper Caraco			2870000	21	1A	CIAR**, GERO**	Treated in	Chemical-trace amounts of	1.5

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
Pit							2016	weeds only	
Wolf Quarry 2		28401200.3	2840120	62	2	**GERO,** RUAR, **SEJA**	Treated in 2016	Chemical Met requirements-GERO down bank and not in pit	.1
Private Quarries									
Blue Mountain		Private	Hwy 101 E			CEST, CIAR, CIVU, COMA, CYSC	Inspected 2016	This pit is improving, but needs additional treatment CERTIFICATION NOT CURRENT	5
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	2
Elwha Rock Products			Place Rd			CYSC, POBO, SEJA	2/2/17	**FAILED-**Standard D Soil disturbed, chipped rock placed on POBO infestations .	2
Green Crow		Private	Lower Elwha River Rd			CIAR, CYSC, PHAR	7/26/17	Very clean CERTIFICATION CURRENT	2
Haller Quarry		Private	2 m south on River Rd, on gate on left			**BUDA, DIFU,** RUAR	Treated in 2016, likely treated in 2017 but not inspected	Overall, quarry is very clean and in great shape. Most weeds that are found are around perimeter. Teasel was treated and far less than 2015 CERTIFICATION NOT CURRENT	20
Hecklesville Quarry		Private	44 Heckle Rd			CASE, CYSC, DIPU, LALA	Inspected in 2016	Widespread, low density LALA, scattered CYSC. visited, but no formal inspection CERTIFICATION NOT CURRENT	1
Hillcar-Fletcher Quarry		Private	US 110			CIVU, CYSC, HYPE, RUAR	Inspected in 2016	Excellent condition- have checked this quarry for yrs- owner very co-operative. CERTIFICATION NOT CURRENT	10
Holcomb Pit		Private	Black Diamond Rd			CIAR, CYSC, DIPU, PHAR (enroute to pit) RUAR	2/2/17	Very clean CERTIFICATION CURRENT	5
Lakeside Place Rd Quarry			Place Rd, on right			CIVU, CYSC, DIPU, HYPE, LALA, **SEJA**,	Inspected in 2016	Chemical-might be able to isolate from considerable broom in back of pit-NO CERTIFICATION	2

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
Mystery Quillayute Pit		Private, possibly WSDOT	Quillayute Rd			CYSC, PHAR, **SEJA**	9/13/16	Floor of pit is pretty clean. Edges have scattered SEJA; CYSC is widespread around perimeter of pit. Isolated patches of PHAR NO CERTIFICATION	
Moriarity Rd Pit		Private; unknown	Moriarity Rd			CYSC, HYPE, PHAR, RUAR, RULA	Inspected in 2016	RUAR, RULA, CYSC are all widespread throughout pit. HYPE is scattered, with a few isolated patches of PHAR NO CERTIFICATION	
Penny Creek Pit		Private	Penny Creek			**BUDA,** CYSC, **GERO, IRPS** LALA, **POBO**,RUAR,PHAR **SEJA**, **TAVU,**	Inspected in 2016	Chemical Owner hired contractor to spray. Site was rechecked and looked much improved. CERTIFICATION NOT CURRENT	10
Rayonier Pit		Private	Bogachiel Way			CYSC, RUAR, RULA	9/13/16	Meets minimum requirements. CYSC is widespread around rim of pit and scattered on pit floor. RUAR/RULA scattered intermittently around edges. NO CERTIFICATION	
E Snider Quarry		Private	252 E Snider Rd.			CYSC	7/10/17	Sprayed by owner; excellent condition CERTIFICATION CURRENT	10
County Quarries									
Blynn Pit			Woods Rd			**BUDA,** CIAR, CIVU,COAR, CYSC, HYPE, LALA, PHAR **POBO, SEJA**	8/24/17	Not suitable-no treatment	NONE
Herrick Pit			Herrick Rd.			**CEJA,** CYSC, **GERO**,	7/10/17	Infested with priority 1 and 2 weeds. Not suitable-not treated this year	NONE
Hogback Pit			Off Cays Rd on Hogback			CIVU, CYSC	10/8/17	Meets requirements. Small pit with few weeds.	.5

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
Hoko-Ozette Pit			Hoko-Ozette Rd			**POBO, SEJA**	9/6/17	Relatively clean-use caution	.05
Lake Creek Pit (Bedrock Pit)			Hwy 101 (Co. Forks Shop)			CYSC, MEAL, **POBO** RUAR, **SEJA**,	7/25	More work needed. Piles have been cleaned and a corridor to piles is ready.	5
La Push Ballard Pit			Ballard Rd			CYSC, **POBO**, RUAR, **SEJA**	7/25	Could use pile, with caution	1.43
Kirner Pit			Kirner Rd			**CEST**, **POBO, COMA**, CYSC, HYPE, CIAR, ARLA, CASE, DIFU, **CIIN**, BRRA, CIVU, RUAR, LALA, VETH, **ARAB**, DIPU, **BUDA**	Treated on 6/6/, 6/22, 9/12, 9/19, 9/20 2017	Not suitable-possible some corridors could be cleaned for use if absolutely necessary. Needs more follow-up	4.7
McInnes Pit			Vistas Dr. north of Sequim			**CEDE**, **COMA**, CIIN, CYSC	6/26, 7/24 2017	Pit is significantly infested with COMA. Some has been buried. Often used as spoils pile..	2.7
Mt Pleasant Pit			Mt Pleasant Rd.			CASE, CIAR, CIVU, **COMA**, CYSC, DACA **HICA,** HYPE, **POBO**, RUAR, **SEJA**,	6/2, 6/6, 6/9, 7/19, 7/20, 10/4 2017	Infested with several priority 1 and 2 species. May be able to separate from main body. Standing piles are clean, clean corridor to south face for freshly extracted gravel: C rating at highest	7.1
No Name Pit			Little River Rd			CASE, **CEDE** ,CIAR, CIVU, CYSC, **GERO**, LALA, **SEJA**	8/16, 8/21 2017	Mainly spoils, not really suitable at this time-follow-up important	1
Place Rd Pit			Place Rd			CYSC, CIAR, **DIFU, POBO**,	9/19/17	DIFU and POBO are highest concern. Mainly used for spoils.	1.2
Quilayute Pit			Quilayute Rd.			CYSC, **SEJA, POBO (not treated)**	8/1, 8/7, 8/10, 8/22	Piles have been cleaned, and there is a clean corridor-rest still heavily infested with CYSC	1.9
Ranger Pit			Place Rd			**BUDA, CEDA**, CIAR, CYSC, **DIFU** LALA, PHAR, **POBO, RUAR, SEJA**	7/17, 7/18, 9/6, 9/11 2017	Infested with several priority 1 and 2 species. One face and corridor has been cleaned-caution used in rest of pit	3.84
Whitcomb-Dimmel Pit			Whitcomb-Dimmel Rd			CYSC, **POBO**, RUAR, **SEJA**	7/19/17	More needs to be done	2

Name	RSI	RSI Code	Road	Ref. #	Priority	Weeds	Date	Treatment Type/Suitability	Acres Treated
State Quarry									
Alpaca Quarry		DNR	Follow FS Rd 2850, at fork, take left instead of following to FS 2855			**BUDA,** CIAR, CYSC, **GERO, RUAR**	Inspected in 2016	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		DNR	Hwy 101 near MP 208			CYSC, DIPU	5/30/17	Meets Standard C-watch for broom overburden CERTIFICATION CURRENT	
Fitzgerald Pit		DNR	Norris Rd			CIAR, CYSC, **GERO,**	Inspected in 2016	Quarry looks fine, but the roads leading to it are infested CERTIFICTION NOT CURRENT	
Jimmy-Come-Lately Pit		DNR	On FS Rd 2850, at fork, take left			**BUDA,** CIAR, CYSC, **GERO,** RUAR	Inspected in 2016	Met requirements; weeds indicated are just outside of pit CERTIFICTION NOT CURRENT	
Littleton Pit		DNR				CYSC, LALA	5/30/17	Meets Standard B Quite clean. CERTIFICATION CURRENT	
Loop Pit		DNR	Hwy 101 between Forks and Beaver			CYSC, **GERO**, HYPE, LALA, PHAR, RUAR, **SEJA**	5/13/17	Meets C standard because of some GERO, otherwise fairly clean CERTIFICATION CURRENT	
Mary Clark		DNR	Mary Clark Rd			CYSC, **HIAR**, **LAGA,** PHAR, **POBO**	10/11/17	Treated by contractor, then high priority weeds not treated were treated by CCNWCB. **Use with caution**-pile perimeter is not clean-not ready for use NO CERTIFICATION	
Place Pit		DNR	Place Rd			CYSC	Inspected in 2016	Not suitable at this time: CYSC is too difficult to isolate. In process of treating. NO CERTIFICATION	
Unnamed Pit		DNR	Hwy 101 E of Wisen Cr Rd			CIAR, CIVU, CYSC, **POBO**, LALA, **SEJA**,	9/1/17	POBO Treated by CCNWCB NO CERTIFICATION	.5

APPENDIX C: POTENTIAL SURVEY AND TREATMENT SITES

Treating Canada thistle in Pat's Prairie

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 2017 Project Action table in Appendix A and can inform the project list for next year.

