CLALLAM COUNTY ROAD DEPARTMENT

Integrated Weed Management Plan

2021 Annual Report

Prepared by **Clallam County Noxious Weed Control Board**
Available online: http://www.clallam.net/Weed/RD_IWMP.html
Joe Reynolds, Control Specialist
Todd Coward, Lead Inspector
Cathy Lucero, Coordinator

Executive summary

Program Goal:

This program ensures Clallam County complies with noxious weed laws of Washington State. The goal of this project is to shift roadside vegetation to natural, site appropriate plant communities. The goal is implemented by reducing existing weed populations and preventing the establishment of new ones across the county.

Program Overview:

The Clallam County Integrated Weed Management Plan (IWM) was created to help the County efficiently comply with its noxious weed control obligations. Integrated Weed Management is a coordinated decision making process that uses the most appropriate weed management methods and strategies, along with a monitoring and evaluation system, to achieve roadside maintenance goals and objectives in an environmentally and economically sound manner. The project identifies high priority targets to contain the worst infestations and prevent the spread of noxious weeds.

2021 Project Overview:

This year we further integrated weed management into Road Department activities. We began treatments earlier and expanded our control of weeds in pits. We combined weed surveys with manual control wherever possible. Our roadside treatments were observed to be effective and well received by the public. Where treatments have occurred, overall weed densities are declining. We monitored, maintained, and augmented pollinator-friendly native planting begun four years ago; we applied lessons learned, and expanded our plantings at some 2019 and 2020 sites.

2021 Project Accomplishments:

Program Development

- Progressed with all program development and implementation tasks outlined in IWM Plan.
- Facilitated communication to further synch the IWM Plan with Road Department activities.
- Implemented Pit Plans and treated each pit multiple times throughout the growing season.
- Expanded Pollinator Planting Program; 2 new plantings, monitored, maintained and augmented 2018 -2020 projects. This has created great volunteer opportunities for the public.

Roadsides:

- Controlled weeds on a total of **188** county roads and 72 retreatment/spot treatments; **27 roads** manual only, **39 roads** manual/herbicide, and **122 roads** herbicide only.
- Controlled **173 miles** and examined **439 acres** (including retreatments), treating **321.5** acres.
- Herbicide was applied on **95 individual roads** with a total of **17.1 gallons** applied over **165 miles**
- Controlled **37** species.
- More tha**n 94 individuals** interacted with staff during treatments.

County Rock Sources/Spoil Disposal Sites (Pits):

- Treated **25 County Pits**.
- Controlled a total of **31 species** over a total of **196.0 acres**.
- Controlled an estimated **18.2 solid acres** chemically.
- Herbicide was applied within **25 County Pits** with a total of **14.7 gallons** applied over **182 acres**.

Strategic Pollinator Plantings:

- Monitored, maintained, and/or augmented **three** projects (**Black Diamond**, **Old Olympic Hwy/ODT** and **Deer Park Overpass**)**.**
- Expanded the Deer Park planting site to the North of the overpass and augmented the slopes. Expanded the Old Olympic Highway/ ODT planting site adding mainly shrubs.
- Coordinated with Clallam Conservation District, Broom Busters, and Peninsula Trails Coalition to recruit volunteers.
- Incorporated **45** native shrub and forb species with sequential bloom periods.
- A combined total of **8922 plants** over approximately **two acres** were planted between the two sites.

Program Monitoring, Evaluation and Reporting

- The Roadside Weed Monitoring Team (RWMT) assessed **49%** of roadside treatments and reported **83%** average efficacy. RWMT assessed 49% of treated roads and reported 83% average efficacy. The team spent 400 hours monitoring treatments and writing their annual report **(See Master Gardener**
- **Herbicide treatments were determined to be "Good".**
- RWMT concluded their observations on the effect of native shrub cover on tree seedling recruitment in the right-of way.

Observations and Recommendations:

- Italian thistle is an aggressive Class A noxious weed whose range and seedbank has been dramatically reduced from a combination of frequent monitoring and treatments. There was a 90% reduction in hand pulling this year compared to last year.
- We continue to experiment with ways to improve control techniques. Early treatments of widespread weeds such as Scotch broom and uncut Himalayan blackberry were very successful. Conversely, early treatments of Canada thistle and mowed Himalayan blackberry were not.
- Progress in reducing regulated noxious weeds infestations along county roads will move many "priority 1 roads" to a lower priority category. (See Integrated Weed Management Plan 2020 pp. 51-58 for more details).
- Retreatments on county roads are a great tool for monitoring success. Retreatments also provide opportunity for selective treatments that target specific weeds at different times of year.
- The number of individual regulated weeds on roadsides has been greatly reduced. For this reason, we have begun to tally the number of each species controlled during each treatment. Going forward, we will be able to better compare weed density change year to year.
- Ensuring clean materials for county projects reduces the potential for spreading noxious weeds and is our most important and effective prevention tool. Whole rock source treatments continue to reduce the weed seedbank in these areas. Because of progress in reducing the overall weed burden in our pits, treating entire pits for all noxious weeds is becoming possible.
- Poison hemlock and common teasel are concentrated in the eastern portion of the county. This year, new infestations of poison hemlock and common teasel have been found farther west than ever before. Preventing further spread, as well as detecting and eradicating new populations will be a high priority in 2022.
- Treatments at "Special Sites" such as county revegetation sites and pollinator habitat enhancement corridors will be a higher priority for next year. The steady reduction of regulated weeds along many of our county roads creates more opportunity to focus on the long term maintenance and health of these additional county lands.
- Volunteers at the Deer Park Overpass pollinator planting site greatly helped with maintenance obligations. Setting up additional watering stations and seeking long term volunteer assistance at these sites until they are well established is imperative to the future success of these projects.
- Volunteer opportunities to participate in pollinator habitat enhancement at the Deer Park Overpass and the ODT Berm are a great way to increase awareness of our pollinator program and to expedite plant installation.
- Scotch broom pulling events were a popular way of engaging volunteers in a meaningful activity that improved the quality and enjoyment of public lands.
- The program tackled more widespread weeds such as Scotch broom and Himalayan blackberry. Further research on additional Himalayan blackberry treatments options will be helpful.
- Mowing to reduce tree growth on roadsides is a major consideration and one of the driving factors for roadside mowing practices and frequency cycles. The "light mow" pilot projects on Diamond Point and Place Rd [study conducted by the Roadside Weed Management Team (RWMT)] indicate that there is less tree seedling recruitment when there is more competition from low growing plant communities. Potential expansion of this low mow project to reduce effort needed to preserve safety and maintenance standards is an interesting prospect.

Project Summary

Program Goal:

This program ensures Clallam County complies with noxious weed laws of Washington State. The goal of this project is to shift roadside vegetation to natural, site appropriate plant communities. To accomplish the stated goal and be a responsible steward of county owned land, the County must ensure noxious and invasive weeds are effectively and efficiently controlled. The goal is implemented by reducing existing weed populations and preventing the establishment of new ones across the county. Invasive and noxious weeds negatively impact agricultural and forestry production, property value, as well as water flow and availability. Roadsides are high priorities for control of weed species because they cross and link many adjacent properties and land uses, and can act as conduits for the spread of weeds. County rock sources/soil disposal sites act as weed sources and are additional high priorities for control.

Program Overview:

The Clallam County Integrated Weed Management Plan (IWM) was created to help the County efficiently comply with its noxious weed control obligations. Integrated Weed Management is a coordinated decision making process that uses the most appropriate weed management methods and strategies, along with a monitoring and evaluation system, to achieve roadside maintenance goals and objectives in an environmentally and economically sound manner. The IWM plan dictates that each weed problem is addressed from the perspective of all available control options and that the selected control options represent the best treatment for the long term stability of the desired plant community.

Weed control methods include biological, chemical, cultural, physical and preventative measures. This project uses the most effective method or a combination of methods within the IWM decision-making framework to achieve greatest roadside service levels at the lowest life-cycle costs. With more than five hundred miles of country roads there are a variety of weed problems as well as control opportunities.

To successfully create the shift in roadside vegetation to natural, site appropriate communities, the project identifies high priority targets to contain the worst infestations and prevent the spread of noxious weeds. High priority targets include infestations of *regulated* noxious weeds and invasive species of special concern on roadsides, and county rock sources and spoil disposal sites (pits) that act as sources/vectors for weed dispersal. The project aims to eliminate these significant weed pressures while systematically reducing weed abundance and promoting desirable vegetation. As the project matures and the number of high priority targets is reduced the number of chemical and physical treatments will also be reduced and balanced by cultural and preventative methods.

Weed control work on the County right-of-ways and pits is to be implemented by the Clallam Noxious Weed Control Board (NWCB) and through partnerships with other county entities, non-governmental agencies, and volunteers. Past partnerships included the Clallam County Road Department, WSU Extension office, Clallam Conservation District, Broom Busters, Clallam County Sheriff's Department Clallam Roadside Ecological Crew (C.R.E.W.), Olympic Discovery Trail Volunteers and the 10K Years Institute. Partnerships add efficiency and overall value to the project by promoting collaboration and public engagement, recruiting larger work forces, and reducing travel time across the county.

2021 Project Description:

In this fifth year of the IWM Program we further integrated weed management into Road Department activities. We facilitated communication between multiple departments, continued implementation of pit plans, and progressed in a study to further inform mowing practices through the efforts of Roadside Weed Monitoring Team (RWMT), a dedicated group of Master Gardeners with professional backgrounds in natural resources.

With the changing of staff and retraining of a full time member to our crew a decrease in treatment productivity inevitably occurred. The reduction in our seasonal crew and heightened safety protocols due to the pandemic were obstacles to completing our planned work as well. The C.R.E.W. was not as operational due to Covid-19 safety restrictions which reduced resources available to the Noxious Weed Control Board to implement the roadside weed management plan. The RWMT independently reviewed treatments to assess efficacy and potential impacts. Their report with the results of their observations can be found in Appendix H. Roadside treatments were observed to be effective and overall public perception of the program was positive.

The Roadside Weed Management Team (RWMT) continues to develop the Strategic Pollinator Assessment map which identifies pollinator corridor potential on County roadsides or managed lands. NWCB staff and volunteers expanded two pollinator friendly plantings with locally sourced native plants.

2021 PROJECT ACCOMPLISHMENTS**:**

Program Development

- Completed or progressed with most program development and implementation tasks outlined in the Integrated Weed management Plan (IWMP).
- Facilitated communication to further synch the IWMP with Road Department activities.
- Implemented pit plans and associated weed treatments.
- Continued to observe the effect of native shrub cover on tree seedling recruitment in the right-of way.
- Executed contract with new locally-sourced native plant material provider.
- Volunteer outreach

Program Implementation

Roadsides:

- Controlled weeds on a total of **116 individual** County roads for a total of **188** treatments; **27 roads** manual only, **39 roads** manual/herbicide, and **122 roads** herbicide treatment only.
- Treated **173 miles** including retreatments/spot treatments (439 **acres examined**).
- Controlled .1 **solid acres** manually.
- Controlled **22.1 solid acres** chemically.
- Applied **17.1 gallons** of herbicide on **91 individual roads** (**165 miles,** including retreatments/ spot treatments)**.**
- Controlled **37** species – including **14 regulated** noxious weed species.
- More than **94 individuals** interacted with staff during treatments.

County Rock Sources/Spoil Disposal Sites (Pits):

- Treated **25 County Pits**.
- Controlled a total of **31 species** within **182 acres** both chemically and manually.
- Controlled an estimated **0.01 solid acres** manually.
- Controlled an estimated **18.2 solid acres** chemically.
- Applied a total of **14.7 gallons** of herbicide over **182 acres.**

Strategic Pollinator Plantings:

- Monitored and maintained 3 sites (**Black Diamond, Old Olympic Hwy/ODT**, and the **Deer Park Overpass Pollinator Habitat Enhancement)**
- Continued photo monitoring locations to document plant success over time.
- Established a volunteer regime that supplemented water maintenance at Deer Park and the ODT.
- Held volunteer events to assist with pollinator habitat planting. Over 20 people attended, contributing approximately 80 hours of time planting.
- Augmented **two** projects (**Old Olympic Hwy/ODT** and the **Deer Park Pollinator Habitat Enhancement**) with a combined total of **8922 plants** over approximately **two acres**.
- Broadened plant diversity to include **45** native shrub and forb species with sequential bloom periods.

Program Monitoring, Evaluation and Reporting

- The RWMT assessed **49%** of roadside treatments and reported **83%** average efficacy; this year they excluded treatments west of Lake Crescent.
- Herbicide treatments were determined to be ”good” and was the highest rating that has been recorded since evaluation began **(See Master Gardener (MG) report in appendix H)**
- The RWMT continued surveying the Olympic Discovery Trail for weed species. As of this year all parts of the ODT have been surveyed and multiple locations of weed species have been located.

Maps: Project Areas and Target Roads

Map 1 shows an overview of all roadside and rock source treatment activities completed by Clallam County Noxious Weed Control Board and partners in 2021. Maps 2 – 8 show treatment activities in focus areas in East, Central and West Clallam County. Some roads that received treatment may not be shown in these maps, however every road that received treatment is listed in Appendix C and Appendix D.

Map Description:

The top priority of the 2021 IWM Plan is the control of *regulated* noxious weeds. *Regulated* weeds are limited in distribution and control to contain or eradicate infestations is required by state law (RCW 17.10). The maps include data points for all treatment activities to control regulated weeds except those that occurred in county pits. Data points represent discrete infestations but are not representative of scale; a point may represent the treatment of a single plant or more expansive infestations.

Non-regulated weeds, such as Scotch broom and Canada and bull thistle, are more widely distributed across the county. Treatment activities for widespread, non regulated noxious weeds varied by location, species and available resources. The maps generally do not include data points for treatment activities of non-regulated weeds; however, comprehensive tabular data of treatment activities and species treated on each road can be found in Appendix C and Appendix D.

Legend Description**:**

The Legend for maps 2-8 includes symbols only for **Species Treated** in areas encompassed in each specific map. Together, maps 2-8 show all species with spatial data recorded in 2021. *Regulated* weed species are listed first, as **stars** or **asterisks**, in alphabetical order according to weed codes. *Non-regulated* weed species, where points were taken, are listed second, as circles, triangles, or squares, in alphabetical order by weed codes. All county pits shown on the map received treatments in 2021. In the **Overview** map**,** all treated roads are shown with solid **green lines.** In **Maps 2-8** treated roads are further color coded by treatment type**;** roads that received ONLY manual treatments are shown with green/white stripes, roads that had combination manual/herbicide treatments, or herbicide only, are shown with solid green.

Map List:

Clallam County

Map 1. Clallam County Roadside Treatment Overview 2021

East Clallam County

Map 2. Blyn – Miller Peninsula Treatment Area
Map 3. Sequim-Dungeness Valley Treatment Area
Map 4. South Sequim Treatment Area

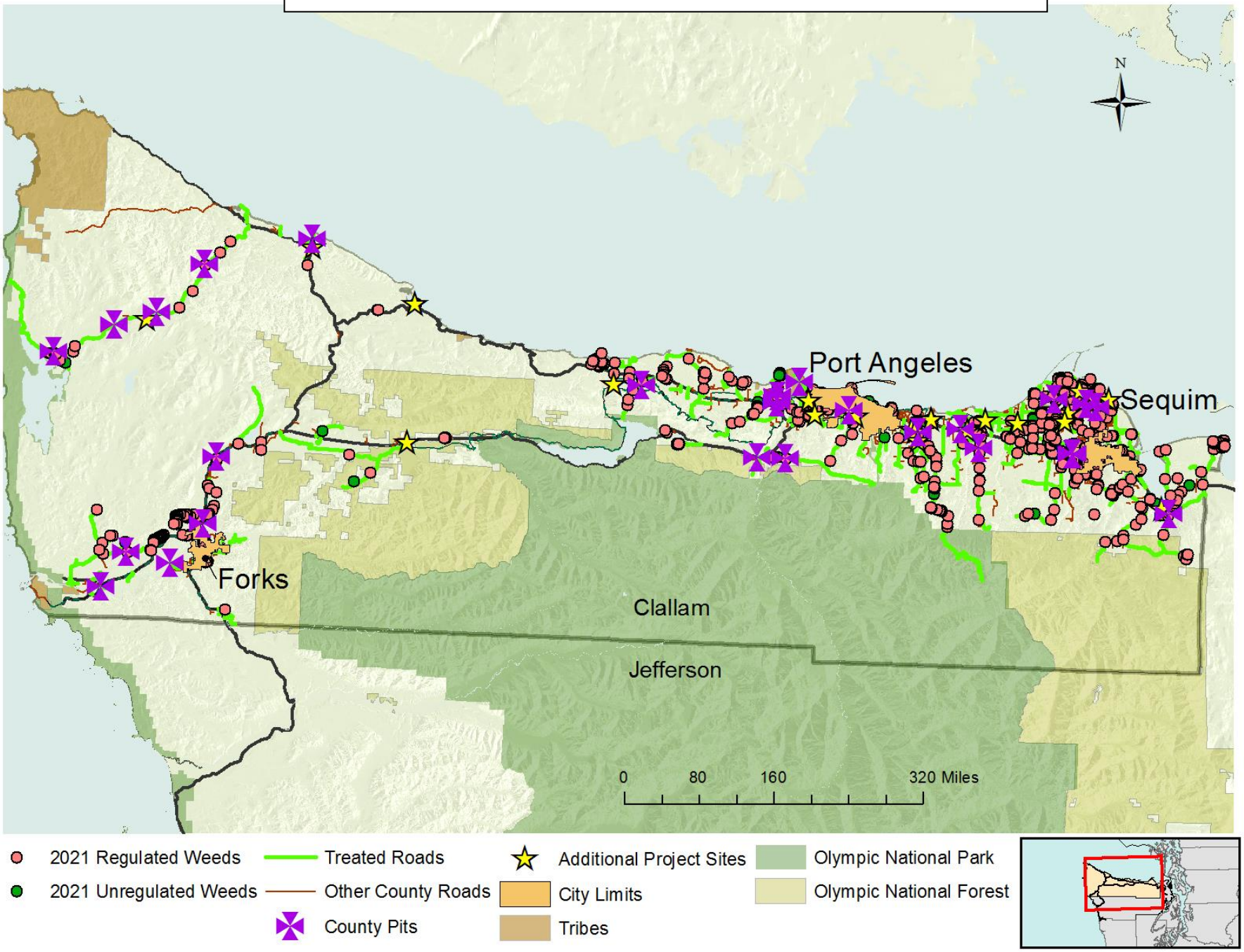
Port Angeles/Central Clallam County

Map 5. Port Angeles Treatment Area
Map 6. Joyce Treatment Area

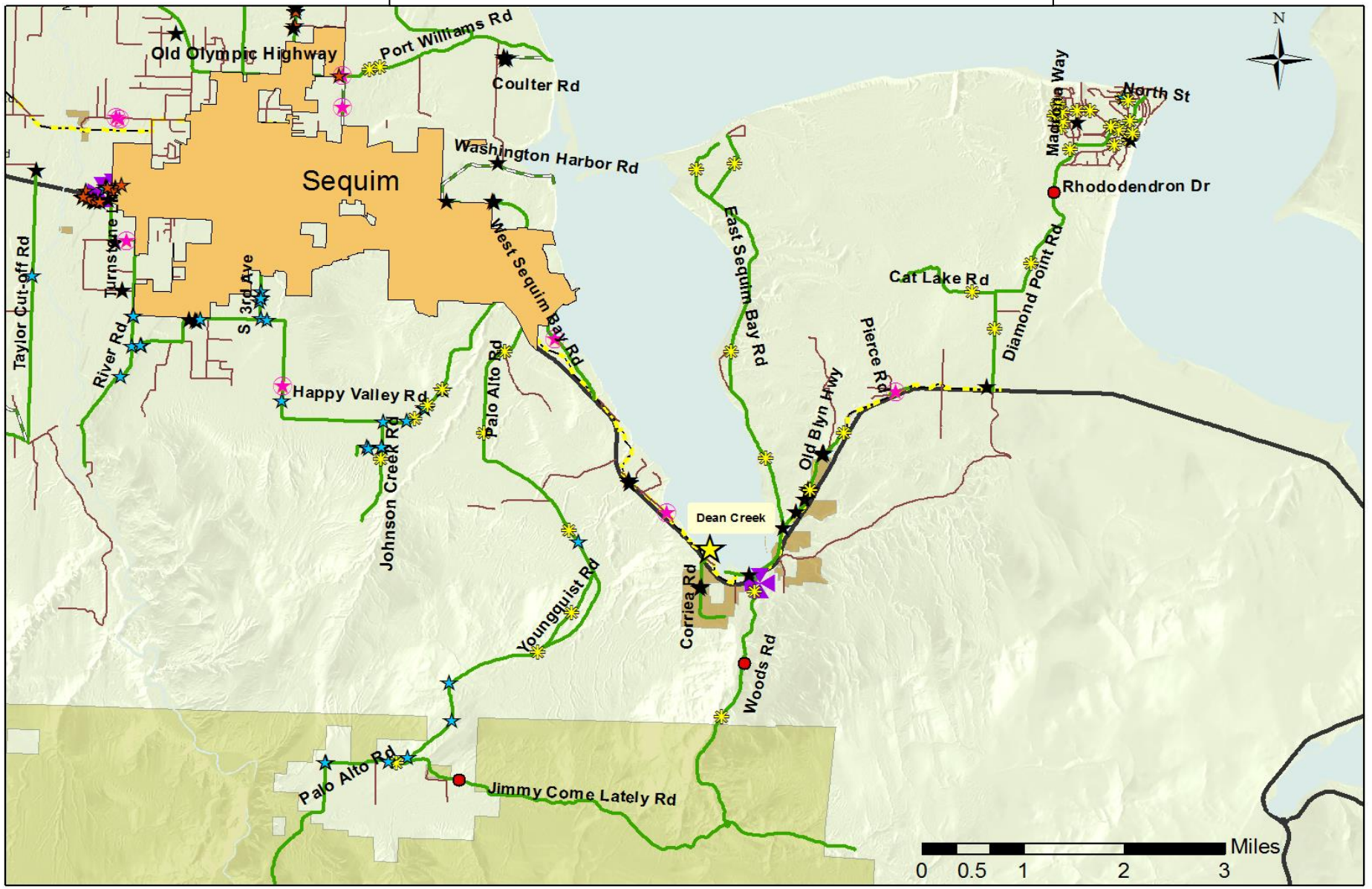
West Clallam County

Map 7. Hoko-Clallam Bay Treatment Area
Map 8. Forks Treatment Area

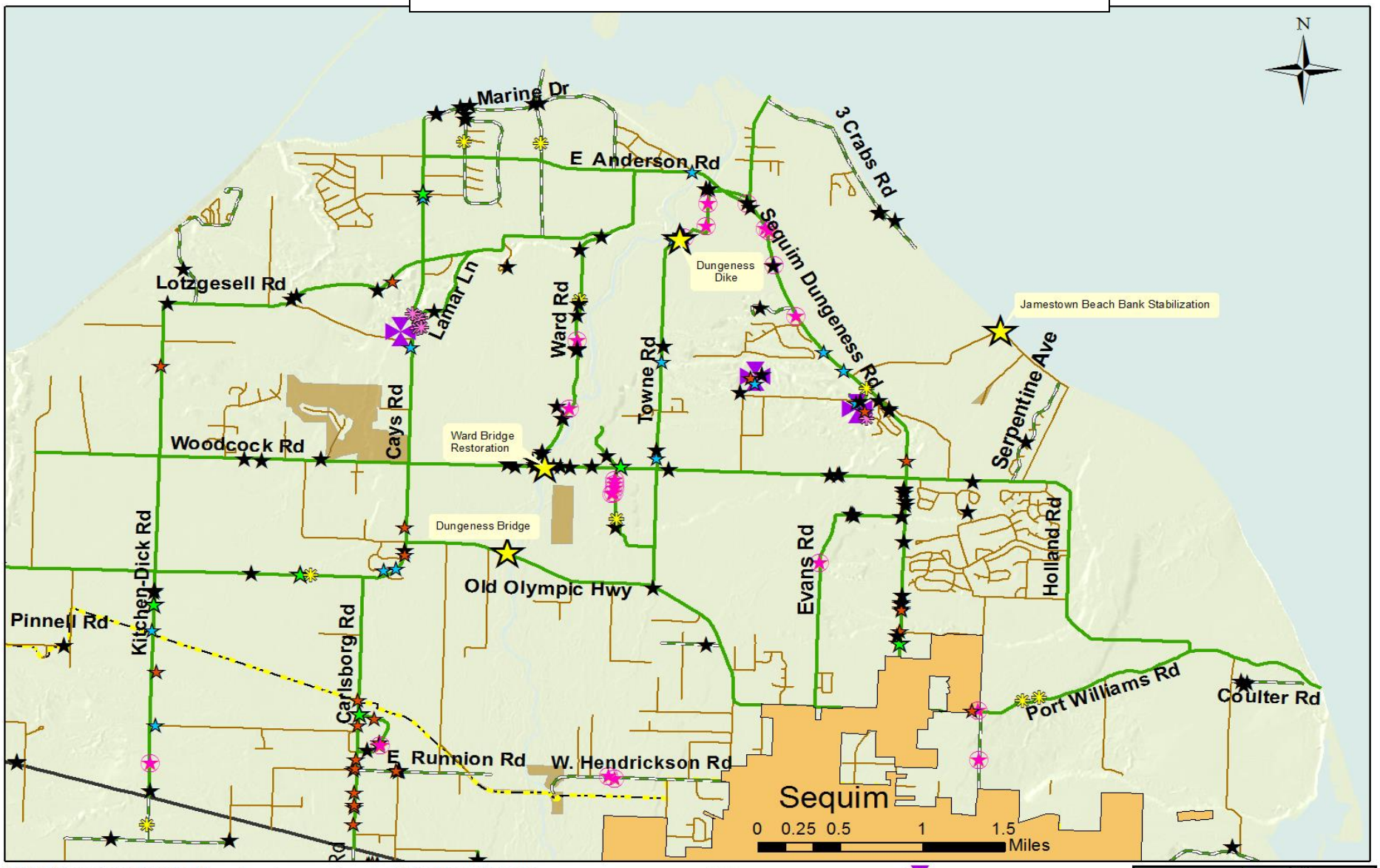
Map 1.) Clallam County Roadside Treatment Overview 2021



