CLALLAM COUNTY ROAD DEPARTMENT

Integrated Weed Management Plan

2018 Annual Report

Prepared by **Clallam County Noxious Weed Control Board**
Available online: http://www.clallam.net/Weed/RD_IWMP.html
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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. High priority targets also include county rock sources and spoil disposal sites (Pits) that act as sources/vectors for weed dispersal.

2018 Project Overview:

This year we further integrated weed management into Road Department activities through communication and trainings. We began treatments earlier; discovered two infestations of Italian thistle, a Class A noxious weed, and expanded our control of weeds in pits. Our roadside treatments were observed to be effective and well received by the public. With the help of the Master Gardener Roadside Weed Monitoring Team (RWMT) we implemented two pilot-pollinator friendly, plantings.

2018 Project Accomplishments:

Program Development

- Completed **46** of 56 program development and implementation tasks outlined in IWM Plan.
- Facilitated communication to further synch the IWM Plan with Road Department activities; provided trainings.
- Developed preliminary Pit Plans and partnered with Sheriff Department Chain Gang for weed control in pits.
- Partnered with the Roads Volunteer Coordinator to provide additional volunteer opportunities
- Developed Strategic Pollinator Program and initiated pilot projects.

Roadsides:

- Controlled a total of **92** County Roads; **22 roads** manual only, **36 roads** manual/herbicide, and **34 roads** herbicide only. **12 roads** were surveyed and determined not to need treatment in 2018.
- Controlled **167 miles** and examined **359 acres**.
- Herbicide was applied on **70 roads** with a total of **6.66 gallons** applied over **132 miles**.
- Controlled **40** species – including newly discovered Class A Noxious Weed**, Italian thistle**.
- More than **146 individuals** interacted with staff during treatments.

County Rock Sources/Spoil Disposal Sites (Pits):

- Treated **23 County Pits**. Surveyed an additional **three** pits.
- Controlled a total of **33 species** over a total of **180 acres**.
- Controlled an estimated **1.2 solid acres** manually
- Controlled an estimated **29.9 solid acres** chemically
- Herbicide was applied within **22 County Pits** with a total of **15.3 gallons** applied over **204 acres**.

Strategic Pollinator Plantings:

- Completed **two** pilot projects (**Old Olympic Hwy/ODT** and **Black Diamond Rd**)**.**
- Incorporated **21** native shrub and forb species with sequential bloom periods
- Combined total of **3100 plants** over **one acre** of roadside

Program Monitoring, Evaluation and Reporting

- RWMT assessed **65%** of roadside treatments and reported **79%** average efficacy; assessed pollinator pathways.
- Herbicide treatments were determined to be **very precise**.

Observations and Recommendations:

- Our treatments of Canada thistle were effective; should continue collaboration with local farmers for priorities.
- Our early start led to the discovery of new weed species; should develop eradication strategy for Italian thistle.
- Preliminary pit plans helped us improve organization and overall weed control; plans should be finalized for 2019.
- Pilot Pollinator Plantings locations were excellent initial sites; should incorporate existing volunteer programs.

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. 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. In 2018 working partnerships included the Clallam County Road Department, Clallam County Sheriff's Department Chain Gang, 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.

2018 Project Description:

In this second year of the IWM Program we further integrated weed management into Road Department activities. We facilitated communication, provided specialized trainings, preliminary pit plans, and introduced new best management practices.

We recruited three seasonal employees and began treatments earlier in order to increase our treatment capacity. Early treatments led us to discover two infestations of Italian thistle, a Class A noxious weed, not known to exist in Washington State. We expanded our control of weeds in pits to protect and enhance existing County resources. Roadside treatments were observed to be effective and well received by the public.

The volunteer Master Gardener Roadside Weed Monitoring Team (RWMT) independently reviewed treatments to assess efficacy and impacts. With the help of the RWMT we developed the Strategic Pollinator Assessment to map and identify potential pollinator corridors on County roadsides. NWCB staff and volunteers implemented two pilot-pollinator friendly, plantings using native plants from the Matt Albright Native Plant Center.