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

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

Specific Recommendations:

- Species with limited distribution: Continue focus to eradicate the limited species-orange hawkweed, yellow archangel, comfrey, sulfur cinquefoil, knotweeds, teasel, and common mullein. There are no large infestations of these species on any FS lands in Clallam and Jefferson. This recommendation is working! Keep pressure up for all meadow knapweed sites. Follow-up on control for new invaders like spotted jewelweed, laurel spurge and similar infrequent species should be a priority. Continue to press for Burnt Hill treatment-it is the source of the knapweed.
- Herb Robert: Large infestations of herb Robert may be beyond our resources, but past locations of heavy infestations may be isolated by treating on the perimeter (For example, checking 3000 and spurs after recent logging activities). We would need assistance with long stretches of the 3000 and spurs, 2610 and spurs, and 3040. 3050 and 3006 have not been treated for several years now-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: This species, which, judging by sporadic, heavy populations is not new, needs consultation about how to prioritize control before making specific recommendations. Walker Mt and Fallsview Campground contained the worst infestation, but once we were looking, we found more, especially in the Jimmy-come-lately watershed.
- Everlasting peavine: Continue to treat everlasting peavine treatments in advance of road closures. Follow-up on 2700 or 2800 treatments would be valuable. We will seed late fall early winter as we are able.
- Campgrounds/Admin/Trails: Some recommendations are included in the table below. Keep up treatments of campgrounds such as Dungeness Forks, trailheads, and special use facilities such as administrative sites and water diversions. The region above the washout on Dosewallips Rd must get follow-up in 2018.
- Botanical Areas/Wetlands: Cranberry Bog-Monitor effectiveness of imazapyr treatment, and treat herb Robert. Pat's Prairie, Juniper Meadow, and Sink Lake should be surveyed and treated next year. BCH indicated that Camp Handy needed treatment, but we were not able to get there this year. Check status of Caraco Units next year.
- Rock Sources: Keep pits as a priority unless crew said it didn't need to be a priority on FACTS sheets. Survey and treat pits not seen in the past two years. Identify old pit sites that are along the way of other scheduled treatments, encourage concurrent treatment. DNR's Mary Clark is a high priority because of high use and LAGA presence. POBO resurgence there was a bit of a surprise. We will look for 2014 documentation of rock source with POBO at 2900200 (dubbed Mystery Pit). We need access to Luela Lulu Pit, which is past a looked gate (not DNR).
- Untreated high priority: Treat all 1 or 1A projects that were missed in the current season are in the recommended road table..
- Identify high-priority cross-boundary projects with other public land agencies.
- Specific Roads: A number of roads were not treated this year due to limited funding and crew resources. The following table includes priority sites that were not treated in 2017 as well as recommendations for other locations Tunnel Creek, a priority in last year's report, was successfully treated this year. Follow-up should be a priority, as well as associated road system, which have not been treated for many years. 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 has been excellent-Continue to identify areas that have not been surveyed or treated for four years-in case there is an opportunity.
- It would be helpful to know which sites the FS based crew treated this year in Jefferson and Clallam Counties, as well as what they found; we did not have that information this year.

Specific Site Recommendations for 2018

Ref #	Priority	6th Field Watershed Name	Road #	Site Name	Species	Comments
453		Lower Duckabush River	2510065			do with Collins and other Duckabush treatmt
310	1	Lower Duckabush River	2510070	**Collins CG**	GERO	Not treated in 2017
768	2	Lower Dosewallips River	2610000	**Lower Dosewallips River**	GERO	High priority in previous years,
758	2	Lower Dosewallips River	2610010		GERO	as above
300	2	Lower Dosewallips River	2610040		GERO	as above
303	1	Lower Dosewallips River	2610050	**Elkhorn CG**	GERO	Not treated in 2017.
653	1	Lower Big Quilcene River	2650000	**RockyBrook**	GERO	blocked early in 2017, not full treatment
462	1	Lower Big Quilcene River	2700040	**Caretaker's Rd**		keep clean, not treated in 2017
590	2	Lower Big Quilcene River	2700040	**PT Muni WS caretakers cabin**		needs follow up
767	2	Lower Big Quilcene River	2700080	**Lower Big QuilceneTrail**	GERO	near Tunnel Cr, herb Robert
201	1	Little Quilcene River	2700280		**HISU**	hawkweed could be close to eliminated
202	1	Little Quilcene River	2700281		**HISU**	hawkweed could be close to eliminated
291	1	Lower Big Quilcene River	2740000	**Tunnel Cr**		Not treated in 2017
454	2	Upper Big Quilcene River	2740000			should be completed with above
195	2	Little Quilcene River	2800010	**Muni Rd**		High priority in previous years
616	2	Canyon Creek /Pats Creek	2800310	**Schmits Knob**		Not surveyed or treated for many years
59	2	Jimmy-come-lately Creek	2800360	**Luella LuLu quarry**		Need access, hasn't been looked at for years
162	1	Upper Dungeness River	2870000	**Camp Handy, Heather Cr.**		Not treated in 2017.
7	2	Canyon Creek /Pats Creek	2870050	**Caraco Cat Unit 5**		Not treated in several years
6	2	Canyon Creek /Pats Creek	2870054	**Caraco Cat Unit 6**		Not treated in several years
9	2	Canyon Creek /Pats Creek	2870056	**Caraco Cat Unit 3**		Not treated in several years
8	2	Canyon Creek /Pats Creek	2870057	**Caraco Cat Unit 2**		Not treated in several years
10	1	Canyon Creek /Pats Creek	2870059	**Cranberry Bog**		Not treated in 2017.
99	1	McDonald Creek/Siebert Creek	2877000	**Pat's Prairie**	CIAR,	Although treated in 2017, first meadow should be treated again in 2018 at least
94	1	Lower Gray Wolf River	2880050	**Dungeness Forks CG**		Not treated in 2017
637	1A	Middle Sol Duc River	2923070			Not treated in 2017
168	2	Upper Sol Duc River	2931000	**Tom Creek Pit**		Important rock source, check in 2018
157	2	South Fork Calawah	2932000	**Elk Quarry**		Have never been to this rock source
118	2	Middle Sol Duc River	3040800	**Snider Work Center**		High priority in previous years
173	2	Upper Sol Duc River	3071000	**Littleton Horse Camp gravel pit**		Small amount GERO discovered in 2016

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

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

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
SR101	3	2	4	0.1	**GERO** HICA **SEJA**	19	28.7	CYSC **POBO** POSA	0											
CR5695	5	4.98	8,499		CIAR CYSC **SEJA**	4	2	**SEJA**	1.7											
CR5331	3	8.24				6	1.03	**CEDE GERO SEJA**	7.5											
CR4361	1								2.6											
CR4360	1								2.6											
CR3057	1	1.9	3	0.1	**SEJA**				1.9											
CR3039	2	1.1	4,959	0.1	**GERO**	4	0.5	**SEJA**	1.4											
CR2515	1	0.4							0											
CR2500	4	25.1	35,074		CYSC, **GERO**				7.6											
CR2274	1								3.8											
CR2071	4	2	15	0.2	**SEJA**	1	3	CIAR CYSC **GERO** LALA **POBO**	1.5											
CR2036	1								5	6	**GERO POBO**									
CR5006	1								1.22											
3116000	4	10				3.5	3.1	CIAR **GERO** RUDI		0.1	CIVU CYSC HYPE **SEJA** TAVU									
3100420	1	0.6																		
3100400	1	2.9																		
3100300	3	5				2	3.5	**GERO**												

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
3071015	1	0.6																		
3071000	6	3.4	60		CYSC	1						0.5	1.7	CIVU CYSC **GERO** HYPE LALA **SEJA**	0.5	1	CYSC **GERO** LALA RUAR			
3068200	3	7.2	815		CYSC															
3068190	2	0.4																		
3068000	8	32.3	521		**CEDE** CYSC **SEJA**	2.8	5.1	CYSC	3.58			7.8	0.5	CIVU CYSC HYPE **SEJA**	5.6	3.2	**CEDE** CIVU			
3067000	3	7.06	1,402		CYSC **SEJA**							3.6	4.5	CYSC **GERO**						
3050150	1					1.1	1.7	**GERO**		3.3	CYSC									
3050011	4	1.5				2.5	5.08	CIVU **GERO** HYPE	2.9											
3050000	5	3.8	2		**SEJA**	18	18	CIAR CIVU **GERO HIAU** HYPE LEVU LALA	20.2											
3040900	1	0.5								11.7	CYSC **GERO**HIAU LEVU									
3040800	8	0.5	54,709	1.85	**ARMI GERO** ILAQ **POCU**	2.5	17	CIAR CIVU CYSC **GERO** LALA **POBO**	1	82.3	CIVU CIAR **GERO**HIAU HYPE ILAQ	21	8.3	CIVU CIAR CYSC **GERO** LALA						