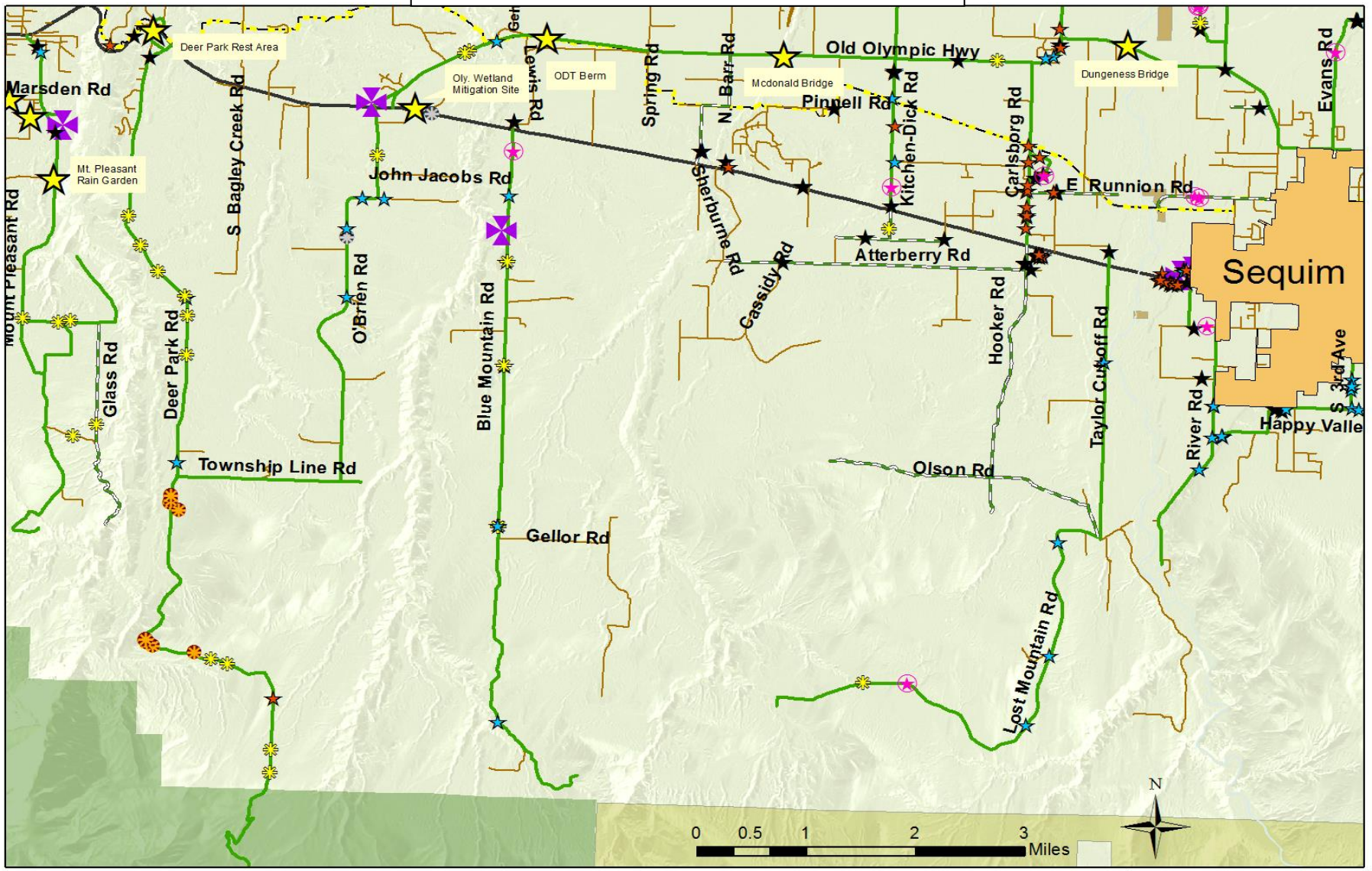
Map 2.) Blyn – Miller Peninsula Treatment Area



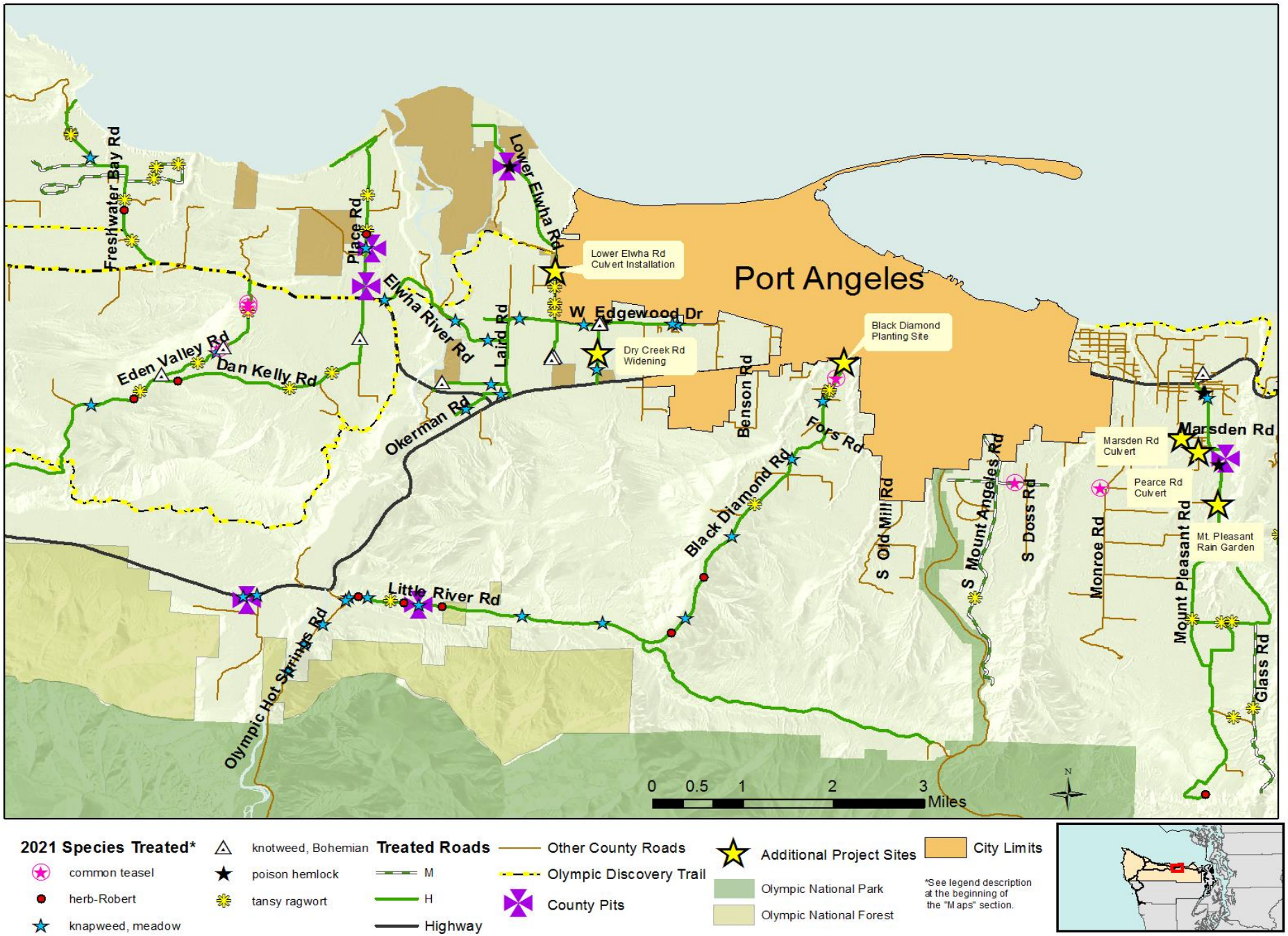
Map 3.) Sequim-Dungeness Valley Treatment Area



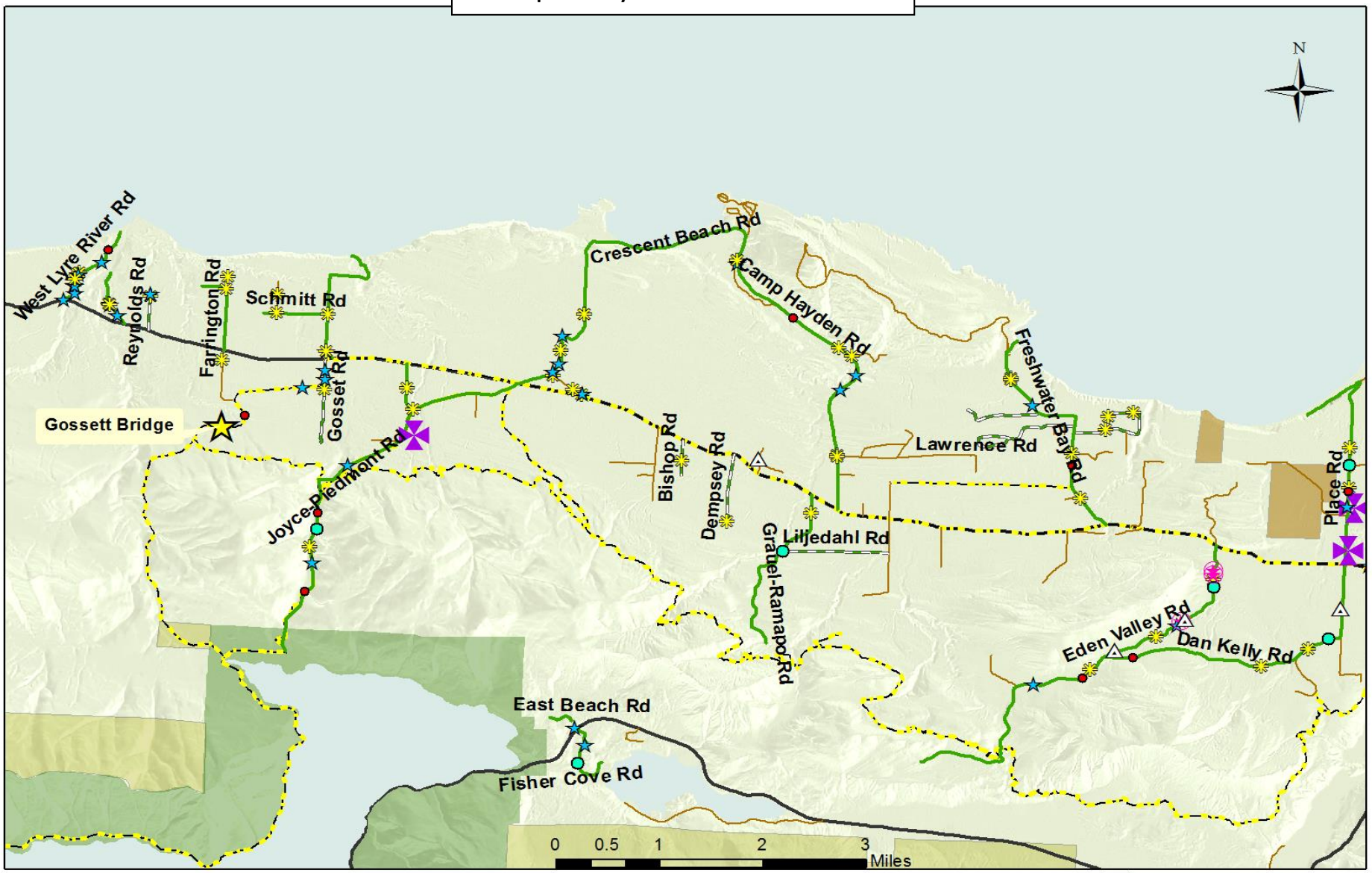
Map 4.) South Sequim Treatment Area



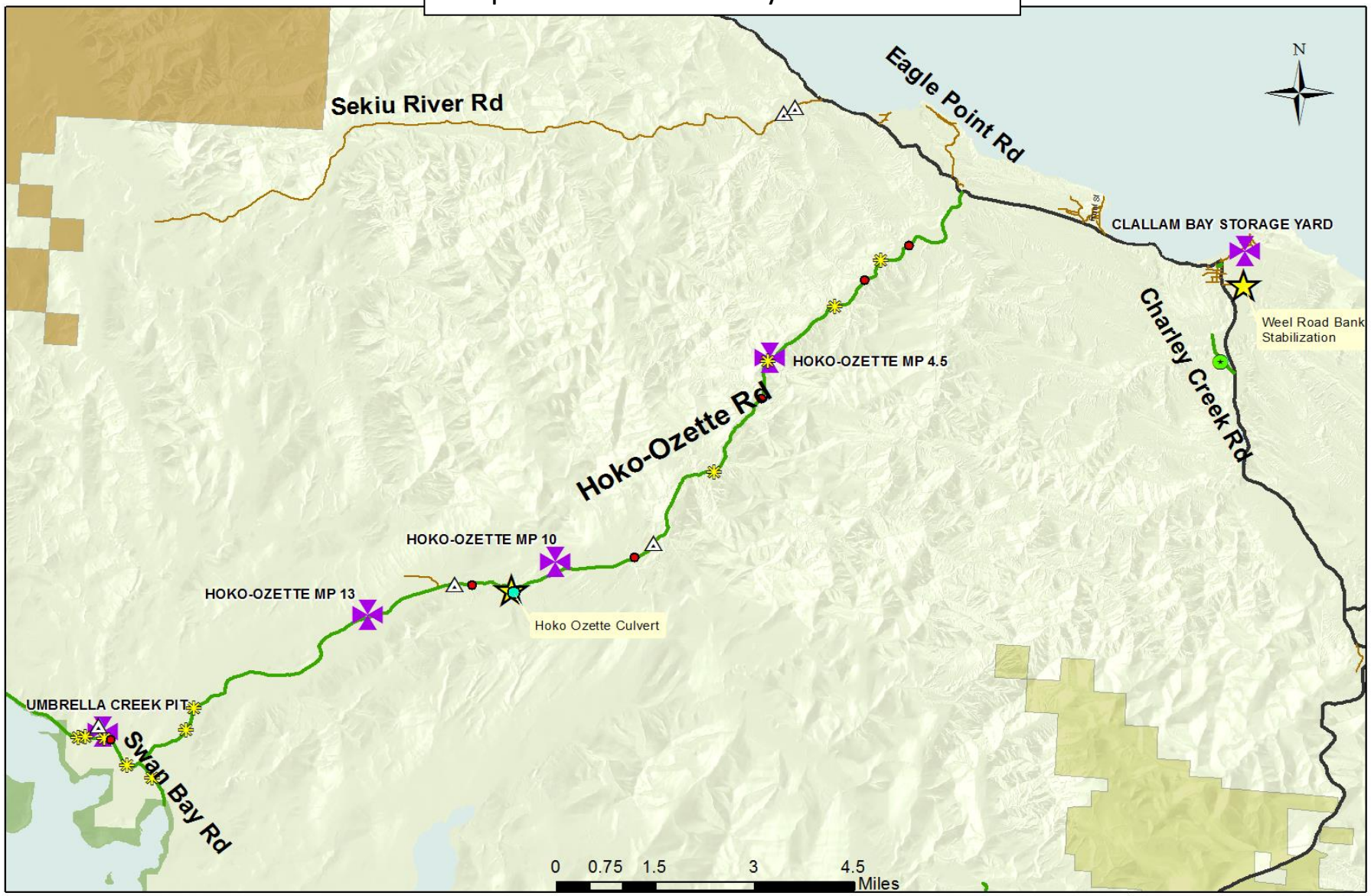
Map 5.) Port Angeles Treatment Area



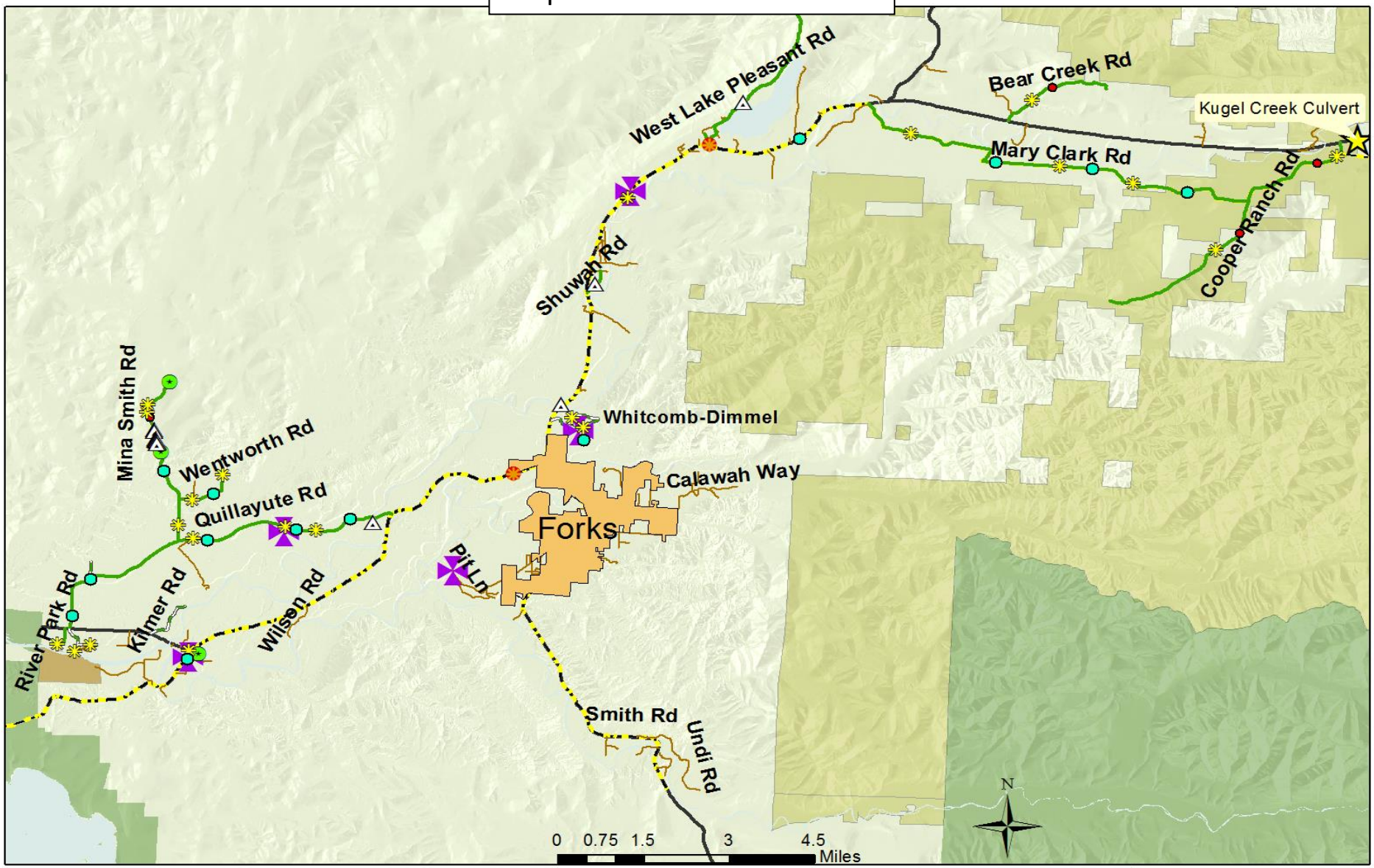
Map 6. Joyce Treatment Area



Map 7. Hoko-Clallam Bay Treatment Area



Map 8. Forks Treatment Area



POST SEASON OBSERVATIONS:

2021:

Roadside weed management is an evolving process and the IWM Plan is intended to be evaluated and adapted over time based on our observations, technical updates and input from partners and the public. The 2021 Plan was designed to complement our previous work, adapt to the observed conditions, and further specific weed management goals. The successful execution of the IWM plan is dependent on the effective coordination of its components. We reviewed the existing program, forms and protocols developed previously and revised where needed for 2021. We invested substantial time and effort to improve coordination between IWM and maintenance activities. The IWM Plan is a unique element within the Road department's maintenance program, but to be successful, weed control activities must be seamlessly incorporated into the general maintenance activities. Weed control strategies must also be shaped to fit road maintenance criteria.

In the spring we solicited feedback from each shop superintendent, the environmental coordinator, and head of engineering regarding planned weed control activities in the upcoming treatment season. We discussed specific weed control needs for pits within each road district and how to synchronize road mowing schedules to better fit high priority weed life cycles and our treatments. We noted individual communication preferences and exchanged or updated contact information. We brainstormed solutions for mechanized removal of a Scotch broom infestation on the Lower Elwha Rd Right of Way (ROW). The District 2 superintendent committed crew and equipment to remove, haul and dispose of the Scotch broom. Another Scotch broom site was located on county land adjacent to the District 3 shop and was undertaken at the specific request of the District 3 superintendent. Mowers efficiently reduced the biomass of approximately 6.5 acres of Scotch broom and allowed the Noxious Weed Department to effectively treat this area.

Under staffing and turnover combined with increased maintenance obligations at pollinator enhancement sites resulted in less time spent on roadside and pit treatments compared to 2020. We experienced the loss of one full time staff, a vacancy that was prolonged until mid-April, thus reducing personnel usually available for some of our early season treatments. We had fewer seasonals, who worked a shorter period, compared to last year. Watering upkeep on the pollinator enhancement sites also weighed on resources available for treatment activities.

Pandemic safety protocols required adaptations to program strategies and operating procedures. The Sheriff's C.R.E.W. was reduced during the pandemic which limited resources at our disposal. Volunteer events and coordination with other organizations did occur but Covid-19 precautions likely suppressed participation. Even with these obstacles, we were able to meet many of our goals for this season. Not only were we were able to treat most of our priority 1 roads, we were also able to conduct more in-season follow-up spot treatments of small, high priority weeds infestations. All but one county pit in the plan were treated, often multiple times. Progress made controlling regulated weed species over the past several years has allowed us to control of more widespread species such as Himalayan blackberries and Scotch broom.

The program also continues to supplement its pollinator habitat enhancement areas. This is now our fifth year of planting native vegetation for pollinator habitat. It serves not only as native pollinator forage and habitat but a way of increasing the resilience of public areas against noxious weed encroachment. An interpretive sign was constructed on the Olympic Discovery Trail, spearheaded by the RWMT. These pollinator projects are a great way to educate the public on the many environmental services that our program provides. Watering and maintenance though have begun to limit some of our ability to perform other tasks. By summer, watering demanded around 25% of the total maintenance hours to keep the plantings survival rate at standards we found acceptable. We were able to recruit two volunteer once a week to assist with our watering regime, but more help will be needed next year to reduce these maintenance obligations.

Specific observations:

Program Development

- "Adopt-a-patch" and "Owner Will Control" options were published online; received and accepted one "Owner Will Control" agreement.
- 9 out of 10 "Public Requests" were accomplished.
- We added "Priority 4" category (IWMP Report 2021 pages 51-58) for county roads where no noxious weeds were found. Roads placed in this priority require less active annual monitoring. It is a goal to get all county roads sufficiently noxious weed free to be placed into this category on a four year monitor/treatment cycle.