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
								RUDI **SEJA**			LALA PRLA **SEJA**			PHAR **POBO** RUAR						
3040595	3	4	373		CIVU **SEJA**	4	1	**GERO** SEJA												
3040200	1	1								4.13	CIVU **GERO** ILAQ **POBO** RUDI									
3040115	3	1	95	0.1	**GERO**				0.7											
3040100	3	4	8	0.3	CYSC **SEJA**	2			2.3											
3040025	3	0.4	1		RUDI															
3040012	1	0.31	2	0.1	CYSC					1.09	CIVU DIPU HYPE **SEJA**									
3040011	2	2																		
3040000	13	71	35,136	1.3	CYSC **GERO SEJA**	67	23.4	**CEDE** CIAR CIVU CYSC **GERO** LALA **SEJA**	49			38.7	20.1	CIAR CIVU CYSC **GERO SEJA**	12.5	39.1	CIAR, CIVU, CYSC, **GERO,** LALA, **SEJA**			
3006300	1	4.1																		
3006011	1	1.2								38.4	**CEDE** CIAR CIVU **GERO** HYPE ILAQ LALA PHAR RUDI **SEJA**									
3006000	3	8				2	1	CYSC	6.5											
3000800	1											2.8	0.1	**GERO**						
3000591	1								0.3	2.46	CIVU									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
											GEROHYPE, RUDI RULA **SEJA**									
3000401	1	1																		
3000400	1	2.2								0.3	CIVU DIPU **GERO**									
3000395	1	0.2																		
3000370	2								0.8			0.4	0.7	CIVU DIPU LEVU **SEJA**						
3000330	1								2.2											
3000300	5	3.5							3.5	0.07	CIVU CYSC **GERO SEJA**	5.25	9.4	CIVU CYSC **GERO** HYPE **SEJA**						
3000260	1	0.7								0.7	CIVU CYSC **SEJA**									
3000250	4	10	10	1.2	CYSC	8	2.66		3.8	0.7	CIVU CYSC **GERO SEJA**	6.9	5	CIVU CYSC G**ERO** HYPE LALA						
3000220	1	2.8																		
3000215	5	3.6				1	2	**GERO**	0.6	0.1	**GERO**	0.6	0.3	**GERO** CYSC						
3000200	9	70	6	0.2	**SEJA**	30	26.6	CIVU CYSC **GERO SEJA**	18.8			16.96	73.64	CIVU CYSC DIPU **GERO** LALA						
3000011	1	1								0.4	CYSC **GERO**									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	No. Years Visited	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3000000	9	92	883,098	1	CYSC CIVU **GERO** RULA **SEJA**	39	32	**CEDE** CIAR CIVU CYSC **GERO** LALA **SEJA**	30.8	30.3	CIVU CYSC **GERO**LALA **SEJA**	32	63.73	CIAR CIVU CYSC **GERO** HYPE LALA **SEJA**						
2978085	2	1.1																		
2978040	2	0.3								37.3	CIAR CIVU CYSC **GERO**HYPE LALA RUDI RULA									
2978035	2	0.1																		
2978030	2	0.6																		
2978030	2	0.7																		
2978025	2	0.3																		
2978015	2	1.6	18		CYSC															
2978011	2	0.4																		
2978000	3	4.7	3,604		CYSC **SEJA**							4.6	2.2	CYSC						
2952000	1								2.2											
2932070	1	0.9	12		CYSC															
2932050	1	0.3								0.1	CIVU CYSC									
2932040	1	0.4																		
2932035	1	0.2																		
2932031	1	0.5																		
2932030	3	1.4				1	0.1	CYSC												
2932000	6	15	2,153	0.3	LEVU CYSC	11		CYSC **GERO SEJA**	5											
2931200	1	2.5																		
2931190	1	1.7								5.2	CIVU GERO HYPE **LAGA** RUDI RULA **SEJA**									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2931000	5	12	1		**SEJA**				12.3			2.4	5.04	**CEDE** CIVU CYSC HYPE PHAR						
2929070	6	3	525		CYSC **GERO** RULA	6	2	**GERO**	6.3			3.3	0.25	**GERO** RULA						
2929000	8	10				13	1	CIVU CYSC **GERO HIAU**	15.4	18	**CEDE** CIVU CYSC LALA	17	11.15	CIVU CIAR CYSC **GERO** HYPE LALA PHAR RUAR						
2923100	2	0.2								6.12	**GERO**DIPU HYPE RUDI RULA				0.2	0.25	CYSC			
2923095	2								0.2	13.4	CIAR CIVU CYSC DIPU **GERO** HYRA LALA LEVU PHAR				1.2	0				
2923090	1								1.2											
2923077	2					16	2.15	CYSC **SEJA**	2.6	0.2	CYSC HYPE TAVU **SEJA**									
2923074	1								0.8	1	CYSC HYPE TAVU SEJA									
2923073	1								0.8	0.1	CYSC HYPE **SEJA**									
2923072	1								0.8	0.01	CIVU									
2923070	8	5	2		SEJA	9	8.6	CIAR CIVU CYSC **GERO** HYPE RUDI SEJA	6			5.2	2.3	CIVU CYSC HYPE LALA PHAR	5.2	5.53	CIVU CYSC **SEJA**	0.4	6.1	CYSC DIPU HYPE LALA LEVU RULA
2923060	3	1				3	0.15	CIAR CYSC **GERO**	4.6	0.02	CIAR CYSC HYPE									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2923020	1								1.2	1.06	CIVU CYSC PHAR									
2923015	1								2.4	1.2	CIAR CIVU CYSC **GERO** HYPE RULA **SEJA**									
2923000	6	41	1,434	0.5	CIAR CYSC **HIAR SEJA**	27	4	CYSC **GERO**	18	0.73	CYSC **SEJA**				4.7	3.2	CYSC **GERO** HYPE LALA PHAR **SEJA**			
2922250	2								2.6	3	CIVU CYSC **GEROSEJA**	1.3	2.8	**CEDE** CIVU CYSC LALA **SEJA**						
2922240	1									15.2	CIAR CIVU CYSC **GERO**HYPE RULA **SEJA**	1.1	0.504	CIVU LEVU **SEJA**						
2922200	1								2.86	4	CIVU CYSC LALA									
2922020	2								1.72			0.86	0	NONE						
2922000	3	13				20	4.2	**GERO**		0.3	CYSC HYPE									
2920210	1	0.2								0.01	**GERO**									
2920020	2	1.4										1.4	1	**GERO**						
2920000	4	6							8			6	3.5	CIVU **GERO SEJA**						
2918110	3	1				1	1	CYSC DIGIT LEVU LALA	1											
2918100	3	3				3	1	CYSC DIGI LEVU LALA	17	0.5	CIAR CIVU CYSC **GERO**									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2918000	6	20	2,315		CYSC **SEJA**	9	1.5	CYSC DIGIT LEVU LALA	5.4			22.6	5.25	**CIAR CIVU CYSC** GERO **HYPE PHAR**						
2912060	3	2.8	3		**SEJA**				7	20	CIAR CIVU CYSC **GERO**HYPE **SEJA**									
2903000	3	7	78		CYSC **SEJA**							0.4	0.5	CYSC **GERO**				6.8	14.95	CIAR CIVU CYSC **GERO** HYPE **SEJA**
2902375	1	0.8								1	CIAR CYSC **GERO**HYPE									
2902300	1	0.6																		
2902000	6	2.91	4,175	0.2	CYSC **SEJA**							9.2	1	CIAR CIVU CYSC **SEJA**				3.4	6.6	CIAR CIVU CYSC DIPU **GERO** HYPE LEVU RULA RUAR **SEJA**
2900992	1					0.5	0.1	**GERO**												
2900990	7	2.4	5,300		CYSC **GERO**	2	0.4	**GERO**	0.3				1.7	CIVU CYSC **GERO** ILAQ					6	CIAR CYSC DIPU HYPE LEVU HYPE RULA
2900960	2	0.1										0.2	1	GERO LALA SYOF						
2900810	1								2.6	3.1	CYSC **GERO**ILAQ									
2900800	1														2	7.7	CIVU CYSC HYPE LALA RUAR RULA **SEJA**			
2900700	1											2.8	1.8	CIVU CYSC						
2900650	1	1.2								0.1	CIAR CYSC RULA									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2900540	1	2																		
2900200	2	0.7	54		CYSC **SEJA**															
2900070	1	2.3																		
2900030	1								3											
2900015	4	0.1				0.7	4.5	CYSC **GERO** RUDI SEJA	0.1			0	0.8	CYSC **GERO** HYPE LALA PHAR **SEJA**						
2900000	12	72.2	664225	2.3	CIAR CYSC **GERO HIAU** POSA **SEJA**	25	8.1	CIVU CYSC **GERO HIAU** HYPE LALA RUDI SEJA	27			38.3	11.5	CIVU CYSC **GERO HIAU** HYPE PHAR **SEJA TAVU**	0.8	0.67	**GERO** HYPE **SEJA**			
2880050	12	0.5	255,004	0.5	**GERO**	1.5	23	**GERO**	1.2	4.12	CIAR **POSA** RUDI RULA	0	41.9	CIVU **GERO** LALA PHAR						
2880000	9	17	9,923	0.3	**GERO SEJA**	8	5.1	**CEDE** CIAR CYSC **GERO SEJA**	5.51	20.2	CIAR CIVU CYSC DIPU **GERO**HIAU HYPE HYRA LALA LEVU PHAR RULA **SEJA**	2.85	8.5	CIVU **GERO** HYPE CIAR						
2878120	9	1	2,170		CYSC	2	2	LALA	1.4	4.5	CIAR CIVU **GERO**HYPE LALA	2.6	3.5	CIVU CYSC **GERO** LALA	1	1.25	CIVU CYSC **GERO** LALA			
2878110	4	1				1	1	LALA	1	2	CIAR CIVU CYSC LALA	0.9	2.9	CIVU LALA						

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2878109	4	0.27								0.25	CIVU CYSC LALA	0.25	1	LALA	0.25	0.5	CIVU LALA	0.3	1	CIAR CYSC LALA
2878108	4	0.13								0.25	**CEDE** CIVU CYSC LALA	0.1	0.201	CIVU CIAR CYSC LALA	0.1	1	LALA	0.1	0.4	LALA
2878104	1											0.2	0.02	**GERO**						
2878102	4	0.4										0.4	1.45	CIVU LALA	0.4	0.66	CIVU LALA	0.4	1.5	CIVU, LALA
2878101	3											0.1	0.36	CIVU LALA	0.1	0.33	CIVU LALA	0.1	0.25	LALA
2878100	1																	1.65	7.3	CIAR CIVU **CEDE** LALA **SEJA**
2878085	3	1				1	1	CIAR CIVU **GERO**	1											
2878080	4	1.5				1	0.5	CIAR LALA	1	0.2	CIAR CIVU **GERO**LALA **SEJA**					0.75	CIVU CYSC LALA			
2878060	4	0.5	127		CYSC	1	0.5	CIAR LALA	1	0.01	CIAR CIVU **SEJA**				0.6					
2878050	8	0.6								0.25	CIAR CYSC **SEJA**	1.2	2.48	**CEDE** CIAR CIVU **GERO** HYPE LALA **SEJA**	0.1	0.5	CIVU LALA			
2878000	13	4	2,971	0.2	CYSC	20	13	**CEDE** CIAR CYSC **GERO** LALA **SEJA**	16	0.25	CIAR CYSC **SEJA**	9.8	26.9	AEPO CIAR CIVU GERO HYPE LALA		0.25	CIAR CIVU LALA	1.4	3.4	CIAR CIVU **CEDE** LALA, **SEJA**
2877100	2	0.5																		
2877090	1																	1.4	0.001	