- Volunteer events improved our public relationships and engaged people in meaningful work for the county. Events included: 2 Scotch broom pulling days, 4 planting days, and summer/fall weekly watering chores. Approximately 40 volunteered donated over 130 hours.
- The Clallam Conservation District, Broom Busters, and the Peninsula Trails Coalition were phenomenal organizations for generating volunteer activity.
- Stock pile areas and spoils areas were monitored and controlled. This control improved the likelihood of achieving the goal of "weed free material" in all county pits.
- PUD management and the NWCB discussed maintenance activities to identify compatible management practices to align with our goals of reducing noxious weeds.
- A new data point protocol was put in place to try to capture scattered infestations over a longer distance of roadside.
- The RWMT concluded its "light mow" pilot project on two county roads. Detailed information can be found upon request.
- The RWMT provided us with valuable in-season control updates and notified us of areas in need of rechecks.
- The RWMT completed invasive plant surveys for the entire Olympic Discovery Trail (three year endeavor). We were able to use this information to inform treatment priorities for the trail system.
- The RWMT and Noxious Weed Board clarified its definition of "Off Target Damage" in the monitoring report. Any treated infested area that has 25% of unintended vegetation injured or killed will trigger the "Off Target Damage" category.
- The RWMT is an invaluable asset to the program and provided excellent feedback for every project they undertook this season. (See their reports in Appendix H).

Weed Control

- Compared to last year we treated 22% less road miles and had 12.5% fewer treatment days. However, total "chemical solid acres treated" was 18% higher. This can be explained because of the shift to control more widespread weeds on county ROW's which takes more time and resources. The reduction in treatment days and miles treated is also the result of the watering maintenance demands and less seasonal help.
- 89 out of 97 high priority roads were fully treated this year.
- Early season weed treatments allowed for more effective control of certain weed species depending on species and past treatments. Scotch broom and uncut Himalayan blackberry can be effectively controlled in late winter/early spring but effects of chemical application don't show until weeks if not months later.
- The extensive seedbank and long germination period of poison hemlock and knapweed species required multiple visits and treatments because of unpredictable germination times.
- Some poison hemlock sites were visited multiple times a year and have not decreased in seed germination.
- Retreatments improved our ability to control "hard to find" weeds and weeds with different phenological responses. Often done manually, it also provided opportunities for public education.
- Many more county roads continue to be surveyed and high priority weed species were found on 8 previously untreated or low priority roads.
- Treatment of widespread Canada thistle populations in agricultural areas such as East Anderson Rd, Schmitt Rd, and Old Olympic Highway has greatly decreased its presence and impact in these areas.
- Treatments of Himalayan blackberry thickets that combine pre-mowing followed by spot herbicide treatment showed great promise, but timing is critical and challenges arise in coordinating timing with mowing crews.
- All chemical treatments were entirely non-mechanized and carefully targeted allowing us to maximize the protection of native or desirable vegetation.
- The Clallam County Sheriff Department C.R.E.W. assisted with the Lower Elwha Rd Scotch broom removal, Hoko Ozette Scotch broom removal, and removal of debris at the Deer Park Overpass pollinator habitat enhancement site.
- Several large infestations of Scotch broom on county land have been controlled thanks to the mechanized efforts of the different districts coordinated with follow up treatments by the Weed Board.
- "Solid chemical acres treated" dramatically decreased in the county pits (-55%) from last year in part because of the reduction in staff help but also because of the decrease in noxious weed infestations.
- Italian thistle treatments have had a 90% reduction in manual treatment numbers compared to last year. No new populations were found in Kirner Pit, but McInnes pit continues to have sporadic infestations.
- The "light mow" pilot study on Place Rd and Diamond Point Rd had large infestations of Scotch broom that were controlled this year.

- We invested substantial time and effort to communicate with individuals and businesses with specific concerns regarding herbicide treatments.
- The RWMT surveyed the ODT and we have responded with controlling the high priority weeds and are accounting for areas where weedy wide spread species may be effectively treated and replaced with native vegetation.
- The program assisted with the inventory and control of noxious weeds at the Department of Community Development Towne Dike Project. This involved multiple days of mapping and treatment of existing weed species.

Plantings

- The RWMT monitored 2018, 2019, and 2020 pollinator habitat enhancement projects on Black Diamond Rd, Old Olympic Hwy/ODT, and Deer Park Enhancement Site. The purpose of the monitoring was to assess plant survivorship and to assess the quality of pollinator habitat using the Xerces Society habitat assessment protocol. Planting areas were treated for noxious weeds and augmented with additional native plants as dictated by space and need.
- The partnership between Clallam County and a nursery that provided locally sourced native plants was crucial to our planting successes this year. They were a flexible, knowledgeable local resource that provided us with healthy plants and technical advice.
- Native plant material was shared between road department projects as needed.
- Our program assisted the Environmental coordinator in the fall for their planting revegetation sites. These sites included augmenting Hoko-Ozette Rd, Ward Bridge, McDonald Bridge, Gossett Bridge, and a new site Dawley culvert. Dean Creek was skipped due to the encroachment of Himalayan blackberry at the site.
- The Deer Park Overpass site is very large and is comprised of many microenvironments. It is notably steep and inhospitable. This year's plantings are the 3rd phase of a multi-year project.
- The watering regime needed to support the 2019 and 2020 plantings was time intensive and required considerable resources during our treatment season.
- We have located two different locations to fill up water near our planting sites. This should help out with our watering logistics.
- New plantings began after weather had cooled and rainfall was likely to supply consistent moisture. Plantings at Deer Park and the ODT trail were undertaken after all other road department sites were completed, but timing with the wetter weather made it so that we rarely had to water any plants.
- Two "super" volunteers helped with watering our pollinator enhancement areas. Weekly watering happened throughout the dry periods of summer and into fall. This helped eliminate some of the program's watering obligations.
- We incorporated water polymers again when planting all our trees and shrubs at the Deer Park/ ODT Old Olympic berm this year. This additive will hopefully retain water and cut down on resources needed for hand watering going forward.

Crew and Equipment

- The published 2021 IWM was a valuable guide for crew and a helpful reference for the public.
- The roadside crew included up to 3 full-time staff and 2 seasonal employees but crew composition on any given day varied depending on the need.
- Only two seasonal employees applied for positions this year. One worker returned to school by mid-August, the other at the end of September. Even with our smaller staff we were able to accomplish most of our goals for this year.
- One of the two seasonal workers acquired their Washington State Pesticide License. Seasonal crew received on-going training; crew efficiency improved over the season.
- No safety infractions or private property off target damage occurred during treatments.
- Adding safety cones to our daily operations helped with professionalism and safety.
- 6 new backpacks were ordered early this year due to constant maintenance needs from older, worn backpacks. These equipment updates immediately increased treatment efficiency and quality of work.
- Our blue indicator dye continues to be a source of general maintenance and clean up in the bed of the truck and equipment.
- WSDA Smartphone and ArcCollector provided the crew access to spatial databases in the field and increased crew ability to identify adjacent ownership and boundary lines and to coordinate treatments with wider landscape goals.

Crew uses a combination of control methods and strategies to treat infestations of noxious weeds Clockwise (beginning from top left): manual control of large teasel patch; mechanized removal of Scotch broom on Lower Elwha Rd; volunteer event on Old Blyn Highway; chemical control of golden bamboo spp.)

RECOMMENDATIONS:

The Clallam County Integrated Weed Management Plan is intended to be annually evaluated and adapted over time in response to changing conditions and needs. Input and technical updates from federal and state agencies, tribes, universities and local partners and stakeholders are essential. For that reason the results of control activities are monitored, evaluated and the program activities adjusted as necessary.

Specific recommendations for the 2022 IWM Program:

Program Development

- Identify most or all county lands. This will help the program's ability to monitor and respond to noxious weed problems more quickly and effectively.
- Planting species that have known success on the Deer Park Overpass pollinator enhancement project will help mortality rates. Planting lower on the slopes and closer together will help minimize our watering needs.
- Utilization of volunteer help on Deer Park and the Old Olympic Highway ODT planting sites will greatly help survivorship of plants and minimize maintenance for program staff.
- Develop and expand pollinator forage and habitat enhancement projects and coordinate with Road Department, WSU Extension and other partners.
- Publicizing program efforts on our pollinator enhancement sites, Scotch broom pulling events, and RWMT activity can create more public engagement and highlight road department efforts at environmental stewardship. Examples include linking in with the mailing list of active organizations such as the Clallam Conservation District, Broom Busters, Peninsula Trails Coalition and the social media arm of the WSU Master Gardeners.
- FAQ page on website should be created to answer more of our common email questions. Some of those questions are: "How should we dispose of Scotch broom?" "What roads do you plan to treat and when?" "Is ---- a regulated weed?"
- "Owner Will Control Agreements" (Appendix F IN IWMP 2020) have only been submitted by one property owner through the entire programs history, and "Adopt a Patch" (Appendix G IWMP 2020) have never been used. "Owner Will Control" agreements may need to be highlighted on our website more and in a brochure for the courthouse. "Adopt a Patch" agreements should potentially be replaced in favor or volunteer events with specific dates and locations.
- Continue to support coordination and communication between the Noxious Weed Control Board, Road Department, Sheriff's Department, Clallam Conservation District, WSU Extension, and other partners.
- Collaborate with Road Department maintenance staff and Clallam PUD to identify landscape goals and harmonize maintenance techniques wherever possible.
- Prior years had protocols that public requests needed to be asked for before March 1st, something we may consider changing to later in year if flexibility in schedule continues.
- Foster and maintain an atmosphere of cooperation and open communication between mowing staff and noxious weed department.
- Continue to support and develop native plant material availability. Coordinate and plan better for the private property "native plant enhancement" option with our "owner will control" contracts.
- Evaluate and revise pit plans as necessary with input from ER&R Manager, shop supervisors and engineers.
- Identify more county roads where we can implement the "light touch" mowing program.

Crew, Equipment, and Data

- Finding better containers for the blue indicator dye would help with clean up and professionalism.
- Create weed point/layers of our data for the Avensa App. This will make it easier for the RWMT and Noxious Weed Board to navigate to past sites that are outside of reception area and utilization of more electronic devices.
- Coordinate with Road Department for gear rack and accessories as necessary for work vehicle.
- Get water capacity of around 400 gallons between the two sites (Olympic Hwy/ODT and Deer Park). This will make volunteer assistance easier for the late spring and summer watering needs.

- The RWMT found the new point methodology a hindrance to monitoring efficacy. We will move back to our previous data collecting protocols next year.
- Standardize protocol for point taking to help the program's ability to record and track infestations and assist the RWMT's efforts. Striking a balance between too many points and overgeneralization needs to be clarified.
- Develop a table for annual report that captures multiple years of treatments and data trends on county roads.
- Recruit and train seasonal crew earlier in 2022.
- Coordinate with Clallam County GIS department to support and utilize all technical upgrades for data collection.

Weed Control

- "Special Sites" will be a higher priority for next year. Revegetation projects for road sites have become a larger part of our obligations in the fall, and follow up maintenance is an essential aspect of success of these projects.
- Continue inventorying Scotch broom patches for future potential volunteer events. Projects must be in low traffic areas, optimally on Olympic Discovery Trail or other county lands, where work parties can safely operate.
- Himalayan blackberry is now the species that requires more effort and collaboration. This is a daunting prospect without clear answers, further confounded by the long bloom time of the species and the occasional public harvesting of berries.
- Treatments with the active ingredient clopyralid show great promise on many different weed species. Its limitations are also its greatest qualities; it's highly selective on what it will control. With added flexibility and retreatments we may be able to do more selective treatments at different times to best optimize our management practices.
- Reducing the number of priority 1 roads will free up our ability to focus on spot treatments of known regulated weed infestations.
- With the reduction of C.R.E.W. personnel, the need for weed control around guard rails and line of sight treatments is greater and will have to be prioritized in our plan of work.
- Provide for time and resources to walk treatment areas of roads with known infestations of priority weeds.
- Develop strategies to determine treatments of non-priority category 2 species.
- Continue to diligently map and record all new infestations of high priority, category 1 species.
- Begin to lower priorities on roads that have been treated for multiple years that have smaller, sporadic infestations.
- Increase communication with Olympic Discovery Trail Volunteers and Coordinator to find and transition areas from weed landscapes to more native vegetation corridors.
- Monitor and support the pilot Pollinator Habitat Enhancement Areas with follow-up weed control.
- Evaluate roads not treated in prior seasons.

General 2022 Treatment Recommendations:

1. Treat category 1, priority weeds on roadsides.
    a. Repeat treatment of roads in 2021 IWM Plan as necessary; identify roads to begin a 4 year maintenance cycle.
    b. Survey known or suspected infestation areas on foot as time and resources allow.
    c. Control noxious weeds on intersecting or adjacent roads to 2021 treatments as necessary.
2. Treat category 1 and category 2 weeds in County pits as determined by pit plans.
3. Treat species and locations with most impact local agriculture.
    a. Continue outreach with local farmers to identify priorities and potential concerns.
4. Treat species and locations with most impact to local forestry
    a. Continue outreach to identify priorities and potential concerns.
5. Treat non-native weeds at Road Department identified special sites.
    a. Consult with environmental coordinator, shop supervisors, and engineers to identify priorities.
6. Coordinate roadside treatments to support weed management goals adjacent to County land.

Appendix A: 2021 IWM Task Table

The table below lists the tasks included in the IWM Work Plan and highlights the balanced approach to weed management. The specific tasks represent the best mix of control options chosen to address specific weed problems. The tasks are categorized by the weed management strategies: **Biological, Physical, Cultural, Preventative, and Chemical.** We completed or made substantial progress on all tasks listed below. The integral precept of the IWM Work Plan is that all treatment methods are potentially applicable to the County's management of noxious weeds. The table lists the task in **bold,** description of 2021 activities; blue check marks indicate completed tasks, orange check marks indicate partially completed tasks.

Task Status[1]	**Biological**
✓	**Identify release appropriate sites adjacent to County right-of-way:** Identified project sites, no new developments in 2020
✓	**Coordinate with WSU Extension and Noxious Weed Control Board for Releases as they become available:** Nothing new in 2020, site appropriate biocontrol agents currently available. Suitable sites TBD.
✓	A**ssist with research projects where possible:** Master Gardeners finished a 3 yearlong study showing that native shrub communities do suppress tree and noxious weed encroachment. Identifying other areas for light mow expansion is now possible.
	Physical
✓	**Update contact list to be shared between departments:** Shared contact between Road Department Superintendents, Environmental Coordinator, and ODT Volunteer Coordinator.
✓	**Coordinate mowing schedule with weed treatments to avoid incompatible treatments:** NWCB staff regularly updated shop supervisors when working in their regions. Treatments were able to be effectively applied to all sites without interference of mowers or NWCB staff interfering with mowing schedule.
✓	**Provide mowers with map of planned weed treatment areas:** Found to be unnecessary. Verbal communication and regular check ins on district mow maps in each shop is a better strategy for coordination.
✓	**Clearly mark treatment areas, communicate location to field crews:** All treatment sections were posted with Herbicide Notice during and after treatments for at least 24 hours. Unnecessary to communicate location to field crews.
✓	**Schedule and oversee six weeks of Chain Gang for large pulling projects:** 2021 had a major reduction in the Chain Gang members and played catch up through a large part of the year. Even so they helped with Scotch broom removal on Lower Elwha Rd and Hoko Ozette culvert, as well as disposing of biomass at Deer Park Loop.
✓	**Provide training and focus area maps for Chain Gang projects:** Reduction of Chain Gang or absence of members led to no training or focus area maps.
✓	**Support volunteer opportunities for weed pulling projects as appropriate**: Volunteer events were a major part of 2021. The program had over 40 people and 130 hours of volunteer cooperation.
✓	**Identify "Adopt-a-Patch" locations appropriate for manual control that can be adopted by members of the public; post online before treatment season begins:** Prior roads had been identified but no applications were submitted.
✓	**Review public involvement opportunities to ensure the available material meets program goals and is readily accessible online:** Coordinating with the Clallam Conservation District, Broom Busters, and Peninsula Trails Coalition and WSU Extension mailing lists helped our online presence and led to tremendous volunteer support.
✓	**Discourage mowing of desirable native vegetation wherever possible:** Discussed with district mow staff about progressive mow BMPs. Focused on a "light touch" techniques to maintain desirable vegetation.

✓	**Collaborate with mowing personnel to update mowing practices**: Pre- season meeting with shop supervisors. Research on current mowing equipment and potential upgraded implements required.
✓	**Consult on road standards that maximize mowing effectiveness in regard to weed control:** Developed "light touch" BMPs with Roads management and maintenance staff. Began implementing progressive approach where appropriate.
	Cultural
✓	**Identify opportunities to use native plantings in the early stages of projects in the county's transport plan:** Provided assistance in augmenting revegetation sites for county lands.
✓	**Further develop Strategic Pollinator friendly plantings and coordinate with Road Department, WSU Extension to incorporate existing volunteer programs:** Another successful year of augmenting and expanding our Pollinator plantings at Deer Park and the ODT Old Olympic sites. Over 100 volunteer hours were put into planting and interpretive sign development.
✓	**Compile list of plant material sources and needs from other government entities:** Continued collaboration with local agencies including: USFS, Olympic National Park, WSDOT, and DNR to address plant material needs and potential sources.
✓	**Seek grant opportunities to implement pilot projects:** Monitored and maintained Pollinator Enhancement projects, completed light mow pilot projects, and WSU extension achieved a $500 grant for an interpretive sign at our ODT Old Olympic Highway site.
✓	**Foster partnership with locally sourced nursery and updated native plant material list and program as necessary:** Renewed contract.
✓	**Partner with experts from local, state and federal agencies and entities including but not limited to: Clallam County Parks, Washington State University Extension, WSU Master Gardeners, local chapter of bee keepers, the native plant and Audubon societies, the Nature Conservancy, conservation districts, Olympic National Park, Olympic National Forest, USFW Marine Refuge System, Makah, Quileute, Lower Elwha Klallam, and Jamestown S'Klallam tribes, and others who have an interest in developing local native seed and plant resources for use in government projects:**. Our partnership with WSU extension and the WSU Master Gardeners is ongoing, and continues to be a linchpin in our public operations. Collaboration with 10KYI and fulfilling a "Partnership Packet" helps coordinate each other's objectives.
✓	**Encourage landowners with "Owner Will Control" agreements to undertake adjacent roadside enhancement consistent with developing a low maintenance, self-sustaining plant community to prevent weed invasion:** Dispersed material to public on "Owner Will Control" agreements whenever interest arose or conflict about weed management on ROW occurred. Program was willing to waive the March 1st deadline to anyone with conflicting management goals; at least 10 agreements were given out, none were returned. Only one contract was agreed upon and was the same property owner as last year.
✓	**Develop native seed mix for Road Department projects where bare ground is necessary:** This project is underway for locally sourced seed mix
	Preventative
✓	**Update rock and gravel source weed management protocols:** Protocols remained the same throughout the year.
✓	**Inventory, develop and implement weed management plans for all county quarries, storage areas, and spoil disposal sites (pits); update as needed as County use requirements change:** Completed inventories of most County pits (25). Meeting with ER&R manager to discuss any future changes.
✓	**Create county pit reference maps to include in management plans:** Aerial maps were created last year but not necessary for any practical use in pits. Having locations in ArcMap has been adequate reference.

✓	**Adopt weed free material requirements for all county projects:** A rewriting of the "Weed Free Material" clause is underway in the county contracts.
✓	**Provide inspection services for all privately sourced material for county projects that may be weed-contaminated:** Completed 9 private pit inspections.
✓	**Compile list of sources that meet weed-free standards:** Updated private pit list in K:\Interdepartmental\A-Share\Roads\NoxiousWeeds_PitCertifications\Pit Inspections\ClallamPits_NoxiousWeedCertifications.xlsx
✓	**Facilitate annual department weed and native plant identification training in cooperation with weed board staff. Supply field crew with identification booklets. Provide plant identification services for field crew in cooperation with weed board staff:** No annual department weed and native plant identification training was conducted and none was deemed necessary. The mowing crews have all been educated on not mowing knotweed and to communicate with program staff if patches are found on county land. All other weed strategies are either adapted to the mowing schedule or coordinated with the program and the superintendents of each district.
	Chemical
✓	**Implement project list based on tables 4-8 and planned reduction of Category 2 weed sites:** Accomplished 2021 IWM Plan and treated 91 roads and 25 pits using chemical methods or a combination of methods. See Appendix C and Appendix D.
✓	**Coordinate with Road Department staff to identify "special management areas" or non-native, invasive weed locations that interfere with road safety or function; outline additional management needs and strategy for weed control in these areas.** Areas of help included the Deer Park Rest Stop Area, District Shops, and a new site will be added: Lower Dam Rd interpretive site.
✓	**Develop and utilize regional partners to assist in weed control across the county:** Communicated IWM Plan with regional partners (Clallam PUD, WSDOT, USFS and DNR). Provided resource material for 10K Years Institute and agreed upon a "partnership packet" and utilized work force for assistance and manual treatment on one county roadside in District 3.
✓	**Complete treatment records:** Completed "Herbicide/Manual Treatment Data Form" (Appendix K) for all noxious weed control activities.
✓	**Enter data into Clallam county noxious weed control program database:** All data inputted into program database
✓	**Identify any additional equipment needs and take steps to incorporate any available resources, including; vehicles, application equipment, water tanks, or technical equipment:** Water tank repaired and extra backpacks ordered
✓	**Post annual project list and treatments online. Update as often during season as resources allow:** Need to have better updated project and treatment list posted online (done only once in 2021) Annual report will be posted by end of year.
✓	**Monitor at least 10% of all treatments, retreat as needed and as resources allow**: Volunteer Master Gardener Roadside Weed Monitoring Team monitored 49% of treated roads. Re-treatments occurred on several roads where necessary.
✓	**Provide WSU Master Gardeners Roadside Weed Monitoring Team (RWMT) with safety equipment, additional training opportunities, and technical support for monitoring projects:** Provided any in season questions and clarification as needed.
✓	**Monitor and evaluate treatments in county pits:** Many early season treatments occurred to see if we could extend the treatment season in the early spring. Although the effects took sometimes over a month to start showing, they were effective treatments.
✓	**Conduct a weed inventory on at least 25% of all county roads annually:** In the course of treatment NWCB staff surveyed or treated nearly 31% of County roadsides.

✓	**Identify, document and map additional species, location, size and density:** Mapped and recorded information on all regulated weed species encountered on county roadsides and rock sources during 2021 activities.
✓	**Update survey data of county roadsides and catalog infestations over time:** All survey and treatment data has been compiled for this report. Infestations and survey results will be recorded in NWCB database this winter.
✓	**Identify and compile a list of high priority infestations for following year. Create map:** In process.
✓	**Identify and compile a list of sites for revegetation appropriate opportunities:** List of possible pollinator identified and in process with Road department to determine long-term feasibility.
✓	**Support four, volunteer-based projects either on or adjoining county property that protects county property from weed infestations. This may include monitoring, road-typing for re-vegetation, and re-vegetation projects:** Completed 4 planting events to implement pilot-pollinator projects and 3 Scotch broom events. Events totaled over 130 volunteer hours and 40 different people. Volunteer Master Gardener RWMT recorded over 400 volunteer hours dedicated to the 2021 IWM Plan.
✓	**Compile locations and instructions for special management areas. Include and update field maps as frequently as needed:**. Lower Dam Interpretive center and Dawley Washout will be added to "special sites." Last year Dean Creek, Gosset Bridge, and Dungeness Bridge were added.
✓	**Promptly respond to all public inquiries. Address any public concerns regarding applications:** Provided project information and specific activity information to over 94 individuals in the field. Answered and responded to inquiries directed to the phone number listed on "Herbicide Notice" (Appendix J). Contacted all registered sensitive persons relevant to control activities (2); in addition to RCW requirements we provided periodic updates, alternate route information and additional accommodations.
✓	**Manage "Owner Will Control" agreements**: Complete. 1 accepted agreements.
✓	**Review "Owner Will Control" application process and forms to ensure all public involvement opportunities are readily accessible online:** Complete.
✓	**Maintain current list and map of "Owner Will Control" locations for both office and field use:** Complete.
✓	**Review and update on-line weed control request application process and forms as necessary:** Contact form available online at: http://www.clallam.net/features/emailClallam.asp?em=weed
✓	**Review process and forms for interdepartmental communication:** Inquired about up to date mowing layer and more electronic point communication between road and noxious weed department. Development of interdepartmental communication still years away. Continued interdepartmental spreadsheet showing certified private pit inspections.
✓	**Compile annual report summarizing accomplishments, effectiveness, and recommendations for subsequent year. Brief the Road Department and County Commissioners by December 31st:** In process, will be completed by December 31st
✓	**Draft IWM plan and submit to the Clallam County Noxious Weed Control Board and Road Department Supervisor for approval prior to the Weed Board's first meeting of the year. Submission of the IWM plan should occur 20 days before the meeting, and should be posted online. Provide public notice that plan will be discussed, with weed board meeting announcements. The finalized plan and a map of proposed treatment locations should be posted online and made available upon public request:** In process.

[1]Blue check marks indicate task completed in 2021; Orange check marks indicate partial completion, Red check marks indicate not completed.

Appendix B: Weed Species Treated on County Roadsides and Rock Sources 2021

The table below alphabetically lists all weed species controlled in 2021 on County roadsides or rock sources/soil disposal sites (Pits). The species listed in Green were treated on **roadsides** only; species listed in Pink were treated in **Pits** only. Species without color coding were treated on both roadsides and pits. The 4-letter Weed Code is the first two letters of the genus and the first two letters of the species. Weed Category is determined in the 2021 IWM Plan to prioritize control. Definitions of headings can be found at the end of the table. Clallam County Noxious Weed List available online: **http://www.clallam.net/weed/doc/2021ClallamWeedListWeb.pdf**

Common Name	4-Letter Weed Code	Scientific Name	Life Cycle[1]	Growth Form	Threat	Cate-gory	Status
bindweed, field	COAR	*Convolvulus arvensis*	P	Forb	Out competes native plants species and can reduce crop yields; forms an extensive root system, often climbing or forming dense tangled mats.	1	NR
bindweed, hedge	CASE	*Calystegia sepium*	P	Forb	Competes with native plants; difficult to eradicate once established	3	WW
mustard, bird's rape	BRRA	*Brassica rapa*	B	Forb	Can be toxic to livestock, can degrade agricultural seed production	2	WW
blackberry, evergreen	RULA	*Rubus laciniatus*	P	Shrub	Dense canopies crowd out native species; impenetrable barrier	2	NW
blackberry, Himalayan	RUAR	*Rubus armeniacus*	P	Shrub	Dense canopies crowd out native species; impenetrable barrier	2	NW
broom, Scotch	CYSC	*Cytisus scoparius*	P	Shrub	Forms dense stands; unpalatable; interferes with forest regeneration; fire hazard; scent can exacerbate human grass allergies; seeds are toxic to horses and livestock	2	NW
butterfly bush	BUDA	*Buddleia davidii*	P	shrub	Invades natural areas; dense stands crowd out native vegetation in riparian areas and interfere with natural succession	1	NR
canary grass, reed	PHAR	*Phalaris arundinacea*	P	grass	Unpalatable unless young, forms dense stands that crowd out native plants; especially difficult to control; serious wetland invader; can stop the process of succession in riparian sites, impedes tree seedling establishment	2	NW
carrot, wild	DACA	*Daucus carota*	B	Forb	Damages agricultural commodity as it may cross pollinates with domestic carrot, seriously degrading the quality of commercial carrot seed production	2	NW
chicory, common	CIIN	*Cichorium intybus*	P	Forb	Only found in the Dungeness Valley where it is starting to spread	1	ISSC
cinquefoil, sulfur	PORE	*Potentilla recta*	P	Forb	Not readily grazed by livestock and wildlife; forms dense stands	1	NCR
mullein, common	VETH	*Verbascum thapsus*	B	Forb	Unpalatable	3	WW
comfrey, common	SYOF	*Symphytum officinale*	P	Forb	Aggressive invader, unpalatable, mildly toxic to livestock	2	WR
daisy, oxeye	LEVU	*Leucanthemum vulgare*	P	Forb	Aggressively invades fields and forms dense populations, out competes desirable plants	3	WW
hawkweed, orange	HIAU	*Hieracium aurantiacum*	P	Forb	Aggressive invader forming dense mats, unpalatable, competitor of pasture and range plants	1	NR
hawkweed, yellow	HICA	*Hieracium caespitosum*	P	Forb	Aggressive invader forming dense mats, unpalatable, competitor of pasture and range plants	1	NR

Common Name	4-Letter Weed Code	Scientific Name	Life Cycle[1]	Growth Form	Threat	Cate-gory	Status
hawthorne, English	CRMO	*Crataegus monogyna*	O	Tree	Dense thickets can dominate shrub layer and suppress desirable vegetation	2	NR
hoary alyssum	BEIN	*Berteroa incana*	A, B	Forb	Can be toxic to horses; spreads aggressively in disturbed areas	1	NR
holly, English	ILAQ	*Ilex aquifolium*	P	Shrub	Dense thickets can dominate shrub layer and suppress desirable vegetation	3	WW
fennel, common*	FOVU	*Foeniculum vulgare*	P	Forb	Dense stands exclude native vegetation	1	NCR
fox glove	DIPU	*Digitalis purpurea*	B	Forb	Can be toxic to livestock; spreads aggressively in disturbed areas	3	WW
nightshade, hairy	SOPH	*Solanum physalifolium*	P	Forb	Can be toxic to humans and livestock; limited distribution	1	WR
herb Robert	GERO	*Geranium robertianum*	A, B	Forb	Rapid spreading; displaces native herbaceous plants; allelopathic, inhibits the germination of small seeded forbs in forest understory	1	NW
Ivy, English	HEHE	*Hedera helix*	P	Shrub - vine	Aggressive invader, competes understory species, degrades wildlife habitat, can cause tree collapse due to added canopy weight and surface area.	2	NW
knapweed, meadow	CEMO	*Centaurea x moncktonii*	P	Forb	Outcompetes pasture species; degrades wildlife habitat; interferes with agriculture	1	NCR
knapweed, spotted	CEST	*Centaurea stoebe*	B	Forb	Allelopathic plant that can inhibit the germination of grasses; forms dense stands that exclude desired plants and wildlife	1	NCR
knotweed, Bohemian	POBO	*Polygonum x bohemicum*	P	Shrub	Easily spreads by disturbance; dense colonies eliminate other plant species and can degrade fish habitat; causes structural damage to human structures	1	NCR
laurel, spurge	DALA	*Daphne laureola*	P	Shrub	Toxic to humans and animals; contact with plants can cause dermatitis	1	NR
lupine, tree	LUAR	*Lupinus arboreus*	P	Shrub	Aggressive invader forming dense monocultures, potentially toxic to livestock	2	WR
peavine, everlasting	LALA	*Lathyrus latifolius*,	P	Forb - vine	Forms dense thickets; seeds can be toxic to livestock; seriously interferes with forest regeneration where it invades from edges of timber units	2	ISSC
periwinkle, greater	VIMA	*Vinca major*	P	Shrub - vine	Rapidly spreading, invades and displaces native or desirable vegetation	2	WR
poison hemlock	COMA	*Conium maculatum*	B	Forb	Highly toxic to humans and animals; all parts of the plant are toxic; severe birth defects	1	NCR
St Johnswort, common	HYPE	*Hypericum perforatum*	P	Forb	Causes photo-sensitization when grazed; toxic at all stages of growth	3	NW
tansy ragwort	SEJA	*Senecio jacobaea*	B	Forb	Poisonous to horses, cattle, and pigs; animals grazing tansy can produce tainted milk, may result in potentially toxic residue in honey	1	NCR
tansy, common	TAVU	*Tanacetum vulgare*	P	Forb	Dense stands degrade forage value; toxicity issues for humans and livestock	1	NR
teasel, common	DIFU	*Dipsacus fullonum*	B	Forb	Forms dense stands of prickly, unpalatable plants; degrades habitat and reduces accessibility	1	NR
thistle, bull	CIVU	*Cirsium vulgare*	B	Forb	Aggressive competitor, unpalatable for cattle	2	NW

Common Name	4-Letter Weed Code	Scientific Name	Life Cycle[1]	Growth Form	Threat	Cate-gory	Status
thistle, Canada	CIAR	*Cirsium arvense*	P	Forb	Aggressive competitor, unpalatable; decreases forage; host species for several agricultural pests	2	NW
thistle, Italian	**CAPY**	*Carduus pycnocephalus*	A	Forb	Spiny, unpalatable, and excludes native vegetation and degrades habitat. Spreads quickly and can be a fire hazard in summer season.	1	NR
whitetop, hairy	LEAP	*Lepidium appelianum*	P	Forb	Monocultures displace desirable plants; unpalatable; can be form toxic to cattle	1	NR
wormwood, absinth	ARAB	*Artemisia absinthium*	P	Shrub	Aggressive invader, will outcompete desirable forbs and grasses in pastures, fields and native grasslands; plants have a strong bitter taste and odor, may affect milk quality	1	NR
yellow archangel	LAGA	*Lamiastrum galeobdolon*	P	Forb - vine	Aggressive invader, competes understory species, degrades wildlife habitat	1	NCR
white sweet clover	MEAL	*Melilotus albus*	A	Forb	Toxicity issues for livestock; aggressive invader. County piles cleared	3	WW
wild basil savory	CLVU	*Clinopidium vulgare*	P	Forb	Aggressive invader, competes understory species, degrades wildlife habitat	2	WR

[1] A - annual; B - biennial; P - perennial

ISSC = **I**nvasive **S**pecies of **S**pecial **C**oncern, **NCR** = **N**oxious, **C**ontrol **R**equired**, NR** = **N**oxious**, R**are **NW** = **N**oxious, **W**idespread

WR = **W**eedy**, R**are, **WW** = **W**eedy**, W**idespread

Appendix C: 2021 Roadside Treatment Activities:

This table includes all county roadsides managed for noxious weeds in 2021 under the Clallam County Road Department IWM Plan. The table is sorted alphabetically by road name. Names that are only italicized have been treated only in 2020 and 2021; bolded were treated in 2019-2021; names both bolded and italicized were treated in 2018-2021; names that are green have been treated 2017-2021. The table contains the **Species Treated**, **Examined Acres**, **Treated Acres**, **Solid Treated Acres**, and **Solid Manual Acres** for each day work occurred on a road; definitions of these headings can be found at the end of the table. Retreated miles were marked with a maximum "0.1" metric in categories "miles treated"," acres examined", and "acres treated". This was done to try to avoid too much double counting. Species treated are listed alphabetically by the assigned 4-letter code (see appendix B); 4-letter codes shown in bold are regulated noxious weeds and required for control in Clallam County.

We treated **116** individual roads and discovered another 8 roads with regulated weed species. In total we completed a total of **173 miles** (439 **examined acres**) of county roadside. This comprised of **7 miles** manual only, **33 miles** of manual/ chemical, and **133 miles** chemical only. Treatments occurred within a total **322 acres** and included **37 species**. We treated **0.1 solid acres** of weeds with manual methods and **22.5 solid acres** of weeds chemically. "Solid acres" represent the area that would be covered 100% with noxious weeds if the plants were clumped together; area is estimated in the field or calculated with recorded data. See table footer for further explanation.

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
3 Crabs Rd[1]	M	3/30/2021	0.05	0.1	0.1	0.000	0.0003	**COMA**
Agate Beach	H	7/28/2021	0.20	0.4	0.4	0.001	0.0000	CIAR*, **SEJA**
Aster Rd	M	2/22/2021	0.10	0.1	0.1	0.000	0.0005	**SEJA**
Bear Creek Rd	H	9/1/2021	2.10	4.07	4.07	0.069	0.0000	CYSC,RUAR,RULA,**SEJA**
Bishop Rd	M	9/15/2021	0.10	0.1	0.1	0.000	0.0004	**SEJA**
Black Diamond Rd	H	7/12/2021	2.50	4.8	4.8	0.092	0.0000	**CEMO**, CIAR*, CIVU*, DIPU*, GERO*, **LAGA**, LALA*,
	H	7/13/2021	2.00	3.9	3.9	0.413	0.0000	**CEMO**, CIAR*, CYSC*, GERO*, RUAR*, RULA*
Bloedel Blvd	H	8/17/2021	0.01	0.1	0.1	0.069	0.0000	PHAR
Blue Mountain Rd	H	8/9/2021	1.00	2	2	0.344	0.0000	**CEMO**, CYSC*, **DIFU**, RUAR*, **SEJA**

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Blue Mountain Rd	M/H	9/9/2021	0.00	0.0089	0.0089	0.001	0.0001	**CEMO**,POBO,**SEJA**
Business Park Loop	H	4/12/2021	0.40	0.8	0.8	0.138	0.0000	ANCA, ARAB, **CEST**, CIIN, **COMA**, CYSC, RUAR
Camp Hayden Rd	M/H	7/27/2021	3.50	6.8	6.8	0.275	0.0021	**CEMO**, CIAR*, CIVU*, **SEJA**
Carlsborg Rd	M/H	4/12/2021	1.80	3.5	3.5	0.184	0.0008	ANCA*, **CEMO**, **CEST**, CYSC*, **FOVU**, RUAR*, TAVU
Cat Lake Rd	H	7/1/2021	0.50	1	1	0.207	0.0000	CYSC*, HYPE*, LALA*, **SEJA**
Cays Rd	H	3/26/2021	0.20	0.4	0.4	0.092	0.0000	**CAPY**
	H	4/12/2021	3.20	6.2	6.2	0.459	0.0000	**CEST**, **CEMO**, CIAR, **COMA**, CYSC, DALA*, **FOVU**, HYPE, LUAR, RUAR*
	H	8/23/2021	0.25	0.5	0.5	0.115	0.0000	**CEMO**, CIAR, **COMA**
Cline Spit Rd	M	3/30/2021	0.10	0.2	0.1	0.000	0.0003	
Coho Dr	M	9/22/2021	0.10	0.6	0.1	0.000	0.0008	**SEJA**
Cooper Ranch Rd	H	6/29/2021	2.10	5.2	5.2	0.275	0.0000	GERO, **SEJA**
Corriea Rd	H	5/19/2021	0.10	0.1	0.1	0.006	0.0000	RUAR
Coulter Rd	M	3/18/2021	0.40	0.7	0.7	0.000	0.0002	**COMA**
Crescent Beach Rd	M/H	7/27/2021	0.80	1.6	1.6	0.069	0.0014	**CEMO**, CIVU*, CYSC*, LALA*, **SEJA**
Dan Kelly Rd	H	10/6/2021	0.10	6.2	0.1	0.023	0.0000	CYSC*, POBO, **SEJA**
Dawley	M	2/23/2021	0.01	1.4	0.01	0.000	0.0010	**DIFU**, **COMA**

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Dawley	M/H	7/28/2021	0.60	1.1	1.1	0.092	0.0004	**CEMO**, CIAR*, GERO*, LALA*, RUAR*, **SEJA**
	M	9/21/2021	0.10	0.1	0.1	0.000	0.0005	**CEMO**, **SEJA**
Deer Park Rd	H	4/22/2021	0.80	1.5	1.5	0.138	0.0000	**HICA**
	H	6/2/2021	4.00	7.75	7.75	0.712	0.0000	**CEST**, CIAR, CYSC*, **HICA**, GERO*, HYPE*, LALA*, RUAR*, **SEJA**
	H	6/9/2021	3.00	5.8	5.8	0.000	0.0000	**CEMO**, CIAR*, CIVU*, CYSC*, **FOVU**, **HICA**, RUAR*, **SEJA**
	H	6/24/2021	0.50	1.0	1	0.184	0.0000	CIAR*, **COMA**, CYSC*, RUAR*, **SEJA**
	M/H	8/9/2021	0.10	15.5	0.1	0.001	0.0011	**SEJA***
Deitz Rd	M	8/11/2021	0.01	1.0	0.01	0.000	0.0003	**SEJA**
Dempsey Rd	M	9/15/2021	0.10	0.1	0.1	0.000	0.0000	**SEJA**
Diamond Point Rd	M	2/22/2021	0.10	0.1	0.1	0.000	0.0030	CYSC*, **SEJA**
	H	4/14/2021	1.30	2.6	2.6	0.092	0.0022	CIAR, CIVU, CYSC, RUAR
	M/H	4/15/2021	2.20	4.2	4.2	0.149	0.0030	CIAR, CIVU, CYSC, GERO*, RUAR*, **SEJA**
	M/H	5/18/2021	0.08	0.08	0.08	0.000	0.0050	CYSC*
	H	7/1/2021	0.30	0.6	0.6	0.253	0.0000	CYSC, **SEJA**
Dry Creek Rd	H	9/8/2021	0.70	1.3	1.3	0.052	0.0000	**CEMO**,CIVU,CYSC,POBO,RUAR
E Michigan School Rd	H	7/1/2021	0.10	0.1	0.1	0.002	0.0000	CYSC, **DIFU**

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
East Beach Rd	H	7/14/2021	0.40	0.8	0.8	0.184	0.0000	**CEMO**, CYSC*, DIPU*, GERO*, **SEJA**
East Lyre River Rd	H	7/26/2021	0.40	0.8	0.8	0.046	0.0000	**CEMO**, CIVU*, GERO*, RULA*, **SEJA**
East Sequim Bay Rd	M	3/18/2021	0.10	0.1	0.1	0.000	0.0079	CYSC
	H	7/19/2021	4.50	8.7	8.7	0.758	0.0000	CIAR*, CIVU*, CYSC*, DIPU, GERO*, **SEJA**
Easterly Rd	H	5/12/2021	0.23	0.5	0.5	0.006	0.0000	**CEMO**, CYSC*
	H	9/13/2021	0.23	0.4	0.44	0.001	0.0000	**CEMO**
Eden Valley Rd	M	2/9/2021	0.10	0.1	0.1	0.000	0.0094	CYSC*, **DIFU***, IRPS* **SEJA**
	H	4/29/2021	2.40	4.7	4.7	0.184	0.0000	CYSC, **DIFU**, GERO*, RUAR, **SEJA**
	H	9/15/2021	0.10	0.1	0.1	0.011	0.0000	GERO*, LALA, POBO, RUAR*
Elwha River Rd	H	6/23/2021	0.50	1	1	0.138	0.0000	**CEMO**, CYSC, GERO*, RUAR, **SEJA**
Evans Rd	H	3/31/2021	0.80	0.8	0.8	0.138	0.0000	ANSY, CIAR, CIVU, **COMA**, HYRA, RUAR
Farrington Rd	H	7/7/2021	0.40	0.8	0.8	0.006	0.0000	**CEMO**, **SEJA**
	M/H	7/26/2021	0.40	0.8	0.8	0.092	0.0004	CIVU*, ILAQ, **SEJA**
Fasola Rd	H	4/1/2021	0.75	1.5	1.5	0.092	0.0000	**COMA**, **DIFU**, **SEJA**, RUAR
Fisher Cove Rd	H	7/14/2021	0.80	1.5	1.5	0.298	0.0000	**CEMO**, CIVU, CYSC, GERO, RUAR*
Freshwater Bay Rd	M/H	9/15/2021	1.00	1.9	1.9	0.057	0.0003	CIAR*, CIVU*, CYSC*, **SEJA**
	H	10/6/2021	1.10	2.1	2.1	0.195	0.0000	CIAR*, CIVU*, CYSC*, HYPE, **SEJA**

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Freshwater Bay Rd	M	7/26/2021	0.10	2.1	0.1	0.000	0.0006	CIAR, **SEJA**
Gagnon Rd	h	10/6/2021	0.10	0.1	0.1	0.046	0.0000	POBO
Gilbert Rd	H	3/29/2021	0.20	0.3	0.3	0.092	0.0000	CIVU*, **COMA**, CYSC*, DALA*, RUAR*
Glass Rd	M	8/11/2021	0.01	4.3	0.01	0.000	0.0002	**SEJA**
Gossett Rd	M	10/5/2021	0.01	1	0.01	0.000	0.0010	**CEMO**
Granite Rd	H	7/7/2021	0.30	0.6	0.6	0.620	0.0000	**CEMO**, CIVU*, CYSC*, RUAR*
	H	9/7/2021	0.30	0.58	0.58	0.184	0.0000	
Grauel-Ramapo Rd	H	9/15/2021	0.10	0.25	0.25	0.115	0.0000	CYSC*
Gravel Pit Rd	H	8/18/2021	0.10	0.2	0.25	0.092	0.0000	CYSC, TAVU
Happy Valley Rd	H	5/11/2021	2.25	5.3	5.3	0.092	0.0000	**CEMO**, CIAR*, CIIN*, CIVU*, **COMA**, CYSC, **DIFU**, **SEJA**
	H	5/12/2021	0.66	1.3	1.3	0.046	0.0000	**CEMO**, CIAR*, CIVU*, **SEJA**
	H	5/13/2021	0.60	1.1	1.1	0.023	0.0000	**CEMO**, CIVU*, RUAR*, **SEJA**
	H	6/30/2021	0.07	0.08	0.08	0.007	0.0000	**CEMO, CEST**
	H	8/31/2021	0.10	0.1	0.1	0.011	0.0000	**CEMO**, CIAR*, CIVU*, RUAR*
	H	9/13/2021	7.70	14.9	14.9	0.344	0.0000	**CEMO**,**CEST**,**SEJA**
Harrison	M/H	3/29/2021	0.24	0.4	0.4	0.069	0.0001	BEIN, CYSC
Henry Boyd Rd	H	8/11/2021	0.01	0.1	0.01	0.001	0.0000	**SEJA**

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Herrick Rd	H	10/4/2021	0.30	0.6	0.6	0.046	0.0000	CYSC
Hoko-Ozette Rd	M/H	8/1/2021	5.50	10.6	10.6	0.000	0.0027	CYSC, RUAR*, RULA*, **SEJA**
	H	8/4/2021	12.00	23.2	23.2	0.941	0.0030	CIAR, GERO*, RUAR*, RULA*, **SEJA**
Holland Rd	H	9/21/2021	0.10	0.1	0.1	0.001	0.0000	**LAGA**
Hooker Rd	M	3/29/2021	0.10	0.2	0.2	0.000	0.0004	**COMA**
Jimmy Come Lately Rd	H	10/11/2021	0.50	1.1	0.9	0.184	0.0000	CIVU, CYSC, DIPU, GERO
	H	10/12/221	0.50	1.1	1.1	0.184	0.0000	**CEMO**, CYSC*, CIVU, GERO, RUAR*
Johnson Creek Rd	H	5/12/2021	0.50	1	1	0.006	0.0000	**CEMO**, CYSC*, **SEJA**
	H	9/13/2021	0.10	0.1	0.1	0.006	0.0000	**CEMO**, CIAR*, CYSC*
Joyce-Piedmont Rd	H	7/28/2021	3.80	7.3	7.3	0.459	0.0000	**CEMO**, CIAR*, GERO*, RUAR*, **SEJA**
Kilmer Rd	M	9/22/2021	0.10	0.1	0.1	0.000	0.0001	**SEJA**
Kitchen-Dick Rd	M	3/5/2021	0.10	0.1	0.1	0.000	0.0031	**COMA**
	M	4/6/2021	0.05	0.05	0.05	0.000	0.0009	**COMA**, **FOVU**
	H	5/5/2021	0.10	0.1	0.1	0.011	0.0000	CIAR, CIVU, LEAP
	H	8/18/2021	1.20	2.3	2.3	0.189	0.0000	**CEMO**, CIAR*, CIVU*, CYSC* HYPE*, LALA*, RUAR*
Laird Rd	H	9/4/2021	0.90	1.7	1.7	0.092	0.0000	**CEMO**, CIAR, CYSC*, RUAR*
Lamar Ln	H	3/23/2021	0.20	0.4	0.4	0.006	0.0000	**CAPY**, CIAR, CIVU

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Little Loop Dr	M/H	8/11/2021	0.80	1.6	1.6	0.057	0.0014	CYSC*, RUAR, **SEJA**
Little River Rd	H	7/12/2021	3.75	7.2	7.2	0.413	0.0000	**CEMO**, CYSC*, GERO*, LALA*, RUAR*, **SEJA**
	H	9/7/2021	0.75	1.4	0.1	0.023	0.0000	**CEMO**
Lost Mountain Rd	H	7/21/2021	5.10	9.9	9.9	0.253	0.0000	**CEMO**, CIIN*, CYSC*, GERO*, HYPE*, LALA*, RUAR*, **SEJA**
Lotzgesell Rd	M	3/5/2021	1.70	3.3	0.1	0.000	0.0016	**COMA**
	H	4/13/2021	0.90	1.9	1.9	0.069	0.0000	ANCA*, CIAR*, CYVU*, CYSC*, LEVU*, RUAR*
Lower Elwha Rd	H	6/9/2021	0.40	0.8	0.8	0.184	0.0000	CIAR, CIVU, CYSC, RUAR
	H	9/8/2021	0.80	1.55	1.55	0.126	0.0000	CIAR,CIVU,CYSC,LALA,**SEJA**
Mary Clark Rd	H	6/29/2021	5.75	11.2	11.2	0.551	0.0000	CYSC*, DIPU*, HYPE*, RUAR*, **SEJA**
Marine Dr	M	3/30/2021	0.70	1.4	1.4	0.000	0.0018	**COMA**
Mina Smith Rd	M/H	8/25/2021	2.40	4.7	4.7	0.505	0.0002	CYSC, **LAGA**, LALA*, RUAR*, RULA*, **SEJA**
Mount Pleasant Rd	H	8/11/2021	0.10	9.7	0.1	0.001	0.0000	**CEMO**, CYSC*, CIAR*, RUAR*, **SEJA**
	H	8/18/2021	0.10	9.7	0.1	0.006	0.0000	**CEMO**, CYSC*, CIAR*, RUAR*, **SEJA**
N Gales St	H	5/6/2021	0.10	1.0	0.1	0.001	0.0031	CYSC
O'Brien Rd	M	6/1/2021	2.24	0.1	0.1	0.001	0.0000	**CEMO**, **HICA**, RUAR
	H	8/9/2021	4.00	7.75	7.75	0.230	0.0000	**CEMO**, CIAR*, CIVU*, CYSC*
Okerman Rd	H	7/7/2021	0.30	0.6	0.6	0.138	0.0000	**CEMO***, CYSC*, RUAR*