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ROAD	No. Years Visited	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2877052	2	0.29							1	12.6	CIAR CIVU **GERO** LALA **SEJA**							0.3	0.38	CIVU CIAR CYSC DIPU **GERO** LEVU RULA **SEJA**
2877050	2	2.65																0.9	0.001	CIVU, DIPU
2877040	5	2.5				1	0.2	**CEDE** CIAR CIVU **SEJA**	2.1			2.2	2.2	CIAR CIVU CYSC **GERO** RUAR						
2877000	8	5				20	13.4	**CEDE** CIAR CIVU CYSC LALA **SEJA**	24.3			4.2	22.5	CIAR CIVU G**ERO** HYPE RUAR **SEJA**				3.1	20	CIAR CIVU DIPU **GERO** HYPE, LEVU **SEJA**
2875090	1	0.1								1.8	CIAR CIVU CYSC **GERO SEJA**									
2875070	6	2.5				1	0.5	CIAR CYSC	3.6	15.8	CIAR CIVU CYSC HYPE LALA **SEJA**	1.8	0.51	CIAR CYSC **SEJA**				1.8	9.7	**CEDE** CIAR CIVU CYSC **GERO** HYPE LEVU
2875020	8	0.5	6		CYSC	1	0.5	CIAR CYSC **POBO**	1.6			1.8	0.02	CIAR CIVU **POBO**	4			0.7	1.5	**CEDE** CIAR CIVU **GERO** LALA **POBO**
2875000	13	12	268	0.4	**CEDE**	23	10.8	CEBI **CEDE** CIAR CIVU LALA	17.7	0.91	**CEDE** CIAR **GERO SEJA**	6.5	16.26	**CEDE** **CEJA** CIAR CIVU CYSC **GERO** LALA **SEJA**		4.6	**CEDE** CIAR CIVU CYSC DIPU **GERO** ILAQ	3.6	9.5	**CEDE** CIAR CIVU DIPU HYPE LALA **SEJA**

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
																	LALA			
2870270	2	3.5		0.28	CIAR CIVU	3.5	3.2	**CEDE** CIVU HYPE **SEJA**		1.6	**CEDE** CIAR CIVU CYSC PHAR **SEJA**									
2870250	1					1	1.5	CEBI **CEDE**		13	**CEDE** CIAR CIVU CYSC **GERO** HYPE LALA **SEJA**									
2870230	5	4	38	0.3	CIAR CIVU HYPE **SEJA**	4	0.4	CIAR CIVU **GERO**				1.4	2.5	CIAR **GERO** HYPE	0.1					
2870150	5	0.5				1	3	LALA	0.7			0.5	0.2	CIVU LALA SEJA		0.5	CIAR CIVU LALA **SEJA**			
2870130	2	1	1	0.1	CYSC				1											
2870110	3	0.5	729		CYSC				0.5	5.1	CIAR CIVU LALA				0.4					
2870059	11	3	19,529		**CEDE** CIAR CIVU CYSC **GERO SEJA**	1			1.2	0.1	**CEDE SEJA**	0.8	15.3	CIAR CIVU CYSC **GERO** HYPE PHAR	1	1.3	CIAR CIVU CYSC **GERO**			
2870058	8	3		2.55	CIAR **GERO** PHAR	8	6.5	CIAR CIVU **GERO** PHAR	5.55	0.1	CYSC					0.8	CIAR CIVU **GERO**			

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2870057	5					5	4	CIAR CIVU **GERO** HYPE PHAR	1.2	15.2	CIAR CIVU CYSC DACA **GERO** HYPE LEVU PHAR **SEJA**	0	1	CIAR CIVU CYSC						
2870056	10	2	14	0.1	**CEDE SEJA**	3	8.9	**CEDE** CIAR CIVU CYSC **SEJA**	2.8	5.2	CIAR CIVU CYSC DACA **GERO** HYPE LEVU **SEJA**	1.2	3.7	CIAR CIVU CYSC **GERO** HYPE						
2870054	5					1.5	4	**CEDE** CIAR CIVU	2.5	3.1	CIAR CIVU CYSC **GERO** PHAR **SEJA**	0	0.7	CIAR CIVU						
2870053	8					2	1.7	**CEDE** CIAR CIVU	4.7	4.75	**CEDE** CIAR CIVU CYSC DACA **GERO** HYPE LEVU **SEJA** TAVU	3	3.45	**CEDE** CIAR CIVU HYPE						
2870052	2								1.6	10.3	**CEDE** CIAR CIVU CYSC HYPE LEVU PHAR **SEJA**				2.6					
2870050	15	16	110	0.8	**CEDE** CIAR CIVU CYSC **GERO** HYPE LALA **SEJA**	13	10.5	CIAR CIVU **GERO LEVU** PHAR RUDI **SEJA**	11.2	15.3	**CEDE** CIAR CIVU **GERO** HYPE LALA **SEJA**	7.9	13.8	**CEDE** CIAR CIVU **GERO** HYPE LALA PHAR **SEJA**		1.9	CIAR CIVU **GERO** LALA	2.8	2.5	**CEDE** CIAR CIVU **GERO** HYPE LALA

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2870030	9	5	78		**CEDE** CYSC **SEJA**	4	3.5	**CEDE** CIAR CYSC **SEJA**	5.6	0.3	CIAR CIVU HYPE				0.1			1.8	2.6	**CEDE**, CIAR, CIVU, HYPE, SEJA
2870000	14	143	3,853	3.13	**CEDE** CYSC **SEJA**	256	21.7	**CEDE** CIAR CIVU CYSC **GERO** HYPE LALA LEVU **SEJA**	52.3	14.9	**CEDE** CIAR CIVU CYSC DACA **GERO** HYPE LALA LEVU PHAR **SEJA**	25.35	36.6	**CEDE** CIAR CIVU **DACA GERO** HYPE LALA SEJA		0.1	**GERO**	1.1	5.25	**CEDE** CIAR, CIVU, CYSC, DACA **GERO** HYPE, LALA, **SEJA**
2860120	2	1.6								10.4	**CEDE** CIAR CIVU HYPE **SEJA**									
2860011	2	1	2,708		**GERO SEJA**					25.6	**CEDE** CIAR CIVU CYSC DACA **GERO** HYPE LALA PHAR RUDI **SEJA**									
2860000	5	50	54,000		CIVU **GERO**							3	0.1	**GERO** RUAR	0.5					
2855100	5	2.4							1.1			1.1	4.4	CIAR CIVU CYSC **GERO** HYPE **SEJA**	1.5	0.1	CIVU **GERO SEJA**	1.1	4.6	CIAR CIVU, GERO, SEJA
2855070	11	5	5497	0.52	**CEDE** CIAR CYSC **GERO** RULA **SEJA**	3	5	CEBI **CEDE** CYSC **SEJA**	4.4			1.5	2.3	**CEBI** CIVA,CIVU CYSC **GERO** HYPE LALA **SEJA**	0.9	2.9	CIAR CYSC **GERO** LALA RUAR **SEJA**	0	1.5	CIAR, CIVU, **CEDE** CYSC, **GERO** LALA, **SEJA**
2855032	4	1.6	1		RULA					2	**CEDE GERO** HYPE **SEJA**	0.9	1.3	CIAR CIVU HYPE **SEJA**		1.6	CIVU **SEJA**			

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2855030	3	5.4	19,200		**SEJA**				1.25	7.17	**CEBI** CIAR CIVU CYSC **GERO** HYPE LALA **SEJA**	0.4	0	NONE	4.6					
2855000	13	10	51,947	0.4	CEBI **CEDE** CIVU CYSC GERO **SEJA**	11	2.2	**SEJA**	1.3			5.2	6.6	CIAR CIVU GERO HYPE SEJA	1.3	5.4	CIAR CIVU **GERO PORE SEJA**	0.7		CIAR, CIVU, **CEDE**, CLVU, **GERO**, HYPE, **PORE**, S**EJA**
2852150	3	1.29	25		CYSC					3.2	CIAR CIVU CYSC **GERO** HYPE **SEJA**					0	CIVU CYSC **GERO** RUAR **SEJA**			
2852090	2	10	3,362		CIAR CYSC **GERO** SEJA					3										
2852000	6	5	47,605	0.3	**CEDE** CIAR **GERO** RULA SEJA	2	1	**CEDE**	5.5											
2851090	2	1																		
2851080	2	4	1,660		CYSC **SEJA** TAVU					3.94	**CEDE** CIAR CIVU CYSC **GERO** HYPE **SEJA**									
2851000	3	8	10,090	0.6	**SEJA**															
2850124	1	0.2																		
2850120	3	3		0.2	CYSC				2.8											
2850093	1	0.1													1.1					
2850090	3	1								3.2	CIVU CYSC **GERO** HYPE **SEJA**					0.7	CIAR CIVU **GERO**	1.1	2.1	**GERO**
2850010	4	3	5,352	0.9	RULA **SEJA**							1.5	3.26	CIVU **GERO SEJA**						

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2850000	11	22	67,334	0.6	CYSC **GERO** RULA **SEJA**				14.6			7.5	6.2	CIAR CIVU CYSC GERO ILAQ HYPE SEJA	3	1.7	CIVU CYSC **GERO SEJA**	1.9	2	CIAR, CYSC, **GERO**, HYPE, **SEJA**
2845200	2	0.28													0.3	0	CIAR **SEJA**			
2845150	2	0.2								9.3	CIVU **SEJA**				0.2	0	CYSC LALA **SEJA**			
2845120	3	2	84		CYSC **SEJA**	2	1.9	CIVU CYSC **SEJA**							1.7	0	CIAR CIVU **GERO** HYPE **SEJA**			
2845090	3	1	12		CYSC **SEJA**										0.5	0	CIVU **GERO SEJA**			
2845073	7	1				1.5	2	CYSC	2.8			0.9		CIAR CIVU CYSC LALA SEJA	0.9	1.9	CIVU CYSC **GERO SEJA**	0.9	3.8	CIAR, CIVU, CYSC DIPU **GERO**, HYPE, LALA, **SEJA**
2845070	6	6	1,860		CYSC	6	4	**CEDE** CIAR CIVU CYSC **SEJA**	4.6			1.5			1.5	2.2	**CEDE** CIAR CIVU CYSC **GERO SEJA**			
2845040	2	0.3	160		**SEJA**					4.19	**CEDE** CIAR CIVU CYSC DACA DIPU HYPE **SEJA**				0.3	0	**GERO**			
2845000	7	5	12,378	0.7	**SEJA**	10			5.4	0.9	CIAR CIVU HYPE **SEJA**	5.4			5.4	1.2	CIAR CIVU **GERO SEJA**	1.3	2.5	**CIAR, CIVU, GERO**, HYPE, **SEJA**
2840150	2	1	1		**SEJA**													0.6	1.1	**CEDE**, CIVU, DIPU, **GERO,** HYPE, **SEJA**
2840130	3	1										1.1	0.1	CYSC	1.1	0				

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2840120	4	1.27							1.8			1.6	0.1	CIVU GERO SEJA						
2840084	1	0.25																		
2840080	4	0.89	1		RULA				0.3	1.05	CIVU **GERO** HYPE **SEJA**	1.4	2	CIVU SEJA				1.6	2.9	CIAR, CIVU, CYSC **GERO**, HYPE, LALA **SEJA**
2840071	3	2	36		**BOOF SEJA**				3.2											
2840070	4	4	5,753		CYSC **SEJA**					1	CIAR CIVU LALA **SEJA**	1.5	5	CIAR CIVU GERO SEJ	0.6	1.2	CIVU **SEJA**			
2840037	1														1	2.2	**CEDE** CIAR CIVU RUAR **SEJA**			
2840036	1								3.5	7.5	CIAR CIVU CYSC **GERO** HYPE LALA PHAR **SYOF**									
2840035	1								1											
2840034	5	2							2	1	**CEDE** CIAR **SEJA**	1.4	1	CIAR CIVU GERO	1.4	3.4	CIAR CIVU **GERO**	1.4	6.2	CIAR, CIVU, **GERO**, HYPE, **SEJA**
2840030	2	3							3	0.6	CIAR, CIVU, HYPE									
2840000	8	11	10,010		CIAR CYSC **SEJA**	10			1.8	2.5	**CEDE** CIAR CIVU **GERO** SEJA	4.9	0.25	CIVU CYSC GERO SEJA				0.1	0.15	CYSC, LALA, **SEJA**
2830034	1	0.33								7.5	**CEDE** CIAR CIVU HYPE **SEJA**									
2830032	1	1								5.5	CIAR CYSC **GERO** HYPE LEVU **SEJA** **SYOF**									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2830030	1	2																		
2830000	4	10	1,250		CEBI	11	0.2	**SEJA**												
2820000	6	4	2,274	0.2	**SEJA**	8	2	**CEDE** CIAR **SEJA**	6.25			2.5	6	CEDE CIAR CIVU GERO HYPE LALA SEJA						
2810070	1	0.61																		
2810000	2	8	10,190		CYSC **SEJA**					17	**CEDE** CIAR CIVU **GERO** HYPE LALA **SEJA**									
2800353	1																	0.6	0.6	**CEDE**, CIVU, HYPE
2800351	10					4.5	3	**CEDE** CYSC	2.4			1	5.5	**CEDE** CIAR CIVU HYPE	0.8	2.4	CEDE CIVU	0.8	2	**CEDE**, CIAR, CIVU, HYPE SEJA
2800350	5					3	4	**CEDE** CIAR CIVU	0.3			1	2	**CEDE** CIAR **GERO** LALA **SEJA**					0.18	**CEDE**, HYPE
2800310	4	1	4,655	0.2	CYSC					3.22	**CEDE** CIAR CIVU **GERO** HYPE **SEJA**									
2800290	2	1	2		CYSC **SEJA**					1.51	**CEDE** CIAR CIVU HYPE **SEJA**									
2800270	1	1	310		CYSC **SEJA**															
2800262	1	0.6																		
2800260	1	1.2																		

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2800250	5	5	92	0.1	**SEJA**							2.2	1	**CIAR** CIVU **GERO SEJA**						
2800240	1	0.8																		
2800220	1	1.2																		
2800210	1	0.4																		
2800145	1	0.3																		
2800132	4	1	463	0.1	CEBI **CEDE**	1						0.6	0.6	CIAR CIVU **SEJA**				0.6	0.5	**CEDE**, CIAR, CIVU, **SEJA**
2800130	4					2	1.3	CEBI **SEJA**				1.5	7.07	**CEDE** CEST CIAR CYSC **GERO** HYPE LALA **SEJA**				0.6	6.2	**CEDE**, CIAR, CIVU, CYSC HYPE, LALA, **SEJA**
2800120	1																	1.6	3.75	CIAR, CIVU, HYPE, LALA, **SEJA**
2800060	1	1																		

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2800010	10	1	10	0.1		3	6	CIAR CIVU **GERO** ILAQ LALA	2.5			2	11.05	CIVU CIAR **GERO** HYPE **SEJA**	0.5	4.8	CIAR CIVU **GERO** ILAQ RUAR RULA **SEJA**			
2800000	14	89	70,321	1	**CEDE** CIAR CIVU CYSC **GERO SEJA**	87	88.8	CEBI **CEDE** CIAR CIVU CYSC DIPU **GERO** ILAQ LALA **SEJA**	31.6			30.5	6.2	SURVEYED ONLY CIAR, CIVU, CYSC, LALA, **SEJA**				3	2	**CEDE**
2760000	2									24.8	CIAR CIVU **GERO** HYPE **SEJA**	0	2	PHAR					3	CIAR, PHAR
2750020	1	1.5								4	CIAR CIVU CYSC DIPU HYPE LALA PHAR **SEJA**									
2750000	3	5				5	8	CIAR CIVU CYSC LALA **SEJA**	5											
2740110	1					1.5	1	**CEDE** CIAR CIVU CYSC **SEJA**												
2740075	2	0.5				0.5	1	**CEDE** CIAR CIVU CYSC **SEJA**		18	CIAR CIVU HYPE LALA **SEJA**									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2740072	4	1	200	0.1	CEBI	1	1	**CEDE** CIAR CIVU CYSC **SEJA**												
2740070	3	4				3	1	**CEDE** CIAR CIVU CYSC **SEJA**												
2740060	4	9	33	0.2	CYSC	9	1	**CEDE** CIAR CIVU CYSC **SEJA**												
2740000	8	21				25	3.6	CEBI **CEDE** CIAR CIVU CYSC **SEJA**	2.4			2.7	15.6	CIAR GERO HYPE LALA SEJA	4.8	17.97	**CEDE** CIAR CIVU CYSC DACA**GERO** HYPE ILAQ LALA RULA **SEJA**			
2730300	10	1	934		CYSC	2	8.3	CIAR CYSC **GERO** LALA **PORE** RUDI **SEJA**	1.2			0	27.5	CIAR CIVU CYSC **GERO** **PORE** RUAR **SEJA**	2.6	5.55	CIAR CIVU **GERO** LALA RULA **SEJA**			
2730200	13	5	19,621		CIVU **GERO** **SEJA**	2	4	**GERO**	1.6	8	**CEDE** CIAR CIVU DIPU **GERO** HYPE LALA **SEJA**	0	5.5	CIVU CIAR **GERO** HYPE ILAQ **SEJA**	0.1	0.01	**SEJA**		10	**GERO**, HYPE, **HEHE,** CIVU, LEVU
2730100	4	0.4	35		**SEJA**				0.1	8.73	CYSC **GERO** HEHE HYPE LALA **PORE** RULA **SEJA**									
2730020	3	1								11.2	CIVU **GERO** HYPE									
2730011	3	1	51		**GERO**				1.9	0.1	CIVU **SEJA**									

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2730000	5	15	146,400		CYSC **SEJA** TAVU													3.6	5.2	**GERO SEJA**,
2700330	2	1							1	4	**GERO** HYPE ILAQ **SEJA**									
2700281	2														0.4	0.5	CIAR **HISA** LALA	0.5	1.5	CIAR, CIVU, CYSC, **HISU**, **SEJA**
2700280	3														0.6	1	**CEDE** CIAR CIVU **HISA** HYPE LALA **SEJA**	0.6	2.9	CIAR, DIPU, **HISU**, HYPE

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2700140	1	1.2																		
2700100	1	4.6								0.3	**SEJA**									
2700090	1	1.99																		
2700080	5					1	2	CIAR CIVU CYSC **GERO** LALA **SEJA**	1.6			0.9	4.2	CIAR **GERO** HYPE LALA **SEJA**						
2700040	7					4	11.2	BORA, CIVU CYSC **GERO** HEHE **HIAU** ILAQ LALA **LAGA** PHAR PRLA **SEJA**	15.1			12.5	50.3	**AEPO ARMI** CASE CIAR CIVU **GERO HEHE HIAU** HYPE ILAQ **LAGA** LALA PHAR PRLA **SEJA SYOF VIMI**	0.4	2.2	CIAR CIVU **GERO SEJA**			
2700000	13	37	4,201		**SEJA** TAVU	21	15.1	**CEDE** CIAR CIVU CYSC **GERO** LALA **SEJA**	26.9	0.73	**GERO** HYPE LALA SEJA	17.9	18.2	CIAR CIVU CYSC **GERO** HYPE LALA PHAR **POBO** SEJA **VIMI**	1.6	1.45	CIAR CIVU CYSC**GERO** HYPE LALA RUAR **SEJA**	0.1	0.1	LALA, **SEJA**
2650090	2	1.68								46.6	**AEPO** CASE CIAR CIVU CYSC DACA **GERO HIAU** HYPE ILAQ **LAGA** LALA SEJA SYOF VIMI	1.7	0	SEJA						
2650050	2	0.9								39.2	**CEDE** CIAR CIVU CYSC **GERO** HYPE LALA **POSA SEJA**									
2650000	6	15	2		**ARMI**				2.7			7.5	0	CIAR HYPE **SEJA**	1.2	2.14	CIAR CIVU **GERO**HYPE ILAQ **PORE** RUAR	2.6	6.9	SEJA, CIVU, HYPE