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Old Black Diamond Rd	M	7/13/2021	0.25	0.5	0.1	0.000	0.0004	**CEMO**, **SEJA**
Old Blyn Hwy	M/H	3/17/2021	1.25	2.4	2.4	0.195	0.0006	**COMA**, CYSC*, **DIFU**, GERO, RUAR*, **SEJA**
	H	7/1/2021	0.10	0.75	0.1	0.161	0.0000	**COMA**, CYSC*, RUAR*
Old Olympic Hwy	H	5/5/2021	1.25	2.4	2.4	0.184	0.0000	CIAR*, CYSC, **FOVU**, RUAR*
	M	8/2/2021	0.01	0.01	0.01	0.000	0.0011	**SEJA**
	H	8/18/2021	1.00	19.3	2.1	0.505	0.0000	CIAR*, CYSC*, HYPE*, RUAR*, TAVU
	H	8/23/2021	0.65	1.2	1.2	0.322	0.0011	CIAR*, **CEMO**, CIAR*, CIVU*, CYSC*, RUAR*, **SEJA**, TAVU
Olson Rd	M	4/26/2021	0.10	2.5	0.1	0.000	0.0008	CYSC
Olympic Discovery Trail**	M	5/18/2021	.01	.01	.01	0.000	0.0003	**COMA, DIFU**
Olympic Hot Springs Rd	H	7/13/2021	1.25	2.4	2.4	0.161	0.0000	**CEMO**, DIPU*, GERO*
	H	7/14/2021	0.80	1.5	1.5	0.184	0.0000	**CEMO**, CYSC*, GERO*, LALA*
	H	9/7/2021	0.10	3.9	0.1	0.046	0.0000	**CEMO**, RUAR*
Palo Alto Rd	H	7/20/2021	7.80	15.1	15.1	0.413	0.0000	**CEMO**, CIIN, CYSC, HYPE*, LALA*, RUAR*, **SEJA**
	M	9/13/2021	0.10	15.1	0.1	0.006	0.0002	**SEJA**
Panorama Blvd	H	7/19/2021	1.20	1.2	1.2	0.001	0.0000	CYSC*, CRMO, GERO*, RUAR*, **SEJA**
Pioneer St	H	10/6/2021	0.10	0.1	0.1	0.002	0.0000	POBO

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Place Rd	M/H	6/9/2021	0.60	1.2	1.2	0.000	0.0050	CYSC*, RUAR*
	H	6/10/2021	1.20	2.3	2.3	1.286	0.0000	**CEMO**, CIVU*, CYSC*, GERO*, **SEJA**
	M/H	6/23/2021	1.00	2	2	0.367	0.0011	CYSC*, DIPU*, **SEJA**
Port Williams Rd	H	8/31/2021	2.40	4.6	4.6	0.184	0.0000	**CEST**, CIAR*, GERO*, RUAR*
Power Plant Rd	H	10/14/2021	0.10	0.1	0.1	0.011	0.0000	CSYC*, HEHE*, POBO
Quillayute Airport Rd	M	9/22/2021	0.10	0.7	0.1	0.000	0.0004	**SEJA**
Quillayute Rd	M/H	6/17/2021	6.70	14	14	1.288	0.0113	CYSC, **TAVU**, **SEJA**, HYPE
	M	8/17/2021	0.10	7.757576	0.1	0.000	0.0012	**SEJA**
	M	9/1/2021	0.10	7.75		0.000	0.0027	**SEJA**
Richwine Rd	M	9/22/2021	0.10	1.1	0.1	0.000	0.0003	**SEJA**
River Park Rd	H	9/22/2021	0.10	0.8	0.1	0.001	0.0000	**SEJA**
River Rd	H	5/13/2021	1.50	2.9	2.9	0.092	0.0000	**CEMO**, CIVU*, CYSC, GERO*, RUAR*
	H	8/31/2021	2.75	5.3	5.3	0.184	0.0000	**CEMO**, CIAR*, CIIN, CYSC, RUAR*
S 3rd Ave	H	5/12/2021	0.50	1	1	0.149	0.0000	**CEMO**
	H	9/13/2021	0.27	0.5	0.5	0.023	0.0000	**CEMO**, CIAR*, CRMO, RUAR*
Schmitt Rd	H	7/26/2021	0.75	1.4	1.4	0.092	0.0000	**SEJA**
Sequim-Dungeness Way	M	3/25/2021	0.01	0.05	0.05	0.000	0.0042	**COMA**, **DIFU**

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Sequim-Dungeness Way	H	3/31/2021	1.20	2.4	2.4	0.184	0.0000	**CEST**, CIAR, CIVU, **COMA**, CRMO, CSYC, DACA, **FOVU**, LEVU,RUAR
	M/H	4/2/2021	1.90	3.7	3.7	0.344	0.0125	CIAR*, **COMA, CYSC**
	H	4/5/2021	0.02	0.045914	0.04	0.046	0.0000	
	M	6/22/2021	0.10	0.1	0.1	0.000	0.0003	**COMA**
	M	8/24/2021	0.10	0.1	0.1	0.000	0.0021	**DIFU**
Serpentine Ave	M	5/16/2021	0.10	0.1	0.1	0.000	0.0013	**COMA**
Shuwah Rd	H	8/17/2021	0.01	1.0	0.01	0.000	0.0000	POBO
South St	H	9/14/2021	0.10	0.2	0.1	0.069	0.0000	CYSC
Swan Bay Rd	M/H	8/10/2021	1.00	1.9	1.9	0.069	0.0002	RUAR*, **SEJA**
Taylor Cut-off Rd	H	7/21/2021	0.60	1.2	1.2	0.138	0.0000	**CEMO**, CIAR*, CIIN*, CIVU*, CYSC*, ILAQ, RUAR*
Thornton Dr	M	3/30/2021	0.05	0.1	0.1	0.000	0.0001	
Towne Rd	M	2/3/2021	0.10	0.1	0.1	0.000	0.0003	**COMA**
	M	5/27/2021	0.10	0.1	0.1	0.000	0.0006	**COMA**
	M/H	8/26/2021	0.60	1.1	1.1	0.092	0.0008	**COMA, DIFU,** RUAR*
Township Line Rd	H	6/7/2021	1.60	3.1	3.1	0.184	0.0000	CIVU*, CYSC*, RUAR*, **SEJA**
Turnstone Ln	H	4/8/2021	0.40	0.8	0.8	0.092	0.0000	**CEST**, DACA*, LEVU*, RUAR*

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
	H	8/31/2021	0.50	1	1	0.115	0.0000	**CEST**, CRMO, CYSC*, RUAR*
Valley Center Pl	M/H	3/29/2021	0.20	0.25	0.25	0.046	0.0001	BEIN, **CEST**, CYSC
Vistas Dr	M/H	4/2/2021	0.14	0.25	0.25	0.023	0.0005	**COMA**, CYSC, RUAR
W Edgewood Dr	M/H	8/18/2021	0.10	0.1	0.1	0.001	0.0001	**CEMO**, TAVU
	H	10/6/2021	0.10	0.1	0.1	0.069	0.0000	CYSC*, HEHE*, RUAR*
W Washington St	H	8/31/2021	0.30	0.6	0.1	0.138	0.0000	**CEMO**, **CEST**, RUAR*
Ward Rd	H	3/30/2021	1.60	1.8	1.8	0.184	0.0000	CIAR*, CIVU*, **DIFU**, GERO*, **LAGA**, RUAR*, **SEJA**
Wentworth Rd	H	9/1/2021	1.20	2.1	2.1	0.184	0.0000	CYSC*, RUAR*, RULA*
West Lake Pleasant Rd	H	8/17/2021	0.10	2.133333	0.04591	0.046	0.0000	POBO
West Lyre River Rd	H	7/26/2021	0.75	1.4	1.4	0.046	0.0000	**CEMO**, CIVU*, GERO*, **SEJA**
	M/H	8/17/2021	0.10	0.1	0.1	0.006	0.0002	**CEMO**
West Sequim Bay Rd	H	4/15/2021	0.05	0.1	0.05	0.001	0.0000	**DIFU**
West Snider Rd	H	9/1/2021	1.00	1.9	1.9	0.001	0.0000	RUAR,RULA,CYSC
Whiskey Creek Beach Rd	H	7/21/2021	0.50	1	1	0.092	0.0000	**CEMO**, CYSC*, **SEJA**
Whitcomb-Diimmel Rd	M	9/1/2021	0.01	0.01	0.01	0.000	0.0001	**SEJA**
Wilson Rd	H	9/22/2021	0.10	0.3	0.25	0.023	0.0000	CYSC*, GERO, HEHE*, RUAR*, RULA*
Woodcock Rd	M	3/30/2021	0.10	0.3	0.25	0.000	0.0005	**COMA**

Road Name	Treatment Method[2]	Treatment Date	Miles treated	Acres Examined[3]	Acres Treated[4]	Solid Treated Acres Chemically[5]	Solid Manual Acres Treated[6]	Treated Species List[7]
Woodcock Rd	H	3/31/2021	0.70	1.3	1.3	0.230	0.0019	CIAR, CIVU, **COMA**, DALA, HEHE, ILAQ, LEVU, RUAR
	H	4/1/2021	0.50	1	1	0.092	0.0000	CIIN, **COMA**, RUAR*
	H	4/13/2021	1.00	2.0	2	0.092	0.0000	ANCA, CIAR*, **COMA**, CYSC*, LEVU*, RUAR*
	H	10/7/2021	1.20	2.3	2.3	0.321	0.0000	**CEST**, **CEMO**, **COMA**, CIIN*, CIAR, CIVU, ARAB, **FOVU**, RUAR, **SEJA**
Woods Rd	H	6/28/2021	1.00	1.9	1.9	0.459	0.0000	CIVU*, CYSC*, DIPU*, GERO*, RUAR*, **SEJA**
	H	7/1/2021	0.35	0.66	0.66	0.115	0.0000	CYSC, HYPE*, RUAR*, **SEJA**
Wye Rd	H	7/26/2021	0.40	0.8	0.8	0.069	0.0000	GERO*, LALA*, **SEJA**
Youngquist Rd	H	7/21/2021	0.90	1.7	1.7	0.006	0.0000	CIAR*, CIVU*, LALA*, RUAR*, **SEJA**
Totals: 116 unique roads		**91**	**173**	**439**	**321**	**22.56**	**.11**	**37 unique species: 14 regulated species**

*Species treated intermittently treated**Multi-use trail operated and maintained by Clallam County Road Department.

[1]***Italicized* only =**road treated 2020 and 2021, **bold** indicates road was also treated in 2019-2021**, bold and *Italicized***=road was also treated in 2018-2021, **Green=** roads were also treated in 2017-2021

[2]**M** – Manual control; **H**- Chemical control; **M, H** – Combination of manual and chemical Control

[3]**Examined Acres** - The total area searched for noxious weeds while c0rew was involved in treatment activities

[4]**Treated Acres -** The total area encompassing all herbicide treatments per road per day

[5]**Solid Treated Acres**- The estimated area that would be covered 100% with noxious weeds if the plants were "clumped" together; calculated using the tank mix volume applied and calibrated sprayer output

[6]**Solid Manual Acres -** The area controlled by any manual means (pulling, digging, cutting, etc.) and does not include the spaces between weeds; area is either estimated in field and recorded on "Herbicide/Manual Treatment Data Form" or calculated by infestation data (infested area * cover class) or by number of plants pulled (1000 CYSC = 0.1 ac, 1000 **SEJA** = 0.025 ac.)

[7]**Species Treated** - The 4-Letter Weed codes correspond to the species scientific name and can be found in Appendix. Bolded species are regulated noxious weeds

Appendix D: County Rock Sources/Soil Disposal Site Treatment Activities

These tables include all County rock sources/spoil disposal sites (pits) and county "Special Sites" managed for noxious weeds in 2021 under the Clallam County Road Department IWM Plan. Both tables are sorted alphabetically, by pit name or special site. The table contains the **Species Treated**, **Examined Acres**, **Treated Acres**, **Manual Acres**, and **Solid Treated Acres** for each day a pit was worked; definitions of these headings can be found at the end of the table. Species treated are listed alphabetically by the assigned 4-letter code (see appendix B); 4-letter codes shown in bold are regulated noxious weeds and required for control in Clallam County.

To differentiate between original acres treated and retreated acres, we marked retreatments with a "0.1" in categories "acres treated" and " acres examined". This was done to try to avoid double counting.

We completed work in **25 pits** over **47 days** and controlled **31 species**. We controlled **0.1 solid acres** of weeds with manual methods only and **18.2 solid acres** of weeds chemically. "Solid Acres" represent the area that would be covered 100% with noxious weeds if the plants were "clumped" together and are estimated in the field or calculated using recorded data.

Pit Name	Treatment Method[1]	Treatment Date	Acres Examined[2]	Acres Treated[3]	Solid Chemical Acres Treated[4]	Solid Manual Acres Treated[5]	Species List[6]
Ballard Pit	M/H	9/1/2021	3	3	0.115	0.0005	CYSC*, **LAGA**, RUAR*, **SEJA**
Blue Mountain Transfer Station	H	4/1/2021	0.5	0.5	0.207	0.0000	ANSY, **COMA**, CYSC
	H	4/6/2021	1	1	0.092	0.0000	CYSC, CIVU, GERO
	H	8/2/2021	0.25	0.25	0.023	0.0001	**CEMO**, **COMA**, CYSC
Blyn Pit	M	2/22/2021	0.1	0.1	0.000	0.0053	CYSC*, **SEJA**
Blyn Pit	M/H	3/16/2021	18.6	18	0.574	0.0125	BUDA, CYSC*, LALA, RUAR*, **SEJA**
	H	9/14/2021	0.1	0.1	0.023	0.0000	RUAR*
Clallam Bay Storage Yard	H	8/10/2021	2	2	0.046	0.0000	CIVU*, DIPU*, RUAR*
District 1 Shop	H	3/9/2021	3	3	0.482	0.0000	**CEST**, CIVU, RUAR
	H	8/31/2021	0.1	0.1	0.046	0.0000	CIAR, BRRA
District 2 Shop	H	3/3/2021	3.5	0.1	0.643	0.0000	GERO, RUAR, HYRA
	H	3/8/2021	3.5	3.5	0.138	0.0000	HYRA, RARE, CIAR, CIVU

Pit Name	Treatment Method[1]	Treatment Date	Acres Examined[2]	Acres Treated[3]	Solid Chemical Acres Treated[4]	Solid Manual Acres Treated[5]	Species List[6]
Herrick Gravel	H	7/6/2021	5	1	0.092	0.0000	**CEMO**, CIAR*, CIVU*, CYSC*, DIPU*, GERO*, HYPE*,
Hoko-Ozette Rd MP 4.5	H	8/4/2021	4.4	1.4	0.046	0.0003	GERO, RUAR*, **SEJA**
Hoko-Ozette Rd MP 10	H	8/10/2021	2	2	0.230	0.0009	GERO*, PHAR* RUAR*, RULA*, **SEJA**
Hoko-Ozette Rd MP 13	M/H	8/10/2021	1	1	0.092	0.0003	CIVU*, DIPU*, RUAR*, **SEJA**
Hwy 101 Storage Yard	H	3/22/2021	0.5	0.5	0.069	0.0000	BRRA*, **CEMO**, CYSC*, GERO*, RUAR*
	H	7/19/2021	0.25	0.25	0.046	0.0000	CIVU*, **COMA**, RUAR8
Joyce-Piedmont Pit	H	7/7/2021	5.5	5.5	0.138	0.0000	**CEMO**, CIAR*, CIVU*, CYSC, DIPU*, GERO*, RUAR*, **SEJA**
Kirner Pit	M	3/8/2021	0.25	0.25	1.010	0.0080	CYSC*, **COMA***, RUAR*
	M/H	3/22/2021	20	20	0.620	0.0009	**CEST**, CIVU, **COMA**, CYSC, DALA, **FOVU**, LUAR, RUAR*, VIMA
	H	5/5/2021	17.3	17.3	0.275	0.0000	**COMA**
	M/H	6/21/2021	5	0.1	0.459	0.0004	**CEST**, **COMA**, CYSC, RUAR
	M/H	8/23/2021	5	0.1	0.115	0.0004	**CEST**, CIIN, **COMA**, CYSC, RUAR8
	M/H	9/2/2021	5	0.1	0.172	0.0002	**COMA**, RUAR*
Lake Creek Pit	H	4/21/2021	9.4	2.1	1.010	0.0000	CIVU, CYSC, HYRA, RARE, **SEJA**
	H	5/26/2021	5	0.1	0.161	0.0000	CYSC*, RUAR*
	H	6/3/2021	12.75	12.75	0.712	0.0000	CYSC, DIPU, RUAR, **SEJA**
Little River Pit	H	7/12/2021	0.5	0.5	0.092	0.0000	**CEMO**, CIAR, CIVU, GERO, RUAR*
Lower Elwha-Elwha Pit	H	9/7/2021	1	1	0.115	0.0000	ARMI, CIVU*, CYSC*, RUAR*
Mcinnes Pit	M/H	3/18/2021	5.5	5.5	0.413	0.0003	**CAPY**, **COMA**, CIIN*, CIVU*
	M/H	4/2/2021	1	0.1	0.046	0.0008	**CAPY**, **CEMO**, CIIN, CIVU, **COMA**, RUAR
	M/H	6/21/2021	5.5	0.1	0.184	0.0005	**CEST**, CIAR, CIVU, **COMA**, RUAR
	H	6/22/2021	5.5	0.1	0.092	0.0000	**CEMO**, **CEST**, CIIN*, CIAR*, CIVU*, **COMA**, RUAR*, TAVU
	H	8/16/2021	5.5	1	0.126	0.0003	**CEST**, CIAR, CIIN*, CIVU*, **COMA**

Pit Name	Treatment Method[1]	Treatment Date	Acres Examined[2]	Acres Treated[3]	Solid Chemical Acres Treated[4]	Solid Manual Acres Treated[5]	Species List[6]
Mcinnes Pit	H	10/7/2021	2	0.1	0.069	0.0001	BRRA, CIAR, CIVU, CIIN, **COMA**
Morse Creek Pit	H	3/1/2021	2	2	0.138	0.0004	**COMA**, CIVU*, PHAR*
	H	3/11/2021	33	0.1	1.607	0.0008	**COMA**, CYSC*, RUAR*
	H	3/12/2021	16.7	16.7	0.918	0.0016	**COMA**, CYSC*, GERO, RUAR*
	H	6/22/2021	30	5	0.321	0.0005	CIAR*, CIVU, **COMA**, CYSC, DIPU*, GERO, RUAR*
	M/H	8/11/2021	1	1	0.023	0.0004	**COMA**, CYSC*, TAVU
	H	8/19/2021	5	5	0.344	0.0000	CYSC*
Place Pit	H	3/15/2021	0.25	0.25	0.046	0.0000	CYSC*, RUAR*
	H	6/23/2021	5	5	0.298	0.0000	CIAR*, CIVU, CYSC, **DIFU**, DIPU, GERO, PHAR*, RUAR*
Quillayute Pit		5/20/2021	10	10	1.079	0.0000	CYSC, DIPU, HYPE, RUAR, **SEJA**
		8/25/2021	10	0.1	0.000	0.0012	**SEJA**
Ranger Pit	M	2/9/2021	0.1	0.1	0.000	0.0055	CYSC, **DIFU**
	H	2/24/2021	5	5	0.138	0.0000	**CEMO**, CYSC*, RUAR*, VIMO
	M/H	3/19/2021	20	20	0.826	0.0013	CYSC*, DIPU, GERO, RUAR*
	H	6/9/2021	5	0.1	0.367	0.0000	CYSC*, RUAR*,
	H	7/7/2021	5	0.1	0.275	0.0000	**CEMO**, CYSC* **DIFU**, DIPU*, **SEJA**
Sequim Storage Yard	H	3/10/2021	2.1	2.1	0.275	0.0000	**CEST**, **DIFU**, GERO, RUAR*, PHAR*
	M/H	4/8/2021	2.1	0.1	0.390	0.0009	**CEMO**, **CEST**, CIAR, CIIN, CIVU, DALA, **DIFU**, GERO, PHAR, RUAR,
	H	5/19/2021	1	0.1	0.115	0.0000	CIAR*, CIIN*, RUAR*
	H	8/31/2021	1	0.1	0.275	0.0000	BRRA*, **CEMO**, CIAR*, CIIN, RUAR*
Umbrella Creek Pit	H	8/10/2021	5.5	5.5	1.056	0.0000	CYSC DIPU*, GERO*, PHAR*, POBO, RUAR*, **SEJA**
Whitcomb Diimmel Pit	H	5/20/2021	5	5	0.195	0.0000	CYSC*, DIPU, RUAR*, RULA*, **SEJA**
	H	5/26/2021	5	5	0.643	0.0000	CIVU, CYSC*, DIPU*, RUAR*, **SEJA**
	H	9/1/2021	1	0.1	0.115	0.0000	CYSC ,DIPU*, RUAR*, RULA*, **SEJA**

Pit Name	Treatment Method[1]	Treatment Date	Acres Examined[2]	Acres Treated[3]	Solid Chemical Acres Treated[4]	Solid Manual Acres Treated[5]	Species List[6]
Totals: 25 individual pits		**47 days**	**337.0**	**196.0**	**18.2**	**.01**	**31 unique species**

* Species intermittently treated

[1]**Treatment Method –M**- Manual Control; **H**- chemical Control; **M, H** – Both Manual and chemical Control

[2]**Examined Acres** - The total area searched for noxious weeds while crew was involved in treatment activities

[3]**Acres Treated -** The total area encompassing all herbicide treatments per pit per day; NR - not recorded

[4]**Solid Acres Treated** - The estimated area that would be covered 100% with noxious weeds if the plants were "clumped" together; calculated using the tank mix volume applied and calibrated sprayer output; NR - not recorded

[5]**Solid Manual Acres -** The area controlled by any manual means (pulling, digging, cutting, etc.) and does not include the spaces between weeds; area is either estimated in field and recorded on "Herbicide/Manual Treatment Data Form" or calculated by infestation data (infested area * cover class) or by number of plants pulled (1000 CYSC = 0.1 ac, 1000 **SEJA** = 0.025 ac.)

[6]**Species Treated** - The 4-Letter Weed codes correspond to the species scientific name and can be found in Appendix; Bolded species are regulated noxious weeds;

Appendix D: County Special Site Treatment Activities

We completed work in **9 special sites** over **18 days,** and controlled **16 species**. We controlled **0.22 solid acres** of weeds with manually and **2.3 solid acres** of weeds chemically. "Solid acres" represent the area that would be covered 100% with noxious weeds if the plants were "clumped" together and are estimated in the field or calculated using recorded data.

Site Name	Treatment Method[1]	Treatment Date	Acres Examined[2]	Acres Treated[3]	Solid Chemical Acres Treated[4]	Solid Manual Acres Treated[5]	Species List[6]
Deer Park Interchange and Rest Area (WSDOT)	H	10/4/2021	0.5	0.5	0.43	0	**CEST**, CIAR*, CIVU*, CYSC*
Deer Park Planting Site	M	3/5/2021	1	0.1	0	0.0057	CYSC*
	M/H	4/22/2021	1	1	0.05	0.0007	BRRA*, CIVU, CYSC
	H	6/8/2021	1	0.2	0.11	0	CYSC*, CIAR*, RUAR*
	H	6/22/2021	2	2	0.02	0	CYSC*
	H	6/30/2021	0.2	0.2	0.001	0.001	CYSC, LUAR
	H	10/4/2021	1	1	0.09	0	CIVU, CIAR, CYSC, PHAR
	H	11/2/2021	0.5	0.5	0.18	0	LUAR
Dungeness Dike	M	2/16/2021	6	6	0	0.0031	**COMA**
	M	2/23/2021	2.7	2.7	0	0.003	**COMA**
	M	8/16/2021	0.18	0.18	0	0.2	**COMA**
Gosset Bridge	M/H	9/15/2021	0.1	0.1	0.011	0.00005	CIVU*, CIAR*, GERO*, **SEJA**
Hoko-Ozette Culvert (MP 8.8)	M/H	8/10/2021	0.3	0.3	0.11	0.0075	CYSC*, LALA, RUAR*, RULA*
McDonald Creek Bridge	H	10/7/2021	0.25	0.25	0.13	0	BUDA
Old Olympic Highway Bridge	H	8/19/2021	0.5	0.5	0.07	0	CIAR*, CIVU*, RUAR*
ODT Berm	H	4/6/2021	0.25	0.25	0.43	0	ANCA, BRRA
	H	8/18/2021	1	1	0.11	0	CIAR*, CIVU*, RUAR*

Site Name	Treatment Method[1]	Treatment Date	Acres Examined[2]	Acres Treated[3]	Solid Chemical Acres Treated[4]	Solid Manual Acres Treated[5]	Species List[6]
ODT Berm	H	10/14/2021	1	1	0.36	0	CIAR*, CIVU*, PHAR*, MESA*, RUAR*
Ward Bridge Restoration	H	3/31/2021	0.25	0.25	0.01	0	**COMA**, GERO, RUAR*
	H	10/7/2021	0.25	0.25	0.13	0	**COMA,** GERO, RUAR*
Totals		**18 days**	**19.68**	**17.98**	**2.30**	**0.22**	**16 Species**

* Species intermittently treated

[1]**Treatment Method** –**M**- Manual Control; **H**- chemical Control; **M, H** – Both Manual and chemical Control

[2]**Examined Acres** - The total area searched for noxious weeds while crew was involved in treatment activities

[3]**Treated Acres -** The total area encompassing all herbicide treatments per road per day; NR - not recorded

[4]**Solid Acres Treated** - The estimated area that would be covered 100% with noxious weeds if the plants were "clumped" together; calculated using the tank mix volume applied and calibrated sprayer output; NR - not recorded

[5]**Solid Manual Acres -** The area controlled by any manual means (pulling, digging, cutting, etc.) and does not include the spaces between weeds; area is either estimated in field and recorded on "Herbicide/Manual Treatment Data Form" or calculated by infestation data (infested area * cover class) or by number of plants pulled (1000 CYSC = 0.1 ac, 1000 **SEJA** = 0.025 ac.)

[6]**Species Treated** - The 4-Letter Weed codes correspond to the species scientific name and can be found in Appendix; Bolded species are regulated noxious weeds;

Appendix E: Herbicide Volumes by County Roads and Rock Sources and Special Sites

The table alphabetically lists the county roads, rock sources, and other county property called "Special Sites" that received chemical treatment in 2021. The table includes the trade name of herbicides used and amounts applied in ounces per treated road section (Note: 1 oz. equals 2 tablespoons). The Treated Road Section lists the portions for each road where herbicide application may have occurred. Herbicide applications within the listed boundaries were only made to noxious weeds and exact treatment locations varied with individual plant locations.
Names shown in *italics* are roads that were treated in 2020 and 2021; names **bolded** are roads that were treated 2019-2021; names both ***bolded and italicized*** were treated in 2018-2021; 2020; roads that are **green** have been treated 2017-2021.

In 2021 we applied a total of **17.12 gallons** of herbicide on County roadside **and 15.7 gallons** in County pits. An additional **1.6 gallons** of herbicide was applied on "Special Sites". A combination of Milestone® and Vastlan® or Element 3A® was used on most roads included in chemical treatment; a mix that was chosen for its efficacy on expected weed species. Polaris® was almost used exclusively for knotweed species and AquaNeat® was mainly used for cut stumping Scotch broom and to assist with site preparation to clear noxious weeds in advance of pollinator-friendly native plantings. All treatment locations were posted and signs left in place for 24 hours. An online table of treated roads and treatment dates was updated once last season.

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
Agate Beach	7/28/2021	Behind Joyce General	0.20	0.005	0.06					
Bear Creek Rd	9/1/2024	2.1 Miles	2.10	0.5	6					
Black Diamond Rd	7/12/2021	Little River Rd to the Grange	2.50	0.64	1.9					
	7/13/2021	Grange to North End	2.00	2.9	34.6					
Bloedel Blvd	8/17/2021		0.01			1.3		5.1		
Blue Mountain Rd	8/9/2021	(Guard rail North of transfer station to Highway 101)	1.00	2.4	28.8					
	9/9/2021	Entire Rd	0.00			0.08				
Business Park Loop	4/12/2021	Entire Rd	0.40	1			15			
Camp Hayden Rd	7/27/2021	Entire Rd	3.50	2	23					
Carlsborg Rd	4/12/2021	Entire Rd	1.80	1.3			20			
Cat Lake Rd	7/1/2021	Entire Rd	0.50	1.4	17.3					

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
Cays Rd	4/12/2021	Entire Rd	3.20	3.3			50			
	3/26/2021	Cays Rd to western guard rail	0.20							2.5
	8/23/2021	(Carlsborg to Old Olympic Highway)	0.25	0.8	9.6					
Cooper Ranch Rd	6/29/2021	REF Forest Service record #169	2.10	1.9	7.7		23			
Corriea Rd	5/19/2021	South of last parking lot on west side of road	0.10	0.04			0.6			
Crescent Beach Rd	7/27/2021	Wooden entrance way to .8 miles south	0.80	0.5	5.75					
	7/28/2021	(751 Crescent to Agate Beach Rd)	0.60	0.64	7.7					
Dan Kelly Rd	10/6/2021	.5 miles south of Hwy 112	0.10	0.2	1.9	0.04				
Deer Park Rd	6/2/2021	Township Lane to Park Entrance	4.00	5			79.3			
	6/9/2021	Pelican Rd to powerlines	3.00	0.7			11.5			
	6/24/2021	View Ridge Drive to Deer park Loop	0.50	1.3	15.3					
	4/22/2021	Township Line to .8 South	0.80	0.1			15.3			
	8/9/2021	Entire Rd	0.10	0.005	0.06					
Diamond Point Rd	4/14/2021	Highway 101 to Sunshine Dr	1.30	0.25			3.8	20		
	4/15/2021	Sunshine Dr to North Rhodendron Dr	2.20	1			16.7			
	7/1/2021	Cat Lake to Sunshine Dr	0.30	1.8	21.1					

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
	5/18/2021	Cat Lake Rd intersection	0.08					4		
Dry Creek Rd	9/8/2021	Entire Rd	0.70	0.36	4	0.32				
E Michigan School Rd	7/1/2021		0.10	0.02	0.2					
East Beach Rd	7/14/2021	Entire Rd	0.40	1.3	15.3					
East Lyre River Rd	7/26/2021	Entire Rd	0.40	0.3	4.8					
East Sequim Bay Rd	7/19/2021	Entire Rd	4.50	5.3	63.4					
Easterly Rd	5/12/2021	Entire Rd	0.23	0.04			0.6			
	9/13/2021	Entire Rd	0.23	0.005	0.058					
Eden Valley Rd	4/29/2021	(101 to .5 miles past Dan Kelly)	2.40				20.5			
	9/15/2021	South End	0.10		1	0.6				
Elwha River Rd	6/23/2021	Highway 112 to Elwha River Bridge	0.50	1	11.5					
Evans Rd	3/31/2021	Junction of Sequim/Dungeness to Davis Sand and Gravel	0.80	1	12					
Farrington Rd	7/7/2021	North end to .4 miles south	0.40	0.04	0.5					
	7/26/2021	.4 mile of Highway 112 to Highway	0.40	0.6	7.7					
Fasola Rd	4/1/2021	South from Woodcock to Towne Rd	0.75	0.6	8					
Fisher Cove Rd	7/14/2021	Entire Rd	0.80	2	25					
Freshwater Bay Rd	9/15/2021	North end to 1 mile south	1.00	0.4	4.8					
	10/6/2021	King St. to 112	1.10	1.2	14.4					14.4
Gagnon Rd	10/6/2021	Southern End	0.10			2.6				

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
Gilbert Rd	3/29/2021	Entire Rd	0.20	0.6	8					
Granite Rd	7/7/2021	Entire Rd	0.30	4.3	51.9					
	9/7/2021	Entire Rd	0.30							
Grauel-Ramapo Rd	9/15/2021		0.10		9.6					
Gravel Pit Rd	8/18/2021	West end to guard rail	0.10		9.6					
Happy Valley Rd	5/11/2021	River Rd to Haven Heights	2.25	0.6			10.2			
	5/12/2021	.5 W of Johnson Creek to Haven Heights	0.66	0.3			5.1			
	5/13/2021	Elk Height to Huffman Heights Rd	0.60	0.2	2.5					
	6/30/2021	McFarland Intersection	0.01	0.02	0.2					
	6/30/2021	Trail Head near River Rd	0.05	0.01			0.1			
	6/30/2021	Happy Valley and 3rd Ave	0.01	0.02			0.24			
	8/31/2021	Trail head near River Rd	0.10		1					
	9/13/2021	Entire Rd	7.70	2.4	28.8					
Harrison	3/29/2021	Entire Rd	0.24	0.5	6					
Henry Boyd Rd	8/11/2021		0.01	0.005	0.06					
Herrick Rd	10/4/2021	Highway 101 to .1 mile south of pit	0.30	0.3	3.8					
Hoko-Ozette Rd	8/1/2021	M.P. 7.5 to M.P. 13	5.50	19.2						
	8/4/2021	Int. with 112 to MP 7.5	7.50	1.1	13.4					
	8/4/2021	MP 18.5 to MP 14	4.50	1.4			16.7			
Holland Rd	9/21/2021		0.10		0.05					
Jimmy Come Lately Rd	10/11/2021	0.5 miles east of Schmitt Rd)	0.5	1.3			20.5			

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
	10/12/2021	.5 miles west of Schmitt Rd	0.50	1.3			20.5			
Johnson Creek Rd	5/12/2021	Entire Rd	0.50	0.04			0.6			
	9/13/2021		0.10	0.04	5					
Joyce-Piedmont Rd	7/28/2021	Entire Rd	3.80	3.2	38.4					
Kitchen-Dick Rd	8/18/2021	(Old Olympic to Weyerhaeuser & Martha Ln to Hwy 101)	1.20	0.06	12					1.3
	5/5/2021	Intersection of Kitchen Dick and Buckhorn	0.10	0.005	0.08					0.16
Laird Rd	9/4/2021	Entire Rd	0.90	0.642	7.7					
Lamar Ln	3/23/2021	.2 miles from intersection with Cays	0.20							0.16
Little Loop Dr	8/11/2021	Entire Rd	0.80	0.4	4.8					
Little River Rd	7/12/2021	1.25 miles from Olympic Hotsprings Rd 3.75 miles east	3.75	2.9	34.6					
	9/7/2021	Entire Rd	0.75	0.16	2					
Lost Mountain Rd	7/21/2021	Entire Rd	5.10	1.8	21.1					
Lotzgesell Rd	4/13/2021	From Cays to Hogback Road	0.90		0.5		7.5			
Lower Elwha Rd	6/9/2021	(ODT parking lot to culvert before Mapleton Rd)	0.40	1.3			20.5			
	9/8/2021	Intersection of West Edgewod Rd to ODT parking lot	0.80	0.88	10.56					
Mary Clark Rd	6/29/2021	Coopers Ranch Rd West 5.75 miles)	5.75	3.8	46					
Mina Smith Rd	8/25/2021	(1 mile from Quillayute Rd to End)	2.40	3.5	42.2					
Mount Pleasant Rd	8/11/2021		0.10	0.005	0.05					

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
	8/18/2021		0.10	0.04	0.5					
N Gales St	5/6/2021	North end of Gales St	0.10					4		
O'Brien Rd	8/9/2021	Entire Rd	4.00	1.6	19.2					
Okerman Rd	7/7/2021	Entire Rd	0.30	1	11.5					
Old Blyn Hwy	3/17/2021	Entire Rd	1.25	1.25	3.75				11.5	1.25
	7/1/2021	(Thompson Rd west .4 miles)	0.10	1.1	13					
Old Olympic Hwy	5/5/2021	Carlsborg Int to Kitchen Dick	1.25	1.3	20.5					
	8/18/2021	Western end 10 miles east	1.00	3.52	44					14
	8/23/2021	(.1 mile west of Dungeness River crossing)	0.10	0.3	3.8					0.64
	8/23/2021	(PUD Old Oly. Well site to ODT bridge)	0.25	0.5	5.8					
	8/23/2021	.2 miles west of Kitchen Dick	0.20	0.3	3.8					1.3
	8/23/2021	(.1 MILES WEST OF Towne Intersection)	0.10	0.5	5.8					0.64
Olympic Hot Springs Rd	7/13/2021		1.25	1.1	13.4					
	7/14/2021		0.80	1.3	15.3					
	9/7/2021	South End to .1 mile south of Little River Rd	0.10	0.3	3.8					
Palo Alto Rd	7/20/2021	Entire Rd	7.80	2.9	34					
Panorama Blvd	7/19/2021	Entire Rd	1.20	0.01	0.12					

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
Pioneer St	10/6/2021	Just south of convienient store	0.10			1.3				
Place Rd	6/9/2021	Highway 112 to .1 mile past Ranger Rd)	0.60	1.9			30.7	5		
	6/10/2021	Place pit to .25 mile past Hunt rd)	1.20	9	51.2		92.2			
	6/23/2021	Place Rd next to Place pit and .1 mile north of Hunt Rd to .1 mile south of Elwha Dike Rd	1.00	2.6	30.7					
Port Williams Rd	8/31/2021	Entire Rd	2.40	1.3	15.4					
Power Plant Rd	10/14/2021	.25 mile east of 112	0.10	0.2	1.9	0.3				
Quillayute Rd	6/17/2021	Entire Rd	6.70	8.9	107.5			6		
River Park Rd	9/22/2021	Midway	0.10	0.002	0.6					
River Rd	5/13/2021	Avelina to Happy Valley and Happy Valley to .9 miles south of Intersection)	1.50	0.6			10.2			
	8/31/2021	.25 mile south of Happy Valley to 1 mile North	2.75		15.4					
S 3rd Ave	5/12/2021		0.50	1			16.6			
	9/13/2021	Happy Valley Intersection to 200 feet North of Echo Ln	0.27	0.3	2					
Schmitt Rd	7/26/2021		0.75	0.64	7.6					
Sequim-Dungeness Way	4/2/2021	From Woodcock to Friendly Ln	1.90	1.5	30	2				
	3/31/2021	1st Baptist church to Woodcock Rd	1.20	1.3	16					

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
	4/5/2021	Between Friendly lane and Brigadoon								
Shuwah Rd	8/17/2021	First .25 mile	0.01			0.64				
South St	9/14/2021		0.10	0.5	5.8					
Swan Bay Rd	8/10/2021	Entire Rd	1.00	0.5	5.8					
Taylor Cut-off Rd	7/21/2021	Lost Mountain Int. to .6 mile North)	0.60	1	11.5					
Towne Rd	8/26/2021	Brown Farm to .6 miles north)	0.60	0.6	7.7					
Township Line Rd	6/7/2021	Entire Rd	1.60	1.3						
Turnstone Ln	4/8/2021	Cul de sac to small creek past corner	0.40	0.6	8					
	8/31/2021	Cul de sac to Silberhorn Rd	0.50		9.6					
Valley Center Pl	3/29/2021		0.20	0.3	4					
Vistas Dr	4/2/2021	From Pit entrance to Sequim-Dungeness Way	0.14	0.2	2					
W Edgewood Dr	8/18/2021	Near Nursery	0.10							0.02
	10/6/2021	Dry Creek Bridge	0.10	0.5	5.8					
W Washington St	8/31/2021		0.30		11.5					
Ward Rd	3/30/2021	Entire Rd	1.60	1.3	16					
Wentworth Rd	9/1/2021	Entire Rd	1.20	5.1	1.3					
West Lake Pleasant Rd	8/17/2021		0.10			2.6				
West Lyre River Rd	7/26/2021	Entire Rd	0.75	0.3	3.8					
	8/17/2021		0.10							0.2
West Sequim Bay Rd	4/15/2021		0.05	0.005			0.08			
West Snider Rd	9/1/2021		1.00	0.01	0.12					

Road Name	Treatment Date	Treatment Location	Miles Treated	milestone[1]® (oz)	vastlan[2]® (oz)	polaris[3]® (oz)	element 3A[4]® (oz)	aquaneat[5]® (oz)	garlon 4[6]® (oz)	transline[7]® (oz)
Whiskey Creek Beach Rd	7/21/2021	Entire Rd	0.50	0.64	7.6					
Wilson Rd	9/22/2021		0.10		1.9					
Woodcock Rd	3/31/2021	Towne Rd to Sequim Dungeness	0.60	1.7	20					
	4/1/2021	Fasola intersection to Ward Bridge	0.50	0.6	8					
	4/13/2021	From intersection of Cays- West 1 mile	1.00	0.66			10			
	10/7/2021	Stills farm to Ward Rd	1.20	2.2	26.9					
Woods Rd	6/28/2021	Forest Service Entrance to .1 mile south of Blyn Pit	1.00	3.2	23	2	15.3			
	7/1/2021	Highway 101 Intersection to .35 miles South	0.35	0.8	9.6					
Wye Rd	7/26/2021	Entire Rd	0.40	0.5	5.8					
Youngquist Rd	7/21/2021	Entire Rd	0.90	0.04	0.5					
Totals: 95 roads	**72 treatment days**	**Totals:**	**165.6 miles**	**164.9 oz**	**1386.1 oz**	**13.8 oz**	**533.3 oz**	**44.1 oz**	**11.5 oz**	**36.6 oz**
				=1.29 gal	**=10.83 gal**	**=.11 gal**	**=4.17 gal**	**=.34 gal**	**=.09 gal**	**=.29 gal**

[1]**Milestone**® - Active ingredient: aminopyralid; in 0.125% solution.
[2]**Vastlan®** - Active ingredient: triclopyr; in 1.5-2% solution, 25-50% solution for cut-stump application only.
[3]**Element 3A®** - Active ingredient: triclopyr; in 2-2.5% solution on roadsides, 25-50% solution for cut stump only.
[4]**Polaris®** - Active ingredient: imazapyr in 1% solution, 10% for cut stump only
[5]**AquaNeat**® - Active ingredient: glyphosate in 0.5-2% solution, 50%-100% solution for cut stump only
[6]**Garlon 4 ®-** Active ingredient: triclopyr in 1.5-2% solution
[7]**Transline ®** Active ingredient: clopyralid in .5% solution

Appendix E: Herbicide Volume Used In County Rock Source

Pit Name[1]	Acres Treated	Milestone[2] ® (oz)	Vastlan[3]® (oz)	Polaris[4]® (oz)	Element 3A[5]® (oz)	Aquaneat[6]® (oz)	Garlon 4[7]® (oz)	Transline[8]® (oz)	Round Up Pro[9]® (oz)
Ballard Pit	3.0	0.8	9.6						
Blue Mountain Transfer Station	0.5	1.5	16.0		2.0				
	1.0	0.6			10.2				
	0.3	0.2	1.9						
Blyn Pit	0.1								
	18.0	4.2	50.0						
	0.1	0.2	2.0						
Clallam Bay Storage Yard	2.0	0.3	3.8						
District 1 Shop	3.0			40.3					54.0
	0.1								
District 2 Shop	0.1			54.0		71.2			
	3.5			11.5		19.2			
Herrick Gravel	1.0	0.6	8.0						
Hoko-Ozette Rd MP 4.5	4.4	0.3	1.8						
Hoko-Ozette Rd MP 10	2.0	2.1	19.2						
Hoko-Ozette Rd MP 13	1.0	0.6	7.6						
Hwy 101 Storage Yard	0.5	0.5	5.4	1.8	0.9				
	0.3	0.3	3.8						
Joyce-Piedmont Pit	5.5	0.9	11.5						
Kirner Pit	0.3			54.0	41.0				
	20.0	3.8	42.0					2.4	
	17.3	1.9			30.7			1.3	
	0.1	3.2	38.4						
	0.1	0.8	9.6						
	0.1	1.2	14.4						

Pit Name[1]	Acres Treated	Milestone[2] ® (oz)	Vastlan[3]® (oz)	Polaris[4]® (oz)	Element 3A[5]® (oz)	Aquaneat[6]® (oz)	Garlon 4[7]® (oz)	Transline[8]® (oz)	Round Up Pro[9]® (oz)
Lake Creek Pit	2.1			25.6		51.2			
	0.1	3.8			61.4				
	0.1	1.1			17.9				
	12.8	4.9	79.0						
Little River Pit	0.5	0.6	7.7						
Lower Elwha-Elwha Pit	1.0	0.8	9.6						
Mcinnes Pit	5.5	1.3	7.7				7.7	6.4	
	0.1	0.3	4.0						
	0.1	1.3	15..4						
	0.1	0.6	7.7						
	0.1	0.3	3.8	1.3					
	1.0	1.6	25.0						
Morse Creek Pit	2.0			7.7					
	0.1	3.8	31.0	88.3	10.0	36.0			30.7
	16.7	5.1		15.3			61.0		
	5.0	2.3	26.9						
	1.0	0.3	2.0						
	5.0	1.3	28.8						
Place Pit	0.3	0.3			5.0				
	5.0	2.0	25.0						
Quillayute Pit	10.0	6.2		15.4	99.8				
	0.1								
Ranger Pit	0.1								
	5.0			7.5					
	20.0	5.8	69.0						
	0.1	1.3		10.2	20.5				
	0.1	1.9	23.0						
Sequim Storage Yard	2.1	0.6	10.2	15.3		10.2			10.2
	0.1	3.2			38.4	38.4			
	0.1	0.8			12.8				
	0.1		23.0						
Umbrella Creek Pit	5.5	4.8	7.7	20.5	66.5				
Whitcomb Diimmel Pit	5.0	1.4			21.8				
	5.0	4.5			71.7				
	0.1	0.3	9.6						

Pit Name[1]	Acres Treated	Milestone[2]® (oz)	Vastlan[3]® (oz)	Polaris[4]® (oz)	Element 3A[5]® (oz)	Aquaneat[6]® (oz)	Garlon 4[7]® (oz)	Transline[8]® (oz)	Round Up Pro[9]® (oz)
		86.5 oz	645.7 oz	368.7 oz	510.6 oz	226.2 oz	68.7 oz	10.1 oz	94.9 oz
Totals: 25 Pits	196.1 Acres	=0.7 gal	=5.0 gal	=2.9 gal	=4.0 gal	=1.8 gal	=0.5 gal	=0.1 gal	=0.7 gal

[1]**Treated Road/Pit Section** - the approximate linear extent of road where herbicide application may have occurred; herbicide was only applied to designated noxious weeds and exact locations of applications varied with individual plant locations. Treatment Extent not included for County Rock Source and treatment may have occurred anywhere within pit boundaries
[2]**Milestone**® - Active ingredient: aminopyralid; in 0.125% solution.
[3]**Vastlan®** - Active ingredient: triclopyr; in 1.5-2% solution, 25-50% solution for cut-stump application only.
[4]**Polaris®** - Active ingredient: imazapyr in 1% solution
[5]**Element 3A®** - Active ingredient: triclopyr; in 2-2.5% solution on roadsides, 25-50% solution for cut stump only.
[6]**AquaNeat**® - Active ingredient: glyphosate in 0.5-2% solution
[7]**Garlon 4 ®-** Active ingredient: triclopyr in 1.5-2% solution
[8]**Transline®** Active ingredient: clopyralid in .5% solution
[9]**Round up Pro®** Active Ingredient: glyphosate in 2-3% solution

Appendix E: Herbicide Volume Used In County "Special Sites"

Site Name[1]	Acres Treated	Milestone[2]® (oz)	Vastlan[3]® (oz)	Polaris[4]® (oz)	Element 3A[5]® (oz)	Transline[6]® (oz)	Aquaneat[7]® (oz)
Deer Park Interchange and Rest Area (WSDOT)	0.5		5.8				40.1
Deer Park Planting Site	2	0.1	1.3				
Deer Park Planting Site	0.2	0.3			5.1		
Deer Park Planting Site	1						10.2
Deer Park Planting Site	0.5						20.5
Deer Park Planting Site	0.2						3
Deer Park Planting Site	1				5		
McDonald Creek Bridge	0.25	1	11.5				
Old Olympic Highway Bridge	0.5		3.8			0.6	
ODT Berm on Old Olympic Highway	0.25				24		
ODT Berm on Old Olympic Highway	1		1.9			2.5	
ODT Berm on Old Olympic Highway	1						40.9

Site Name[1]	Acres Treated	Milestone[2] ® (oz)	Vastlan[3]® (oz)	Polaris[4]® (oz)	Element 3A[5]® (oz)	Transline[6]® (oz)	Aquaneat[7]® (oz)
Hoko-Ozette Culvert (MP 8.8)		0.8	9.6				
Kugel Creek Culvert		1	11.5				
Ward Bridge Restoration	0.25						
Ward Bridge Restoration	0.25		1.5	0.2			
Gosset Bridge	0.1		1				
Totals	**9.0 Acres**	**0.03 oz**	**0.37 oz**	**.002 oz**	**0.27 oz**	**0.02 oz**	**0.90 oz**

[1]**Site Name**- Special Site boundaries include only Clallam County owned lands or lands with county maintenance obligations. herbicide was only applied to designated noxious weeds and exact locations of applications varied with individual plant locations
[2]**Milestone**® - Active ingredient: aminopyralid; in 0.125% solution.
[3]**Vastlan®** - Active ingredient: triclopyr; in 1.5-2% solution, 25-50% solution for cut-stump application only.
[4]**Polaris®** - Active ingredient: imazapyr in 1% solution, 10% for cut stump only
[5]**Element 3A®** - Active ingredient: triclopyr in 2-2.5% solution, 25-50% solution for cut stump only.
[6] **Transline®-** Active ingredient: clopyralid in .5% solution
[9]**AquaNeat**® - Active ingredient: glyphosate in 0.5-2% solution, 50%-100% solution for cut stump only

Appendix F: Pilot Pollinator Plantings

The table below shows all plants included in Pollinator Planting projects this year. The table is arranged alphabetically by the common name. All plants were native and locally sourced, grown from seed collected on the Olympic Peninsula. The species were selected to provide high quality native pollinator forage with a continuous bloom period ranging from late February to late October. The species represent a mixture of native shrubs and forbs that meet roadside criteria, provide desirable habitat, and through competition, help prevent the establishment of noxious weeds and undesirable vegetation.