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
																	RULA **SEJA**			
2620060	1								2.8											
2620056	5	0.76	24		**CEDE**				1.6	6.61	CIAR CIVU HYPE **SEJA**	3.6	2.2	**CEDE** CIAR CYSC HYPE **SEJA**						
2620053	2	1.3								3.1	CIAR CIVU CYSC HYPE **SEJA**									
2620051	3	0.89							1.6	1	CIVU HYPE **SEJA**									
2620050	5	2.8							4			2.2	3.2	CIAR CYSC HYPE **SEJA**				2.1	10.2	**SEJA**, HYPE, CIAR, DIPU, CIVU
2620043	1	0.7								0.3	HYPE **SEJA**									
2620036	1								0.6	3.8	CIAR CIVU HYPE **SEJA**									
2620035	1								1.2											

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2620030	1	9.7								1	CIAR CIVU CYSC HYPE **SEJA**									
2620000	9	35	39,464		CIVU CYSC **GERO** RULA **SEJA**	12			8.6	2.6	CIAR CIVU CYSC **GERO** HYPE **SEJA**	22.3	19.8	CIAR CIVU CYSC DIPU **GERO** HYPE RUAR **SEJA**	1.7	1.9	CIAR CIVU **GERO** HYPE ILAQ **PORE** RUAR RULA **SEJA**			
2610200	12	11	3,676	0.2	CYSC **GERO** HEHE RUDI **SEJA**	4	5	CYSC **SEJA**	1.2			0	3	CYSC **GERO** HEHE HYPE LALA RUAR **SEJA**						
2610050	2					1	1	CIAR CYSC **GERO SEJA**		15.9	CIAR CIVU CYSC GERO HYPE **SEJA**	0	1.75	**GERO SEJA**						
2610040	6	1	3,000		**SEJA**	1	2	CIAR CYSC **GERO SEJA**	1	4.1	CIVU CYSC **GERO** HYPE LALA **SEJA**	1	3	CIAR **GERO SEJA**	0.4	**3.5**	**GERO** HYPE **SEJA**			
2610012	2	0.85	397	0.2	**GERO**				0.5											
2610010	3									4	**GERO**	3.3	44.4	**COAR GERO** HYPE ILAQ **SEJA**						
2610000	13	20	6,570	0.1	**CEDE** CIAR CIVU CYSC **GERO** RULA **SEJA**	32	17.5	CIAR CYSC **GERO POBO SEJA**	8.4	0.42	CYSC	48.95	108.9	CIAR CIVU **GERO** HYPE **POBO SEJA**	1.6	2.55	CIAR **GERO** HYPE RUAR **SEJA**			
2530000	5	5.7							4.4			10.1	3.5	CIVU CYSC **GERO** HYPE **SEJA**						

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	No. Years Visited	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2527000	1	1.2								59.6	CIAR CIVU CYSC **GERO** HYPE LALA **POSA SEJA**									
2510070	10	1	1,600	0.82	**GERO**	1	6.5	**GERO**	1.3	1	**GER**O **SEJA**	0	27.5	CIAR **GERO** HYPE RUAR **SEJA**						
2510065	5	1							1			0.4	4.2	CIAR CIVU **GERO**	0.2	1.5	CIAR CIVU **GERO** HYPE			
2510060	3									29.5	CIVU **GERO**	0.2	0.2	**HYPE SEJA**	0.1	0				
2510012	2	1							1.7	0.5	**GERO** HYPE, **SEJA**									
2510000	9	40	53	0.53	**CEDE** CYSC **SEJA**	41	19.5	CIAR CIVU **GERO** HYPE RUDI RULA **SEJA**	42			38.7	23.76	CIAR CIVU DACA DIPU **GERO** HYPE, RULA PHAR **SEJA**	5.75	13.5	**GERO SEJA**			
2503000	1								3.7											
2500000	4	4				19	3.75	CIAR CYSC **GERO POBO SEJA**		10.8	CIAR CIVU CYSC **GERO** HYPE LALA **SEJA**	2.5	1.6	CIAR CIVU CYSC **GERO** HYPE **POBO SEJA**						
2190220	1		251		COTO **POCU**					11.7	**GERO HYPE SEJA**									
2190200	3	4		0.1	**POCU**	38	1.7	CIVU CYSC DIPU **POBO SEJA**												
2190170	1	2																		
2190000	2	14				10														

		Survey, manual, minimal herbicide 2002-2006				2007-2009			2010-12			2013-2105			2016			2017		
ROAD	**No. Years Visited**	**Survey Miles**	**# of Weeds**	**Acres Treated (2006 Only)**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**	**Survey Miles**	**Acres Treated**	**Weed Species**
2100000	2	8	50		**SEJA**															
2760	1											0.5	0.6	CIAR CYSC **SEJA**						
2071	1								1	5	**GERO** LALA **POCU** RUDI									
TOTALS		**1467.2**	**2695174**	**28.43**		**1087.3**	**590.6**		**459.42**			**148.72**	**466.913**		**108.1**	**230.84**		63.5	191.5	

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.

	2002-2017 ACCOMPLISHMENT SUMMARY TABLES											
	Acres Treated by Crew-rounded to the nearest whole number											
CREW[A]	**'02-'06[1] manual/ baseline**	**2007-2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**'14**	**2015**	**2016**	**2017**	**Total**
NWCB manual	8.61	**55**	27	21	33	33	7	10	30	51	**30**	
NWCB chemical		131	195	316	286	338	360	248	259	245	**162**	
NWCB total	8.61[1]	246[2]	222[2]	337[2]	319	371	367	258	289	296	**192**	**2,906**
OCC-manual	None	412[2*]	78[2]									**489**[2]
WCC[5] manual	58.83	22	54	None		2	7				**N/A**	
chemical					38	26	8	15	23	0[6]		
WCC total	58.83[1]	22[2]	54[2]		38[2]	28[2]	15	15	23	0[6]	**N/A**	**195**
PSC manual							4					
chemical	N/A	N/A	N/A	N/A	N/A	N/A	80	N/A	N/A			
PSC total							84	N/A	N/A	None	**None**	
Chain Gang	38.68[1]	9[1]	7[1]	0.16[1]	6[2]	25[1]	5	None	None	NA		**90.84**
TOTAL Acres Treated	**106.12[1]**	**689[2*]**	**361**	**337**	**338**	372	418	273	312	296		**3,502**

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

	Number of New/Existing Sites Reported Each Year by NWCB Crews*																
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Total**
New Sites/Total	**122**	**497/**619	**147/**766	**74/**840	**147/**986	**12/**998	**1/**999	**3/**1002	**29/**1031	**56/**1,060	**22/**1082	**63/**1145	**12/**1157	**25/1182**	**52/1287**	**88/1375**	**1377**
	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**	**Total**
Miles of Roads Surveyed/Treated	192	702	265	113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	**1,272**
Acres Surveyed/Treated	233[3]	851[3]	321[3]	137[3]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**	**1,542**[4]
Miles of Roads Surveyed	N/A	N/A	N/A	N/A	391	369	423	299	222	237	309	149	359	125	95	**64**	**2,978**
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**	**7,443**

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

*****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 2002-2017: A PERSPECTIVE

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

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APPENDIX E: COUNTY ACCOMPLISHMENTS-A SNAPSHOT

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

Clallam County NWCB works to control roadside knapweed that is a source for FS lands

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

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

The Jefferson county coordinator has focused on administration and in-county projects; to the best of our knowledge, there was no overlap this year between Jefferson County's weed control program and adjoining Forest Service lands. No Title II funding was used directly to support that program. There is no snapshot of Jefferson County weed status and control efforts.

Clallam County covers 1,112,960 acres on the north edge of the Olympic Peninsula, along the Strait of Juan de Fuca. Almost half the acreage of the county (46%) is in federal ownership (National Park or National Forest). The major highway, US 101, runs from east to west through most of the county. Many roads lead from US 101 into the National Forest and many go through the Forest into the popular Olympic National Park. The Clallam County Noxious Weed Control Board (CCNWCB) has a stable, assessment-funded weed program. The CCNWCB implemented its first season of an integrated weed management (IWM) plan for the Clallam County Road Department. CCNWCB and partners treated over 100 miles of county roads for a broad array of invasive species (33) which pose a direct threat to adjacent Forest Service land. Similar control plans for other county managed lands are in the works. Additionally, native plant material opportunities are being pursued through the Matt Albright Plant Material Center (ONP) to supply native, locally sourced, pollinator friendly plant material.

Clallam County 2017 Snapshot	
Number of Known Noxious Weed Species	71
Number of Regulated Noxious Weed Species	42
Most Common Regulated Noxious Weeds	tansy ragwort, poison hemlock, knapweeds
Least Common Regulated Noxious Weeds	hoary alyssum, hairy willowherb, hawkweeds, purple loosestrife, sulfur cinquefoil, giant hogweed, gorse, perennial sowthistle
Total Number of Sites (Regulated Species Only)	2,164-992 surveyed, (this does not include rechecks) -of sites surveyed, less than 15%, were not controlled by year's end, consisting mostly of county roadside or adjacent properties.
Number of Landowner Contacts	*939*
Educational Events	*19*
Public Contacts (Phone Calls, Walk-Ins, Emails)	*1398*
Web-Site Hits	*1746*
Volunteer Weed Events	7-204 hrs
Area of Weeds Controlled by Weed Board Staff	5,173 individual plants removed from multiple properties

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

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

APPENDIX F: WEED SPECIES REPORTED 2002-2017 ON FOREST SERVICE LAND IN CLALLAM OR JEFFERSON COUNTIES

(Other counties may have reported other species). List sorted alphabetically by botanical name.
In 2017 several new species were reported: spotted jewelweed, spurge laurel, and wild basil savory.
Plant Codes come from the USDA Natural Resources Conservation Service PLANTS database.

Spotted jewelweed found on the 2850 Road

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 debeauxii*	CEDE5
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	*Disacus 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
Himalayan blackberry	*Rubus armeniacus*	RUAR9
evergreen 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

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

wild chervil	*Anthriscus sylvestris*
hoary alyssum	*Berteroa incana*
hairy willowherb	*Epilobium hirsutum*
common hawkweed	*Hieracium lachenalii*
common reed	*Phragmites australis*

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. Trials utilizing acetic acid, limonene and clove oil, all contact herbicides, are underway to determine whether these products can be safely used while effectively controlling herb Robert with minimal damage to nearby native vegetation. None of these three contact herbicides are currently allowed for use in the Forest. Results indicate no significant advantage to using these contact herbicides. The study suggests good germination control with Oust (sulfometuron ethyl); subsequently this herbicide may be considered for roadside herb Robert populations next season. We hope to conduct another trial beginning in 2018 to further refine results and explore additional options.
- Early blooming perennials, such as orange and yellow hawkweed should be treated as early as possible.
- Biennials like tansy ragwort are often difficult to treat effectively with either chemical or manual treatment alone; once plants have bolted it may be most effective to pull and deadhead flowering stalks then spray first year rosettes.
- Scotch broom and other woody shrubs can be effectively pulled early in the season before seed set and while the ground is damp; herbicide treatments can be made early, but are still effective later in the summer.
- Later blooming perennials like reed canarygrass, Canada thistle, everlasting peavine, knotweeds, knapweeds, common tansy and common toadflax may be effectively treated from midsummer until fall, depending on the species and the location (altitude, aspect, etc).

Plant Code	Common Name	*Botanical Name*	Control Recommendation
AEPO	bishop's weed	*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.
CEDE5	meadow knapweed	*Centaurea jacea x nigra*	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.
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

Plant Code	Common Name	*Botanical Name*	Control Recommendation
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.
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.
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	orange hawkweed	*Hieracium aurantiacum*	Spot spray with selective herbicide in late spring or summer; - clopyralid preferred - possible manual removal for very small infestation.
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.
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
VIMA VIMI12	bigleaf periwinkle common periwinkle	*Vinca major* *Vinca minor*	Thorough spot herbicide application

APPENDIX H: 2017 STATE WEED LIST

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

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

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

blueweed	*Echium vulgare*
Brazilian elodea	*Egeria densa*
bugloss, annual	*Anchusa arvensis*
bugloss, common	*Anchusa officinalis*
butterfly bush	*Buddleja davidii*
camelthorn	*Alhagi maurorum*
celandine, lesser	*Ficaria verna*
common fennel (except bulbing fennel	*Foeniculum vulgare (except F. vulgare var. azoricum)*
common reed (nonnative genotypes)	*Phragmites australis*
Dalmatian toadflax	*Linaria dalmatica* ssp. *dalmatica*
Eurasian watermilfoil	*Myriophyllum spicatum*
fanwort	*Cabomba caroliniana*
gorse	*Ulex europaeus*
grass-leaved arrowhead	*Sagittaria graminea*
hairy willow-herb	*Epilobium hirsutum*
hawkweed, all nonnative species and hybrids of the wall and meadow subgenera	*Hieracium subgenus Hieracium* *Hieracium subgenus Pilosella*
hawkweed, orange	*Hieracium aurantiacum*
hawkweed, oxtongue	*Picris hieracioides*
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	*Acroptilon repens*
knapweed, spotted	*Centaurea stoebe*
knotweed, Bohemian	*Polygonum x bohemicum*
knotweed, giant	*Polygonum sachalinense*

Class B Weeds - continued	
knotweed, Himalayan	*Polygonum polystachyum*
knotweed, Japanese	*Polygonum cuspidatum*
kochia	*Kochia scoparia*
loosestrife, garden	*Lysimachia vulgaris*
loosestrife, purple	*Lythrum salicaria*
loosestrife, wand	*Lythrum virgatum*
parrotfeather	*Myriophyllum aquaticum*
perennial pepperweed	*Lepidium latifolium*
poison hemlock	*Conium maculatum*
policeman's helmet	*Impatiens glandulifera*
puncturevine	*Tribulus terrestris*
rush skeletonweed	*Chondrilla juncea*
ravenna grass*	*Saccharum ravennae*
saltcedar	*Tamarix ramosissima*
Scotch broom	*Cytisus scoparius*
shiny geranium	*Geranium lucidum*
spurge laurel	*Daphne laureola*
spurge, leafy	*Euphorbia esula*
spurge, myrtle	*Euphorbia myrsinites*
sulfur cinquefoil	*Potentilla recta*
tansy ragwort	*Senecio jacobaea*
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 floating heart	*Nymphoides peltata*
yellow nutsedge	*Cyperus esculentus*
yellow starthistle	*Centaurea solstitialis*

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

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

Class C Weeds continued	
spikeweed	*Centromadia pungens*
St. Johnswort, common	*Hypericum perforatum*
swainsonpea	*Sphaerophysa salsula*
teasel, common	*Dipsacus fullonum*
thistle, bull	*Cirsium vulgare*
thistle, Canada	*Cirsium arvense*
toadflax, yellow	*Linaria vulgaris*
tree-of-heaven	*Ailanthus altissima*
ventenata*	*Ventenata dubia*
water lily, fragrant	*Nymphaea odorata*
whitetop, hairy	*Lepidium appelianum*
wild carrot	*Daucus carota*
yellow flag iris	*Iris pseudacorus*

*new

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

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

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

Washington State Noxious Weed Control Board
P.O. Box 42560
Olympia, WA 98504-2560
360-902-2053
Email: noxiousweeds@agr.wa.gov
Website: http://www.nwcb.wa.gov
or
Washington State Department of Agriculture
21 North First Avenue #103
Yakima, WA 98902
(509) 225-2604
or
Clallam County Noxious Weed Control Board
223 E 4th St, Suite 15
Port Angeles WA 98362
(360) 417-2442

2017 Washington State Noxious Weed List

English Hawthorn (*Crataegus monogyna*) resembles our native hawthorn, but has bright red berries and lobed leaves

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

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

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

LEGAL NOTICE

River Watershed, 2932 Rd and spurs; Lower Dosewallips River Watershed, 2610,2620 Rds and spurs; Elkhorn CG and Lower Dosewallips riparian area; Lower Duckabush River Watershed, 2510 Rd and spurs; Collins CG; Lower Gray Wolf River Watershed, 2870,2878, 2880 Rds and spurs; Armpit Pit; Dungeness Forks CG; Matheny Creek Watershed, 21,2140,2160,2170,2180,2190 Rds and spurs; Arlo, Calvin, Cloud, Frog, Hobbs, Jupiter, Loki, Mercury, Newt, and Toad Pits; McDonald Creek/Siebert Creek Watershed, 2877 Rd and spurs; Pat's Prairie; Middle Dungeness River Watershed, 28,2820,2830, and 2870 Rds and spurs; Lost Pit; Gold Creek and Sleepy Hollow trails; Middle Queets River Watershed, 2180 Rd and spurs; Park pit; Middle Quinault River Watershed, 2190 Rds and spurs; Boulder Creek and Neptune pit; Middle Sol Duc River Watershed, 2923,3040,and 31 Rds and spurs ; Snider Work Center; North Fork Calawah Watershed, 29,2922,2923 Rds and spurs; Calawah and Grindstone Pits; Bonidu Meadow; Pysht River Watershed, 3116 Rd and spurs; Salmon River Watershed, 2140 Rds and spurs; North Salmon and Salamander Pits; Sam's River Watershed, 2180 Rd and spurs; Spencer Creek / Maple Creek Watershed, Seal Rock CG; Snow Creek/Salmon River Watershed, 2840,2845,2850 Rds and spurs; South Fork Calawah Watershed, 29, 2922,2923,2932,2952 Rds and spurs; Elk Pit; Upper Big Quilcene River Watershed, 2650,2740,2760 Rds and spurs; Sink Lake; Upper Dungeness River Watershed, 2870 Rd and spurs; Dungeness and Heather Basin Trails, Camp Handy; Upper Sol Duc River Watershed, 29, 2929,2931,2978,3071 Rd and spurs; Klahowya CG; Bonidu, Littleton Horse Camp, and Tom Creek Pits.

PUB: May 3, 2017
Legal No. 755707

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

NOTICE

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

_____, 2017 to control weeds, which threaten native vegetation and habitat in this area:

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

Targeted Weed Species include, but are not limited to:

NO USE RESTRICTIONS ARE IN PLACE

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

FOR MORE INFORMATION CONTACT:

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

APPENDIX J: PROJECT FORMS

- FACTS Manual/Herbicide Treatment Data Form-front side

2017 FACTS Invasive Plant Treatment Data Form

General Activity Fields

Ref #: 27

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

Region	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)	Canyon Creek / Pats Creek	FS	CCNWB (3 # 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 721 mobile ground sprayer 000 other		If you are treating a road, record Road number w/ BMP & EMP. If you are not treating a road (ex: a campground, rock pit, etc.) record Site Name. -Record this information as it appears on the spreadsheet.- 875020 0-0.7 EMP Was entire area represented by the Ref# treated for weeds? Yes / No → If no, describe what part was treated above. Comments:
100 Manual			

*District Codes: Pacific North (05) = PAC-N; Pacific South (03) = PAC-S; Hood Canal North (02) = HC-N; Hood Canal South (01) = HC-S

**Workforce: County Name, Contractor Name, WCC, DNR, SCA, ONF, etc.

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

Site/Inventory Fields

Start Date	Stop Date	Acres examined for weeds	Application Site (circle one)		Licensed Applicator: Name and License #
8/3/17	8/3/17	1.5	Road edge/ROW Gravel/rock source Forest Admin Site	Campground Trailhead Riparian Other	James Winthrop Knape 87945

Total Manual Infested Area Treated: Do not lump plants together: — acres

Weeds Treated (Use PLANTS code; include common or scientific name as well if it is an uncommon weed on the ONF)	Infested Area Treated (DO NOT lump plants together)	% cover of species in Infested Area Treated (lump plants together – use cover classes 1 - 9 listed below)	Comments
POBO	200 ft² acres	8	
GERO	0.1 acres	5	
CIAR	1.5 acres	1	
CEDE	~~5~~ 0.1 acres	1	
SEJA	0.1 acres	1	
CIVU	1.5 acres	1	
LALA	0.5 acres	1	
HYPE	1.5	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.