In 2021 weed board staff planted a portion of the Deer Park Overpass with the assistance of road department staff, and volunteers. The majority of available flowering plants were used at the Deer Park Overpass; these species are shown in the first table. Shrub species were primarily used to augment the ODT/Old Olympic Highway Berm and are shown the second table so titled.

2021 Deer Park Planting Site		
Common Name	**Scientific Name**	**Quantity Planted**
baldhip rose	*Rosa gymnocarpa*	49
black hawthorn	*Crataegus douglasii*	3
blue elderberry	*Sambucus cerulea*	10
blue wildrye	*Elymus glaucus*	40
bluebell of Scotland/paintbrush	*Campanula rotundifolia*	9
brittle prickly pear	*Opuntia fragilis*	25
broadleaved stonecrop	*Sedum spathilifolium*	50
buffuloberry	*Shepherdia canadensis*	57
coast penstemon	*Penstemon serrulatus*	350
common snowberry	*Symphoricarpos albus*	123
Douglas's aster	*Symphotrichum subspicatum*	500
Drummond's cinquefoil	*Potentilla drummondii*	8
fireweed	*Chamaenerion angustifolium*	100
Garry oak	*Quercus garryana*	40
goldenrod	*Solidago canadensis*	200
gumweed	*Grindelia integrifolia*	439
kinnikinnick	*Arctostaphylos uva-ursi*	75
madrone	*Arbutus menziesii*	30
many leaved lupine	*Lupinus polyphyllus*	100
nootka rose	*Rosa nutkana*	10
northern goldenrod	*Solidago multiradiata*	93
oceanspray	*Holodiscus discolor*	29
old man's whiskers	*Geum triflorum*	10
Oregon sunshine	*Eriophyllum lanatum*	359
pearly everlasting	*Anaphalis margaritacea*	450
red columbine	*Aquilegia formosa*	398
red flowering current	*Ribes sanguineum*	12
Roemer's fescue	*Festuca roemeri*	1288

2021 Deer Park Planting Site		
Common Name	**Scientific Name**	**Quantity Planted**
showy fleabane	*Erigeron specious*	623
silky phacelia	*Phacelia sericea*	150
small-flowered penstemon	*Penstemon procerus*	20
squirreltail	*Elymus elymoides*	60
tall Oregon grape	*Berberis aquifolium*	36
trailing snowberry	*Symphoricarpos mollis*	38
vine maple	*Acer circinatum*	15
yarrow	*Achillea millefolium*	535
yerba buena	*Clinopodium douglasii*	50
Total: 37 species		**6384 plants**

2021 ODT Berm Planting Site		
Common Name	**Scientific Name**	**Quantity Planted**
baldhip rose	*Rosa gymnocarpa*	1
black hawthorne	*Crataegus douglasii*	3
bluebell-of-Scotland	*Campanula rotundifolia*	7
coast penstemon	*Penstemon serrulatus*	64
common snowberry	*Symphoricarpos albus*	112
Douglas's aster	*Symphotrichum subspicatum*	164
Drummond's cinquefoil	*Potentilla drummondii*	2
goldenrod	*Solidago canadensis*	200
Henderson's checkermallow	*Sidalcea hendersoni*	50
many-leaved lupine	*Lupinus polyphyllus*	218
mock orange	*Philadelphus lewisii*	50
nootka rose	*Rosa nutkana*	20
oceanspray	*Holodiscus discolor*	66
red-flowering currant	*Ribes sanguineum*	133
rosy spirea	*Spiraea splendens*	10
sea-watch	*Angelica lucida*	75
silky phacelia	*Phacelia sericea*	42
tall Oregon grape	*Berberis aquifolium*	164
trailing snowberry	*Symphoricarpos mollis*	72
Total: 19 species		**1453 plants**

Appendix G: Protocols

Project selection:

The focus of the Clallam County Road Department 2021 IWM was the control of regulated noxious weeds and invasive, non-native weeds of special concern on Clallam County rights-of-way. The 2021 IWM Plan treatment priorities were:

1. Control of Category 1, regulated weeds on county roadsides in accordance with state law.
2. Control of Category 1, regulated weeds and select weeds in all county rock sources.
3. Control of Category 1 and 2 weeds at locations with most impact to local agriculture.
4. Control of Category 1 and 2 weeds at locations with most impact to local forestry.
5. Control of non-native, invasive weeds that interfere with the safety or function of County roadsides or additional non-roadside management areas
6. Control of Category 1 and 2 weeds at locations requested by the public and local agencies.

In addition to the prioritized locations listed in the 2021 Plan, locations suitable for manual control during periods of inclement weather and locations discovered to fit "early detection, rapid response" criteria were added to 2021 projects.

Control Methods:

Chemical:

- Used only EPA and WSDA approved formulation herbicides; all are aquatically approved formulations with the exception of Transline. The products chosen offered the greatest weed selectivity, maximized worker and public safety, offered lowest rates, and posed the lowest risk for wildlife and environment.
    - Milestone® - Active ingredient: aminopyralid; in 0.125% solution.
    - Vastlan®- Active ingredient: triclopyr; in 0.5-1.5% solution foliar application, 25-50% Cut-Stump application ONLY
    - Element 3A®- Active ingredient: triclopyr; in 1-2.5% solution
    - Polaris® - Active ingredient: imazapyr in 1% solution
    - AquaNeat® - Active ingredient: glyphosate in 0.5% solution at select locations; 25-50% Cut-Stump application ONLY
    - Transline®-Active ingredient: clopyralid in 0.5% solution
    - Round Up Pro®- Active ingredient: glyphosate; in 2-3% solution
    - Garlon 4®- Active ingredient triclopyr; in 1-2.5% solution
- All proposed roadside application locations included in Plan, the plan was published online and notice placed in local newspaper in advance of treatments.
- Offered adjacent landowner agreements/volunteer alternatives to herbicide applications.
- Posted Herbicide Application Notices (Appendix I) to clearly mark treatment areas prior to all herbicide activity. Posted at most public intersections and at intervals of approximately ½ mile depending on the road's length.
- Herbicide Application Notices included name and mobile contact number to reach control crew in the field during treatments.
- All roadside applications completed by licensed applicators and were conducted on foot without the use of any mechanized equipment
- Used spot treatments ONLY (no broadcast treatments), for specific weeds and included marker dye to aid in identification of treatment areas.
- Mixed and loaded herbicides in locations that minimized risk of public exposure to concentrated chemicals and potential for spills.
- Observed strict compliance to product labels and to state and local regulations; including the use of appropriate personal protective equipment as described by product labels.

Physical:

- Dug up newly established infestations of plants wherever practical and conditions favorable.
- Cut and bagged heads of flowering biennial plants wherever feasible.

Spatial Data collection and Mapping:

- NWCB staff carried a Garmin 78 pre-loaded with Montana Hunt Chip, which identified landowners (Meta data was set to NAD83 Harn, State Plane North 4601, and statue feet).
- GPS points were taken for all regulated weed species, priority species, or significant observations.
- Carried an IPhone 6 (provided by WSDA) with ArcCollector Application with current Clallam County Parcel data, spatial notes and past infestation information.
- Data was mapped and symbolized to Treatment Area Maps (Pages 8-16).

Data Reporting and Monitoring:

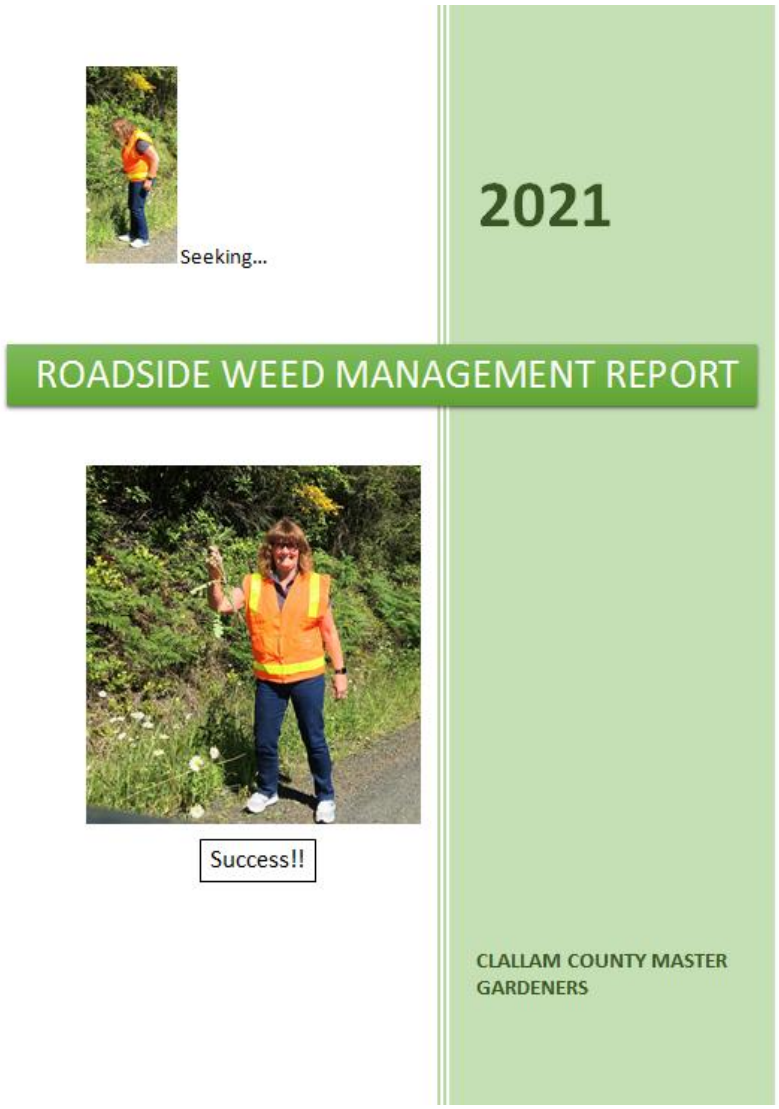
- Supported WSU Master Gardener's RWMT with completed Herbicide/Manual Treatment Form and details.
- Published and updated herbicide application information by road section to NWCB website once. Detailed activity data published in the appendices to this report.

Appendix H: WSU Extension Master Gardener Roadside Weed Management Monitoring Report

The following report document is a scanned copy of the report created by WSU Extension program's Master Gardeners Roadside Weed Monitoring Team (RWMT). The WSU Master Gardener program was established in 1971 to assist Extension professionals in the delivery of research-based horticultural information to communities. Today, Master Gardeners undergo 100 hours of training in topics such plant biology and species identification training to become certified Master Gardeners and provide for a variety of community services including educational programs, diagnostic services and answers to home gardening questions.

The RWMT are Master Gardeners engaged as citizen scientists to collect data and provide an independent assessment of the IWM Program and its treatment activities. Master Gardener's unique qualities as an educated, highly-trained volunteer group make the RWMT an extremely valuable asset to the IWM Program.

The 2019 RWMT consisted of seven certified Master Gardeners with a particular interest in environmental stewardship and research. Individually, the team members come from a variety of professional and academic backgrounds, including, resource management, applied sciences and natural science. The team logged over 400 volunteer hours during which they assessed 45% of the treated roads as well as assisted in the development and implementation of a variety of research projects, each of which is described in the following report.



Clallam County Master Gardener
Roadside Weed Monitoring Report – 2021

EXECUTIVE SUMMARY:

The Washington State University Clallam County Extension Master Gardener's Roadside Weed Monitoring Team (RWMT) continued its Clallam County roadside monitoring activity in 2021, surveying fifty-nine (59) roadsides in the East and Central Clallam Road Commission Districts. Eighty-nine (89) Herbicide/Manual treatment forms were analyzed. Overall, 2021 weed control efficacy was 83% (Good); the highest rating of this five-year project. Twenty-eight (28) weed species were evaluated for efficiency and an additional eleven (11) weed species were observed or noted but not rated since only partial treatments were done.

Three (3) additional projects initiated in 2019 by RWMT were continued this year. Reports have been delivered to the Noxious Weed Office and are available upon request.

1. The No-Mow Pilot Area Project involving Place and Diamond Point roadsides continues and is demonstrating some modest tree suppression.
2. The Olympic Discovery Trail weed species evaluation continues with a survey of the noxious weed locations.
3. Pollinator plantings continue this year at the Deer Park interchange and Olympic Discovery Trail west of Agnew.

The RWMT volunteered over 400 hours this year to support these efforts. We are enjoying the projects, expanding our knowledge base, and look forward to further research opportunities. With five (5) years of monitoring, some distribution and eradication trends are noticeable. Treated weed species appear and disappear from the landscape.

MONITORING PROJECT OVERVIEW:

Entering the fifth year of the Clallam County Integrated Weed Management Plan, Master Gardeners continued our role as an impartial monitor of the weed control efficacy along Clallam County roadsides. Master Gardeners have been monitoring Clallam County roadsides since 2012, noting specific noxious weeds. In 2017, the objective changed to monitoring undesirable weeds treated (herbicide and/or manual) by the noxious weed staff. The primary purpose of the monitoring was and is to evaluate the efficacy of treatment. This emphasis continues. In this report, there will be some numerical analysis. While it may be generally useful, we acknowledge that the collected data are not designed for statistical treatment as they are subjective and not normally distributed.

METHODOLOGY for 2021:

The year 2021 continued two significant changes in our operational procedures.

1. The pandemic
2. The use of a data collection device (DCD)

Because of the possible transmission of SARS CoV-2, we continued to follow the State and County guidelines.

If we were to be effective in our evaluation, an additional means of data viewing was needed besides a single DCD. It was found that we could use the ArcGIS Collector app on our cell phones. However, availability and usefulness of previously enter data was limited. Thus, we mainly relied on our standard manual method of roadside surveillance to determine efficacy. If we found sites with poor efficacy ratings or other pertinent information, it was punctually relayed to the Noxious Weed Office.

MONITORING:

Commencing early in May, nine Master Gardeners launched the 2021 treatment site monitoring. During the season, the team was given one hundred six (106) completed in season Herbicide/Manual Treatment Data Forms (TDF; Table 1).

Table 1: Treatment Forms

Treatment forms received: ---------- 106

Herbicide treatment: ---------- 77

Manual treatment: ---------- 12

Treatment forms monitored: ---------- 89 (84%)

Fifty-nine (59) roadsides were monitored during the 2021 season (Appendix A) with 40 in the East Clallam Road Department District and 19 in the Central District. Thirteen (13) previously un-monitored roadsides were evaluated, and 9 roadsides were monitored for the fifth consecutive year.

Twenty-eight (28) Clallam County noxious weed species were monitored and received efficacy ratings (Appendix B). Category 1 weeds remained the highest priority for control in 2021. Most of the commonly monitored weeds of 2017 were still being monitored in 2021 (Table 2). The knapweeds (meadow, spotted, and diffuse) were a high priority in 2017 and remained such for 2021. Meadow knapweed, the most commonly monitored in 2019, was noted on 31 of the TDFs in 2021. It is still more prevalent in the Central District than the East.

This year there are only four (4) ranked commonly monitored weeds since there was a significant gap between position 4 and 5. Meadow knapweed and tansy ragwort topped this year's list. Poison hemlock and Scotch Broom were both at 23 efficacy ratings, trailing meadow knapweed and tansy ragwort by approximately 8 efficacy ratings. This year's top four can be found in previous year's top five list. Two-thirds of the 28 monitored weed species had four or fewer locations to be monitored, and the area coverage of these was minimal. Without the updated DCD data or when out of cell range, it is still difficult to locate small infestations with low densities.

Table 2: Most Commonly Monitored Weeds

2021 1 Tansy Ragwort 2 Meadow Knapweed 3 Poison Hemlock 4 Scotch Broom

Rank	2017	Rank	2018
1	Tansy Ragwort	1	Canada thistle
2	Canada Thistle	2	Bull Thistle
3	Meadow Knapweed	3	Scotch Broom
4	Scotch Broom	4	Meadow Knapweed
5	Diffuse Knapweed	5	Tansy Ragwort

Rank	2019	Rank	2020
1	Meadow Knapweed	1	Scotch Broom
2	Canada Thistle	2	Poison Hemlock
3	Bull Thistle	3	Meadow Knapweed
4	Poison Hemlock	4	Himalayan Blackberry
4T	Tansy Ragwort	5	Tansy Ragwort

Partial treatments were common with 150 applications. Observed but not rated, partial treatments are typically dealt with in the comment section on the monitoring sheets. Scotch Broom appears in a predominant position on both the monitored and partial treatment lists; in total, it is the most observed weed. Also, commonly treated partial sites included Himalayan blackberry, Herb Robert, Canada thistle, bull thistle, and everlasting pea vine. Bull thistle is a prized pull by any RVMT member. Everlasting peavine was partially treated 9 times this year, but lacked a complete treatment. Considering that two-thirds of the monitored roads were in the East District, there is a preponderance of partially treated sites in the Central District. Himalayan blackberry is treated predominately in the Eastern District (80%). The

other four commonly partially treated weeds are interestingly split about 50/50 between the Central and East Districts. It should be noted that there were no partial treatment sites for tansy ragwort, poison hemlock, or the knapweeds. Scotch Broom, Herb Robert, Himalayan blackberry, and the prevalent thistles accounted for about 75% of the partial treatments.

Poison hemlock is found only east of Port Angeles and is a weed that is treated early and often, usually manually. Tansy Ragwort appears in the top five monitored weeds all five years and this year is back at the top. The areas infested with tansy ragwort are not large but are numerous.

The primary concern in the monitoring process is the efficacy of the noxious weed treatments. The developed efficacy data from our monitoring corresponds to the prescribed codes found on the weed treatment monitoring form (WTMF) provided by the noxious weed office. Monitoring of herbicide treated sites was done at least 4 weeks after treatment but not long after that time period had elapsed.

While efficacy ratings are somewhat subjective, they are determined by consensus. Efficacy ratings vary noticeably from road to road and weed to weed. The developed efficacy data from our monitoring evaluation corresponds to the prescribed codes found on the WTMF (Table 3).

Table 3: Code for Percent Efficacy of Treatment & Monitoring Evaluations for 2021

Code	% Efficacy	Rating	Monitoring Evaluation Total
0	0	No effect	2
03	1 – 5	Failure	2
15	6 – 25	Poor	4
35	26 – 50	Marginal	15
65	51 – 75	Fair	24
85	76 – 90	Good	18
95	91 – 99	Excellent	32
100	100	Complete	79
UN	UNK	Unknown	21
M	Un	No entered data	9

The combined overall average efficacy was 83% (Good), reflecting an upward trend over the last three years: 80% last year and 74% in 2019. A total of 211 efficacy ratings were given with 154 in the East District and 57 in the Central District. Central District efficacy monitoring activity was down by 25%. The RWMT monitored mainly herbicide treatment sites. Manual applications sites were monitored early in the year and involved predominately poison hemlock.

There were 151 partial treatments listed on the TDFs. Unknowns and partial treatment applications are not reflected in the overall efficacy ratings. Unknowns were up significantly this year. Two factors contributed: first, trying to monitor on high traffic roads and second, lack of site information on small patches. Missing data were predominately the result of communication difficulties and missing DCD data.

Stellar efficacy ratings were earned on several common weed species (Table 4). Tansy ragwort treatment sites increased significantly, and the efficacy rating increased to 92 and typically received a complete rating . Meadow knapweed also showed a significant rise in efficacy rating and again, most typically was given a complete rating. Poison hemlock application ratings showed a slight drop this year, with a mean efficacy rating of 86. Scotch Broom lowered the overall efficacy. Some of the less monitored common weeds, such as Canada thistle and bull thistle, also tended to lower the efficacy rating. Canada thistle's efficacy rating was 60 while bull thistle came in at 74. Overall, efficacy ratings showed a wide range for individual species (Appendix C).

Table 4: 2020/2021 Efficacy ratings for the Most Commonly Monitored Species

Weed	Treatments*		Mean		Median		Mode	
	2020	2021	2020	2021	2020	2021	2020	2021
Meadow knapweed	22	31	74	87	85	95	M	100
Poison hemlock	25	23	91	86	100	95	100	100
Scotch broom	23	23	79	80	95	85	95	65
Tansy ragwort	14	32	86	92	100	100	100	100

*Unknown ratings or partial treatments not included

M- Multimodal

HERBICIDE RETREATMENT NEEDS:

Other data gathered by the monitoring team on the WTMF included retreatment needs for this year and next. Retreatment needs for this year were communicated to the Noxious Weed staff shortly after monitoring. Communication was common between the Noxious Weed staff and the Master Gardeners during the season. Any priority weed noted for treatment that had less than half of the target population controlled was promptly reported.

ENVIRONMENTAL SITE TYPING:

Environmental site typing characterizes the immediate surroundings along the roadside and classifies the section into areas that are open, wet/dry, forest, or other. Open and forest are the two common land cover types. Since no significant changes occurred, except for anthropogenic modification, reporting for 2021 will be limited to the thirteen newly monitored roadsides (Appendix A). Of these newly monitored sites, seven were forest lined roads, five were rated open while Camp Hayden Road was a mixture.

Environmental site typing serves two main functions: it gives a good indication of the invasive and noxious weeds that possibly are present and which native plantings have a better success potential.

OFF-TARGET DAMAGE:

Assuring chemical weed control activities do not impact native plants is an important role for our impartial RWMT. Immediate feedback helps determine if chemicals or application methods need to be modified. We continue to assess this on every WTMF. There were three off-target damage sites reported.

Place Road was treated for the hundreds of Scotch Broom, and there were a few spots where minimal damage was noted on annuals such as catsear. Cat Lake Road did have some minimal overspray onto an adjacent roadside willow. There was an additional report of off-target damage on a spot application on Woodcock, but it was found not to be in the location treated by the noxious weed personnel.

NATIVE PLANTING PROJECT:

The cultural weed control aspect of the Integrated Weed Management Plan is to foster native plant communities built off the RWMT's environmental site typing data. To date, plantings at four sites have commenced (Table 5).

Table 5: Native Planting Sites

Planting Site	Planting Year
Olympic Discovery Trail – Agnew Berm	2018, 2019, 2020, 2021
Black Diamond Road @ Hillside Baptist Church	2018
Deer Park Interchange Loop	2019, 2020, 2021
Master Gardener Woodcock Demonstration Garden Roadside	2019

To monitor changes of the new pollinator habitats over time, a series of photo stations has been established. This will allow us to visually note the occurring changes. Public notification of activities at the planting sites is deemed necessary. Working with the Noxious Weed Office staff, RWMT was awarded a grant from the Washington State Native Plant Society to offset costs for interpretive signage. The purpose of the signage is to educate any passersby about the use of native plants. The sign base and interpretative sign have been placed (photo 1). The native plantings should reduce mowing costs and provide habitat and food for pollinators.

Photo 1: Interpretive sign adjacent to the Olympic Discovery Trail west of the Agnew Berm.

OLYMPIC DISCOVERY TRAILSURVEY PROJECT:

Weed species, Global Positioning System (GPS) coordinates, and other weed location data along the Olympic Discovery Trail from the Elwha River to the East Clallam County line were provided in a 2019 report to the Noxious Weed Office. Additional areas of the trail were surveyed this year, as well as spot resurveys. Potential areas of future native plantings are also included.

NO-MOW PILOT:

Data gathering to determine if some low growing native shrubs can help suppress roadside tree growth, which could reduce the County roadside mowing burden while enhancing pollinator habitat. Preliminary results are that modest tree suppression is happening, and the vast majority of tree seedlings were proximate to the ditch, which will continue to be mowed.

MONITORING OBSERVATIONS AND CONCLUSIONS:

With the completion of the 2021 fieldwork, we now have five years of data along nine roadsides. Thirteen (13) roadsides are new this year with the remaining 37 having been monitored multiple times. Most of the following text will refer to the four mostly commonly rated weed species of 2021 (Table 2).

The knapweed species have remained a high priority weed. Meadow knapweed appears to be the prevalent knapweed species currently monitored. It is cosmopolitan in its distribution in the East and Central districts, but there are several troublesome locations that need to be highlighted. Happy Valley is one of the prime locations, mainly west of Johnson Creek Road. There have been a number of repeat applications in this area. Another location that has an abundance is the area just east of the Elwha River including Olympic Hot Springs Road and River Road. In the same area, the roads around Lairds Corner, meadow knapweed plants are found in abundance. Efficacy ratings improved notably this year, but these trouble spots are persistent and need continued intense care.