Admin Use Only

Activity Unit FACTS ID#: _____ Name: _____

Activity Subunit # _____ Name: _____

- FACTS Manual/Herbicide Treatment Data Form-back side

Daily Log Day 1

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:
8/3/17	10:00	11:30	80	<5	W	0%	

Total Volume of Mix Applied	UOM	Mix (oz herbicide /1 gallon water)	Dilutant	Applicators Names
1.25	Gallons	oz/ gallon	Water	Cathleen Lucero 56527 Rachel Bowen 92120

Herbicide Product Name / EPA #	Amount of this herbicide product that was applied	Percent Solution
Polaris	0.3 oz	1 %
Vastlan	2.16 oz	0.5%
Milestone	0.2 oz	0.125%

Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution
Competitor	2.16 oz	0.5 %
Blazon	2.16 oz	0.5 %
	oz	%

Total Application Area (Acres):
1.5
Area treated in Riparian Reserves: 0.3
Area Treated within 5 feet of Standing Water: 0

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

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:

Total Volume of Mix Applied	UOM	Mix (oz herbicide /1 gallon water)	Dilutant	Applicators Names
	Gallons	oz/ gallon	Water	

Herbicide Product Name / EPA #	Amount of this herbicide product that was applied	Percent Solution
	oz	%
	oz	%
	oz	%

Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution
	oz	%
	oz	%
	oz	%

Total Application Area (Acres):
Area treated in Riparian Reserves:
Area Treated within 5 feet of Standing Water:

(From front page) Ref #:_____ Start Date:_____

2013 FACTS Invasive Plant Treatment Data Form
Page 2 of 2 modified by clb 03/19/2014

Notes: Used 1.25gal/mix

APPENDIX J: PROJECT FORMS

- Rock Pit Inspection Form

Invasive Plant Inventory for Rock Sources, Olympic National Forest

District or Forest Weed Specialist compliance statement and signature:

This designation is valid for two years from the inspection date listed below.

CHECK ONE:

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

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

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

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

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

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

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

Signature: [signature] Date: 10/5/17

Name of Rock Source: Grindstone

Narrative of Pit Location (include, at minimum, road number and milepost):

2923070 MP. 0.1

Ref # (from project spreadsheet): 133

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: _____ **Date of Inspection:** _____

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.

In general, lower part of pit in very good shape except for exceptional amount of foxglove to be found in the perimeter. This is especially true of the newly expanded portion of the pit. We treat all of foxglove, especially large amounts on the perimeter berms. Far exceeded what expected (the foxglove)

Name of Rock Source:

Date inspected:

Species present:

Species Code	Common Name	Infested Area (acres)	Cover Class	Comments
DIPU	Foxglove	4	4	unusually concentrated treated
Scotch broom	CYSC	.1	1	trace
St Johnswort	HYPE	.1	2	sm amount in center of ~~east~~ end of pit - otherwise none
Bull	LALA	.1	1	trace amount in east end of pit
cutleaf blackberry	RULA	.001	1	2 sq ft - 1 sm stem

Do not record tolerate species in this table.

DON'T FORGET TO FILL OUT THIS SECTION!

Estimated size of pit: 5 **acres** Includes new west cleared area
(1 acre = 43560 ft², or approximately 209 ft x 209 feet. 1/10 acre = 4356 ft², or 66 ft x 66 ft, or approximately 435 ft x 10 ft)

Percent of pit occupied by invasive plants 10 **%**
This percent should indicate the percent of the pit that is NOT usable as a rock source as you find it on the day of the inspection. This includes area occupied by weeds AND the area potentially contaminated with seeds or other propagules.

Was this pit treated for invasive plants during this visit? (Yes) / No
If yes, please fill out a FACTS form documenting treatment
- but area did not treat for clone in 2011

Has this pit been treated for weeds before? (Yes) / No / Don't know **If yes, what year?** 2011

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

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

2015 Olympic National Forest Invasive Species List

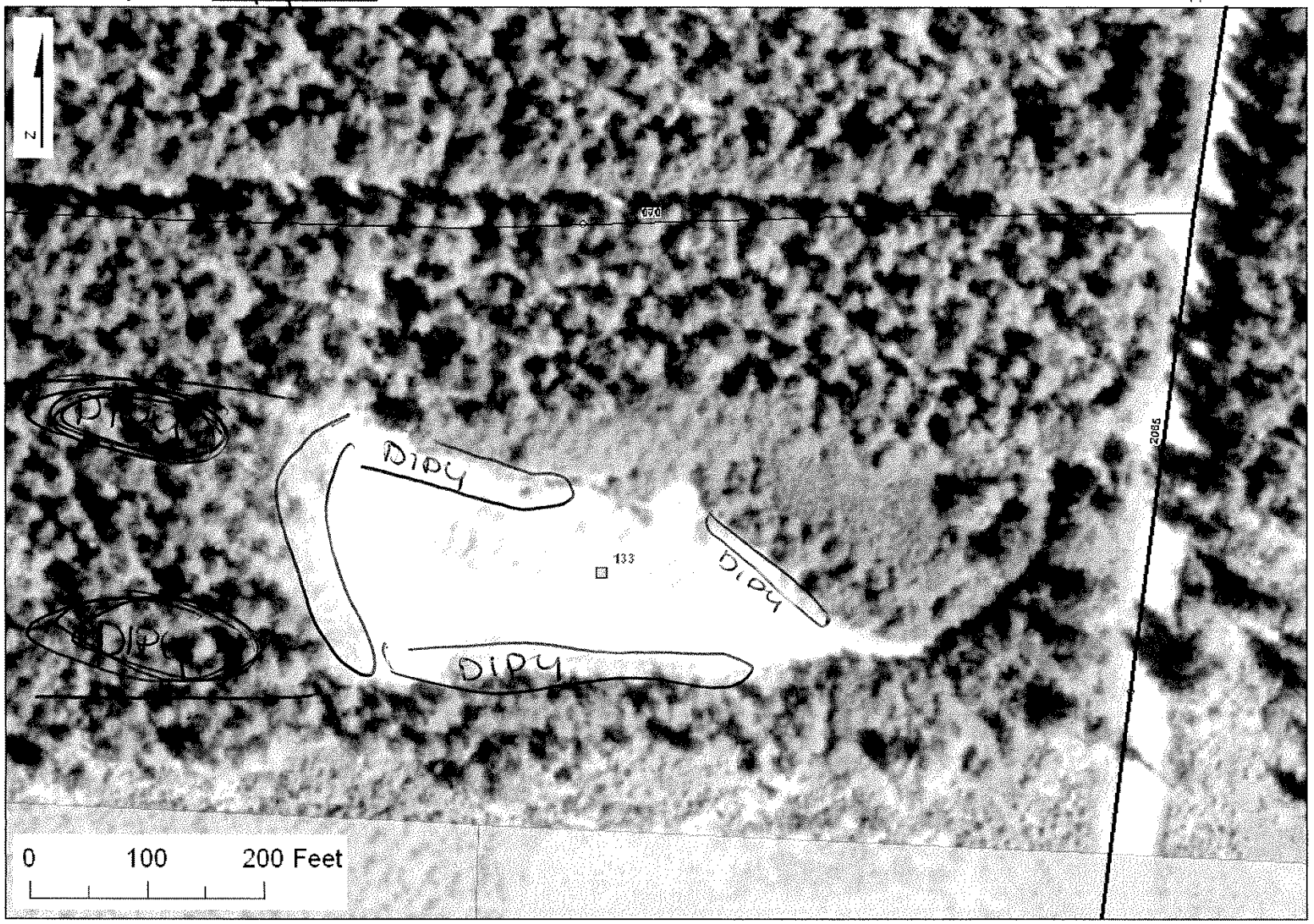
Updated 03/31/2015

Code	Scientific Name	Common Name	Treatment Priority
AEPO	*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
DIFU2	*Dipsacus fullonum*	Fuller's teasel	1
GERO	*Geranium robertianum*	herb Robert, stinky Bob	1
HIAU	*Hieracium aurantiacum*	orange hawkweed	1
HICA10	*Hieracium caespitosum*	meadow (yellow) hawkweed	1
HISA4	*Hieracium sabaudum*	European hawkweed	1
LAGA2	*Lamiastrum galeobdolon*	yellow archangel	1
LYPU2	*Lysimachia punctata*	large yellow loosestrife	1
LYVU	*Lysimachia vulgaris*	garden yellow loosestrife	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
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
LYSY	*Lathyrus sylvestris*	flat pea	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
LOPE80	*Lotus pedunculatus*	big trefoil	Tolerate
PLLA	*Plantago lanceolata*	narrowleaf plantain	Tolerate
RARER	*Ranunculus repens* var. *repens*	creeping buttercup	Tolerate
TAOF	*Taraxacum officinale*	common dandelion	Tolerate

Rock Pit Inspection: Grindstone Pit

Date of Inspection: 10/5/17 (include year)

Clallam County
2923070 road, MP 0.1
Approx 1.8 acres



Calibration Verification

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

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

Signature: _____ Position: _____

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

APPENDIX K: CALIBRATION METHODOLOGY

Followed Method 2

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

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

Example: One gallon of water was put in al -gallon hand-operated sprayer. After spraying a I 00- square-foot test area, it was determined that 8 ounces of water were needed to refill the tank to the I gallon mark. At this application rate, how many square feet of carpet could be treated with I gallon?

spray used =8 oz. on I 00 sq. ft. I gal. water = 128 oz. 128 oz. =16 8 oz.
16 x 100 sq. ft. = 1,600 sq. ft.

Thus, 1,600 square feet of carpet could be treated with I I 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 (I 8 1/2x 18 V2= 342.25 ft2) and the fact that there are 128 ounces in a gallon.