Tansy ragwort treatments increased noticeably, returning back to the levels of 2018. Efficacy ratings are general high, and several spots have shown improvement, such as Happy Valley. Nearby, Palo Alto continues to receive only fair or marginal efficacy ratings. West of Joyce, Schmitt Road is a hot spot for tansy ragwort. One of the residents had a warm positive reaction to the attempt to control it at that location. Nearby Whiskey Creek Beach Road had a fair rating as well this year. Several roadsides that were treated in early years and received low ratings, such as Fors, have not been monitored recently.

Poison hemlock has become a point of attention in the monitoring process, first monitored in 2018. It currently seems to be confined to the East District but is persistent. Most of the sites are manually treated early in the growing season. Efficacy ratings are generally excellent or complete but there is one locale that seems to pose a problem – Woodcock near the Dungeness River and the crossing road Fasola. Nearby, Ward has improved, and this year had complete ratings. The Voice of America site, which has had an abundance of the plant the previous three years, did not have any plants when checked. Even with so many complete removals each year, the seed bank does replenish the plant in many locations.

Scotch Broom treatment efficacies have improved from marginal to fair to good since 2017, with a decrease in area and a pleasing increase in efficacy. Yet, it remains a problem on adjacent private property. The notable change this year was the significant increase in partial treatments. In 2017, there were few treatments and no partial treatments. Partial treatments in 2020 were about 20% with an increase in treatments, but this year, partial treatments were slightly over 50% of all the Scotch Broom treatments, and the number of treatments sites (both partial and complete) continue to climb. Additionally, mature plants are prolific seed producers, and many small plants are found sprouting later in the same or next year. If some have been removed, it seems that another can be found. This is the weed species that seems to garner the most conversation in our interactions with the public.

Noting a few of the other weeds, Italian thistle was monitored intensely. The first pass was with eight Master Gardener volunteers walking the area of infestation. It was followed up later in the growing season with another viewing. Ber chervil, noted only in the East District north and west of Sequim, was monitored for the first time, and with its abundance will probably be seen next year. Efficacy ratings were low. Another new weed this year was purple foxglove, found mainly in the Central District. Spotted knapweed, monitored seven times with high efficacy ratings, was again clustered around Sequim. The one exception was Deer Park, with an efficacy rating of poor. Common teasel has been persistently appearing around and east of Sequim. Efficacy ratings are generally complete, but several locations had poor ratings (Appendix C). Closer attention needs to be paid to this species. Yellow Hawkweed persists along Deer Park and O'Brien, but efficacy ratings are improving. St. Johnswort seems to be rearing its yellow head more frequently and in places not seen before. Density and area comparisons through the study timespan was not possible this year due to incomplete received data.

Since the Integrated Weed Management Plan has only been in effect since 2017 and noxious weed seeds can survive years, even decades, it is important to continue to appropriately resource the County's efforts in order to comply with Washington State weed laws. Supported activity by the Clallam County Road Commission and the Clallam County Commissioners illustrates an awareness of the "big picture" and a view to a sustainable future.

RWMT:

In 2021, six Master Gardeners continued in the activities associated with the Noxious Weed Office. They were: Brick Ayola, Peggy Goette, Bev Hetrick, Brenda Lasorsa, John Viada, and Bruce Pape. They were joined by three interns from the Master Gardener class of 2021: Lorraine Eckard, Nancy Kohn, and Harmony Rutter.

Monitoring was mainly accomplished from a slow-moving vehicle, but when necessary, sites were examined on foot. Safety was always a priority. Activities were limited to the East and Central Clallam Road District areas. During the monitoring, the teams documented post-treatment live noxious weeds and provided point notations for the Noxious Weed Office staff.

Much was learned from our Spring tune-up tour with the Head of the Noxious Weed Office. Being out and about, we occasionally had people inquire about our purpose. Contacts, again, were all positive. Monitoring commenced early in May and ended in mid- September. Field work for the No-Mow project was done in mid-spring and late September. Total volunteer hours compiled were over 400.

APPENDIX A: Roadsides Monitored

East		Central
Blue Mountain	Lotzgesell	Agate Beach^
Business Park	Old Blyn	Black Diamond*
Carlsborg	Old Olympic	Camp Hayden^
Cat Lake	Palo Alto*	Crescent Beach^
Cays	Panorama^	Deer Park
Cline Spit	River*	East Beach
Coulter	Sequim Anderson Int	East Lyre River*
Diamond Point	Sequim Dungeness	Elwha River
E Michigan School^	South Third^	Fisher Cove
E Sequim Bay^	Taylor Cutoff	Granite^
Easterly*	Thornton	Joyce/Piedmont
Evans	Three Crabs	Little River*
Fasola	Turnstone	O'Brien
Gilbert	Valley Center	Olympic Hot Springs*
Happy Valley*	Vistas	Place^
Harrison^	Ward	Schmitt
Hooker	West Sequim Bay	West Lyre River*
Johnson Creek*	Woodcock	Whiskey Creek Beach
Kitchen Dick	Woods	Wye^
Lost Mountain^	Youngquist^	

^ First year monitored

*Fifth year monitored

APPENDIX B: Noxious Weeds Monitored

Code	Scientific name	Common name
ANCA	*Anthriscus caucalis*	bur chervil
ARAB	*Artemisia absinthium*	absinth wormwood
BEIN	*Berteroa incana*	hoary alyssum
CAPY	*Carduus pycnocephalus*	Italian thistle
CEMO	*Centaurea x moncktonii*	meadow knapweed*
CEST	*Centaurea stoebe*	spotted knapweed *
CIAR	*Cirsium arvense*	Canada thistle*
CIIN	*Cichorium intybus*	chicory
CIVU	*Cirsium vulgare*	bull thistle*
COMA	*Conium maculatum*	poison hemlock
CRMO	*Crataegus monogyna*	English hawthorn
CYSC	*Cytisus scoparius*	Scotch broom*
DALA	*Daphne laureola*	spurge laurel*
DIFU	*Dipsacus fullonum*	common teasel*
DIPU	*Digitalis purpurea*	common foxglove
FOVU	*Foeniculum vulgare*	Common fennel
GERO	*Geranium robertianum*	Herb Robert*
HICA	*Hieracium caespitosum*	yellow hawkweed
HYPE	*Hypericum perforatum*	St Johnswort*
ILAQ	*Ilex aquifolium*	common holly
LAGA	*Lamiastrum galeobdolon*	yellow archangel
LALA	*Lathyrus latifolius*	everlasting peavine
LEAP	*Lepidium appelianum*	hairy whitetop
LUAR	*Lupinus arboreus*	tree lupine

PORE	*Potentilla recta*	sulphur cinquefoil*
RUAR	*Rubus armeniacus*	Himalayan blackberry*
RULA	*Rubus laciniatus*	evergreen blackberry
SEJA	*Senecio jacobaea*	tansy ragwort*
SYOF	*Symphytum officinale*	common comfrey
TAVU	*Tanacetum vulgare*	common tansy*

* Treated 2017 through 2021

APPENDIX C: Efficacy Ratings

WEED	EFFICACY	ROAD
ANCA	35	Carlsborg 31
	65	Evans 21
	35	Woodcock 33
CAPY	85	Cays 9
	65	Cays and Lamar 7
CEMO	95	Blue Mountain 106
	100	Carlsborg 31
	100	Cays 32
	100	Easterly 45
	95	Happy Valley 44
	95	Happy Valley 46
	100	Happy Valley 50
	95	Johnson Creek
	95	Lost Mountain 91
	15	Palo Alto 89
	95	River 49
	95	South Third 47
	15	S Third/ Happy Valley 67
	100	Taylor Cut Off 92
	95	Black Diamond 81
	100	Camp Hayden 103
	100	Crescent Beach 102
	100	Crescent Beach 105
	100	Deer Park 75

95	East Beach 86
95	East Lyre River 94
100	Elwha River 59
100	Fisher Cove 85
35	Granite 79
100	Joyce Piedmont 104
65	Little River 80
100	O'Brien 55
35	Olympic Hot Springs 78
100	Place 73
85	West Lyre River 93
100	Whiskey Creek Beach 98

Number indicates TDF on segmented or multi-treated roadsides

APPENDIX C, *continued*

WEED	EFFICACY	ROAD
CEST	95	Business Park 30
	100	Carlsborg 31
	95	Cays 32
	100	Happy Valley/McFarland 63
	100	Sequim Dungeness 19
	100	Valley Center 10
	15	Deer Park
CIAR	85	Diamond Point 35
	65	Diamond Point 36
	65	Evans 21
	35	Kitchen Dick/Buckthorn 41
	100	Lotzgesell 34
	35	Sequim Dungeness
	35	Woodcock 20
CIIN	3	Palo Alto 89
	100	Woodcock 22
CIVU	95	Diamond Point 35
	95	Diamond Point 36
	65	Evans 21
	95	Gilbert 11
	85	Lotzgesell 34
	35	Ward 17
	100	Woodcock 18

35	Woodcock 20
35	Deer Park Interchange 40
100	Fisher Cove 85

Number indicates TDF on segmented or multi-treated roadsides

APPENDIX C, *continued*

WEED	EFFICACY	ROAD
COMA	95	Business Park 30
	100	Cline Spit 13A
	95	Coulter 4
	95	Evans 21
	0	Fasola 23
	100	Gilbert 11
	100	Hooker 13B
	95	Kitchen Dick 1
	85	Kitchen Dick 27
	100	Lotzgesell 2
	100	Old Blyn 6
	100	Old Blyn 72
	100	Sequim Anderson Inter 8
	100	Sequim Dungeness 19
	100	Three Crabs 15
	100	Vistas 24
	85	Sequim Dungeness 19
	100	Ward 17
	100	West Sequim Bay 39
	65	Woodcock 16
	100	Woodcock 18
	35	Woodcock 20
	35	Woodcock 22
	100	Woodcock 18

	100	Deer Park 60
CRMO	0	Sequim Dungeness 19

Number indicates TDF on segmented or multi-treated roadsides

APPENDIX C, *continued*

WEED	EFFICACY	ROAD
CYSC	100	Business Park 30
	85	Diamond Point 35
	65	Diamond Point 36
	95	Diamond Point 68
	95	East Michigan School 71
	65	Easterly 45
	65	Gilbert 11
	65	Harrison 12
	85	Lost Mountain 91
	95	Lotzgesell 34
	100	Old Olympic 42
	65	Palo Alto 89
	65	River 49
	85	River/Happy Valley 64A
	100	Sequim Dungeness 19
	65	Valley Center 10
	65	Vistas 24
	85	Woodcock 33
	100	Woods 70
	35	Deer Park Interchange 40
	100	Deer Park Rest Area 65
	95	Elwha River 59
	65	Fisher Cove 85
	85	Place 74

DALA	65	Gilbert 11
	100	Woodcock 18
DIFU	85	East Michigan School 71
	0	Fasola 23
	65	Happy Valley 44
	100	Old Blyn 6
	100	Sequim Anderson Int 8
	100	Sequim Dungeness 26

Number indicates TDF on segmented or multi-treated roadsides

APPENDIX C, *continued*

WEED	EFFICACY	ROAD
FOVU	100	Carlsborg 31
	100	Cays 32
	100	Kitchen Dick 27
	15	Old Olympic 42
	100	Sequim Dungeness 19
	100	Deer Park 75
GERO	100	Fisher Cove 85
	100	Place 73
HICA	65	Deer Park 38
	85	Deer Park 56
	100	Deer Park 75
	100	O Brien 55
HYPE	35	Deer Park 56
ILAQ	100	Taylor Cutoff 92
	100	Woodcock 18
LEAP	95	Kitchen Dick/Buckthorn 41
LUAR	85	Cays 32
	100	Deer Park Rest
RUAR	85	Diamond Point 35
	95	Evans 21
	3	Gilbert 11
	95	Sequim Dungeness 19
	100	Vistas 24

35	Woodcock 20
65	Crescent Beach 105
85	Deer Park 56
95	Elwha River 59
100	O Brien 55

Number indicates TDF on segmented or multi-treated roadsides

APPENDIX C, *continued*

WEED	EFFICACY	ROAD
SEJA	95	Blue Mountain 106
	95	Cat Lake 69
	85	Diamond Point 36
	100	Diamond Point 68
	100	East Sequim Bay 87
	100	Fasola 23
	100	Happy Valley 46
	100	Happy Valley 50
	95	Johnson Creek 48
	95	Lost Mountain 91
	100	Old Blyn 6

	35	Palo Alto 89
	100	Panorama
	100	Woods 61
	95	Woods 70
	100	Agate Beach 100
	100	Camp Hayden 103
	100	Crescent Beach 102
	100	Crescent Beach 105
	65	Deer Park 56
	100	Deer Park 60
	65	Deer Park 75
	100	East Beach 86
	100	East Lyre River 94
	100	Elwha River 59
	95	Joyce/Piedmont 104
	95	Place 58
	85	Place 73
	65	Schmitt 96
	100	West Lyre River 93
	65	Whiskey Creek Beach 98
	100	Wye 101
TAVU	100	Carlsborg 31

Number indicates TDF on segmented or multi-treated roadside

Appendix I: Peninsula Daily News Legal Notice of Herbicide Use 2021

Classified Proof

PUBLIC HEARING NOTICE

Clallam County is beginning the 2021 Integrated Weed Control program which may include spot treatments of herbicide to control specific noxious weeds and invasive species of special concern along selected portions of county right-of-way. Notices indicating which herbicide has been applied, the application date, and the target weed species will be posted onsite. The Integrated Weed Management Plan, which contains information about target weeds, locations, and treatment methods, can be viewed online at http://www.clallam.net/weed/ Property owners who do not wish to have their adjoining right-of-way treated with herbicide have the option of keeping the right-of-way abutting their property weed free by applying for an Owner Will Control Agreement with Clallam County available online. Contact the County for further information at 360-417-2442.

Pub.: PDN February 19, 2021
Legal No. 919769

Appendix J: Sample Herbicide Notice

NOTICE

The herbicides aminopyralid, imazapyr, triclopyr, or clopyralid or _____ will be applied to this site to control noxious weeds, which threaten native vegetation and habitat in this area.

Planned / Actual application date*: _____

*Actual date of application contingent upon weather conditions.

Targeted Noxious Species: _____**

**Other weed species in this area may also be treated at this time.

NO USE RESTRICTIONS ARE IN PLACE

Avoid contact with treated vegetation until after it has dried.

Clallam County Noxious Weed Control Board
Joe Reynolds, noxious weed control specialist
223 East Fourth Street, Suite 15
Port Angeles, WA 98362
(360) 417-2000 ext 2703
(360) 999-6734

Appendix K: Sample Herbicide/Manual Treatment Data Form (Side 1)

BM 4-23-19

2020 CLALLAM COUNTY-ROADS
Herbicide/Manual Treatment Data Form

Project ID #:

Project Complete? **Y** or (N) (add notes)

Name of Entity/Person for whom Treatment was applied: Clallam County

Street Address: 223 E 4 th St City: Port Angeles State: WA Zip: 98362

Address or Exact Location of Site: Old Blyn Hwy (2.15 mi) entire road

PIN#:

General Activity Fields

County (circle one)	WRIA (circle one)	Project Name (from project list)	Department (circle one)	Workforce**
(Clallam)	15 16 17 18 19		(Roads) Parks DCD Other	NWCB - Z

****Workforce:** County Name, WCC Crew Name, County Weed Board

Crew Members Present:
Jim, Cathy

Site/Inventory Fields

Start Date	Stop Date	acres examined for weeds	Treatment Site (circle one)	**Total Manual Infested Area Treated: (DO NOT lump plants together)** acres
4/1/19	4/1/19	4.3 acres	~~Road edge/ROW~~ Park Other	

Weeds Treated (Just the PLANTS code is OK)	**Infested Area Treated** (DO NOT lump plants together)	% of area examined for weeds infested with this species (lump plants together – use cover classes 1 - 9 listed below)	**M**anual/**H**erbicide or **S**urvey
COMA	20,000 + 1 plant sq ft	4	H
GERO*	10,000 sq ft	4	H
	sq ft		
	sq ft		
	sq ft		

[7] **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*.

Appendix K: Sample Herbicide/Manual Treatment Data Form (Side 2)

All Licensed Applicators: Name and License # James Winthrop Knapp 87945, Cathleen Lucero 56527

Firm Name: Clallam County Noxious Weed Control Board Phone # 360-417-2442

Firm Address: 223 E 4th St, Suite 15 City: Port Angeles State: WA Zip: 98362

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Remarks – Weather forecast
4/1/2019	2:00	3:30	58°F	5 mph	N		

Application Area (acre)	Total Volume of Mix Applied (gal)	Diluent	Special comment
0.5 acres	3.5 gal	Water	

Product Name	EPA Registration #	Amount of herbicide used (oz)	Herbicide Applied/Acre or other measure	Concentration Applied
Vastlan	62719-687	4.5 oz	9 oz/acre	1%
Liberate LA	34704-04008	1.8 oz	3.5 oz/acre	0.4%
Blazon-blue	—	1.2 oz	2.3 oz/acre	0.25%

Was this application made as a result of a permit? Yes (No)
If yes, Permit # _____

WA State NPDES Acres:
Ø

Notes:
Spoke w/ Joe – Homeowner at 2111 Old Blyn w/ extensive patch on ROW next to his Horse pasture; he was extremely pleased w/ our control he has been controlling his for years w/out any improvement on ROW. # Interactions: 3
CONIA spotty from 2111 Old Blyn to approx. 1535 Old Blyn Hwy. GERO partially treated here as well.
1 CONIA plant dug adjacent to 652 Old Blyn Hwy near gate. 1 CONIA patch between ODT/Old Blyn Intersection at Blyn Rd.
Follow-up for GERO is possible.

OWNER WILL CONTROL AGREEMENT

By entering into this agreement an adjacent property owner (hereinafter referred to as "Owner") will agree to control noxious weeds and other weeds of concern as described in Appendix A of this agreement on county right-of-way adjacent to property located at:

_____

(Street) (City) (Zip)

The County will send a confirmation email upon receiving a completed application and return a copy of the finalized Owner Will Control Agreement (hereinafter referred to as "Agreement").

For the purpose of this Agreement, 'control' will consist of complete removal of all above ground biomass and as much of the root system as is feasible of weeds listed in your packet, as well as any additional weeds of concern as determined by the County.

If noxious or other weeds of concern are observed on right-of-way adjacent to above named address, County will notify property owner of their presence. Owner will then have ten (10) days to completely remove weeds as required by this Agreement. If Owner fails to control weeds in that timeframe, this Agreement will be terminated and weeds will be controlled as determined by the County, including the use of herbicides.

This Agreement is valid from the date signed by both parties until December 31 of the same year.

If the Owner Will Control Agreement is terminated as described above the Owner may apply to re-enter into a new Owner Will Control Agreement the following calendar year.

* _____ * _____ * _____

Owner Name (Print) (Signature) Date

* _____ * _____

(Owner Email) (Owner Phone #)

Interested in Native Plant Enhancement Program? (circle one) **YES** **NO**

* _____ * _____ * _____

County Representative (Signature) Date

*Required Field

Appendix M: Sample Adopt-a-Patch Permit

Program details and forms available online at: **http://www.clallam.net/weed/RD_IWMP.html**

Clallam County Public Works Department
223 East Fourth Street, Suite 15 Port Angeles, WA 98362
360- 417-2703 Phone 360-417-2414 Fax

$160 plus all costs beyond public use**
****See C.C.C. 5.100.245 – Fee Schedule 245-A**

PROJECT NO._____
ROAD NAME _____
PERMIT NO. _____
COUNTY USE ONLY

APPLICATION FOR SPECIAL USE OR EVENT ALONG CLALLAM COUNTY RIGHT OF WAY

In Clallam County, a "Right-of-Way" permit is required to work along a county-owned road within the county right of way.

PLEASE PRINT

Name of Applicant:	County Road:
Mailing Address:_____ _____ _____ Phone:_____ Cell Phone:_____ Fax:_____	Address/ Milepost of Project Site: _____ **When the project is approved:** (check one item below) ☐ Mail permit when approved ☐ Call when approved ☐ Fax when approved

USE PROPOSED & PURPOSE

Special Use: _____**NOXIOUS WEED CONTROL**_____
_____

Name of Event Coordinator:
_____
Start Date _____
End. Date _____

IMPORTANT:

Project Location Description:_____
(Reference "Adopt-A-Patch Site List" for location"

THE EXACT LOCATION OF THE ENTIRE EVENT/USE AREA MUST BE CLEARLY MARKED SO AS TO BE EVIDENT TO COUNTY PERSONNEL. FAILURE TO COMPLY WILL RESULT IN A DELAY OF THE PROCESSING OF THIS PERMIT.
It is the responsibility of the applicant to notify all utilities and private property owners when such property is liable to injury or damage through the performance of the permitted work. The applicant shall make all necessary arrangements relative to the protection of such property and/or utilities.

By signing this permit, the applicant agrees to comply with all conditions as stated on the PERMIT, Form RWPCOND041604, Permit Conditions Addendum and C.C.C. 5.100.245 – Fee Schedule 245-A. Applicant has 10 days from permit approval date to request clarification or modification to permit conditions attached.

Signed_____ Date_____

**********COUNTY USE ONLY**********

PERMISSION IS HEREBY ☐ GRANTED ☐ DENIED
Call 360-417-2703 for the following:
☑ **Start Date** ☐_____ ☐_____ ☑ **Final**

The Approved Permit Must be Posted on Site Until Final Inspection.

COMMENTS:_____
_____
_____
_____

FEE CALCULATION
_____
_____
_____
AMT WAIVED:_____
NET FEE:_____
DATE:_____
RECEIPT#_____
CHECK#_____
REC'D BY:_____

This permit shall be void unless the work herein contemplated is completed before the following date:_____

_____
Area Supervisor/Design Review Engineer Date

Final Inspection By: _____
Date:_____

Adopt-a-Patch_Permit_2018 03/12/18

Adopt-A-Patch Activity Report

Permit#:_____ **Permittee Name:**_____
Permittee Phone #:_____
Dates included in this report:_____ (mm/dd/yy)

_____ (mm/dd/yy)

_____ (mm/dd/yy)

_____ (mm/dd/yy)

Target Species:_____

Estimated Total Removed:
Species 1 _____ **#plants** ____ **lbs of flowers/seeds**

Species 2 _____ **#plants** ____ **lbs of flowers/seeds**

Species 3 _____ **#plants** ____ **lbs of flowers/seeds**

Species 4 _____ **#plants** ____ **lbs of flowers/seeds**

Total Distance Covered: **shoulder 1**_____ **miles/feet** **shoulder 2**_____ **miles/feet**

Total # in Workforce:_____ **Total # Hours Worked:**_____

Comments?_____
_____
_____
_____
_____

Submit reports as often as desired but no later than October 31.

Email to jreynolds@co.clallam.wa.us or Mail to Adopt-A-Patch Coordinator
223 E Fourth St, Suite 15
Port Angeles, WA 98362

Appendix O: Sample Adopt-a-Patch Waiver

Program details and forms available online at: **http://www.clallam.net/weed/RD_IWMP.html**

Adopt-A-Patch Waiver

Name of Grantee		Permit #	
Name of Volunteer/Assignee			
Address	City	Zip Code	Telephone Number
Person to notify in case of emergency		Relationship	
Address	City	Zip Code	Telephone Number

Clallam County's Adopt-a-Patch Program issues permits that allow permit holders, hereinafter known as "Grantees" to enter onto County owned lands for the purpose of controlling noxious and invasive plants of special concern. Grantees and their participants, hereinafter known as "Volunteers" or "Assignees" are advised that working adjacent to a county road can be hazardous and shall exercise due care in performing weed control activities. Grantees and their Assignees must receive safety training prior to participating in any weed control activities.

1. I understand that working within right-of-ways and performing noxious weed control can be hazardous.

2. I hereby verify that I am 18 years of age or older, have viewed the Adopt-a-Highway Safety Video and read the Adopt-a-Patch Safety Tips. I understand the conditions, responsibilities, and privileges of participation in the Adopt-a-Patch Program.

3. By signature below I verify that I am operating on Clallam County right-of-way as a Volunteer/Assignee for Grantee _____ under a valid Clallam County permit and therefore agree to defend, indemnify, and save harmless the County from all claims, actions or damages of every kind and description which may accrue to or be suffered by any person or persons, corporation or property by reason of the performance of any such work, character of materials used or manner of installation, maintenance and operation or by the improper occupancy of rights of way or public place or public structure, and in case any such suit or action is brought against said County for damages arising out of or by reason of any of the above causes, the grantee, his agents, successors, assigns, or volunteers will upon written notice to him or them or commencement of such action defend the same at his or their sole cost and expense and will fully satisfy any judgment after the said suit or action shall have finally been determined if adversely to the County.

Signature of Assignee	Date
Number of hours worked	