2018 PROJECT ACCOMPLISHMENTS:

Program Development

- Completed **46** of 56 program development and implementation tasks outlined in IWM Plan.
- Facilitated communication to further synch the IWM Plan with Road Department activities.
- Provided specialized trainings to Maintenance staff that laid out integrated weed control strategies and introduced associated best management practices.
- Developed preliminary Pit Plans that coordinate weed control with pit management to protect and add value to County resources. Partnered with Sheriff Department Chain Gang to complete weed control in pits.
- Partnered with the Roads Volunteer Coordinator to provide additional volunteer opportunities and engage with volunteers.
- Developed Strategic Pollinator Program and initiated pilot projects.

Program Implementation

Roadsides:

- Controlled a total of **92** County Roads; **22 roads** manual only, **36 roads** manual/herbicide, and **34 roads** herbicide only. **12** roads were surveyed and determined not to need treatment in 2018.
- Controlled **167 miles** (**359 acres examined**) comprised of: **29 miles** manual only, **81 miles** of manual/ herbicide, and **56 miles** herbicide only.
- Controlled **2.67 solid acres** manually.
- Controlled **33.8 solid acres** chemically
- Herbicide was applied on **70 roads** with a total of **6.66 gallons** applied over **132 miles**.
- Controlled **40** species – including newly discovered Class A Noxious Weed**, Italian thistle**.
- More than **146 individuals** interacted with staff during treatments.

County Rock Sources/Spoil Disposal Sites (Pits):

- Treated **23 County Pits**. Surveyed an additional **three** pits.
- Controlled a total of **33 species** over a total of **180 acres**.
- Controlled an estimated **1.2 solid acres** manually
- Controlled an estimated **29.9 solid acres** chemically
- Herbicide was applied within **22 County Pits** with a total of **15.3 gallons** applied over **204 acres**.

Strategic Pollinator Plantings:

- Completed **two** pilot projects (**Old Olympic Hwy/ODT** and **Black Diamond Rd)** that met the following criteria:
    1. Strategically located
    2. Effective prior weed control
    3. Existing volunteer organization committed to planting and maintenance
    4. Showcase pollinator-friendly plant community compatible with roadside safety and maintenance goals.
- Incorporated **21** native shrub and forb species with sequential bloom periods
- Combined total of **3100 plants** over **one acre** of roadside
- At least **25 volunteers** donated approximately **230 hours**

Program Monitoring, Evaluation and Reporting

- Master Gardener Roadside Weed Monitoring Team (RWMT) assessed **65%** of roadside treatments and reported **79%** average efficacy (see RMWT 2018 Annual Report).
- Herbicide treatments were determined to be **very precise**.
- The RWMT assessed roadsides to evaluate the potential for pollinator pathways; identified **18** sites potentially suitable for Strategic Pollinator Plantings.

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 Board and partners in 2018. Maps 2 – 8 show treatment activities in focus areas in East, Central and West Clallam County.

Map Description:

The top priority of the 2018 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 treament activities to control regulated weeds. 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. For example, Map 8 shows Hoko-Ozette Rd with six tansy ragwort points but represent over 1200 individual tansy ragwort plants dispersed along the majority of the road.

Non-regulated weeds, such as Scotch broom and bull thistle, are more widely distributed across the county and treatment activities varied by location, species and available resources. The maps may not include data points for treatment activities of non-regulated weeds; comprehensive tabular data of treatment activities can be found in Appendix C and Appendix D.

Legend Description**:**

The Maps 2 – 8 Legend includes **Species Treated** and lists all species with spatial data recorded in 2018. *Regulated* weed species are listed first, as **stars** or **asterisks**, in alphabetical order according to weed codes; *non-regulated* weed species are listed second, as circles or triangles, in alphabetical order according to weed codes. All county pits shown on the map received treatments in 2018.

Map List:

Clallam County

Map 1. Clallam County Roadside Treatment Overview 2018

East Clallam County

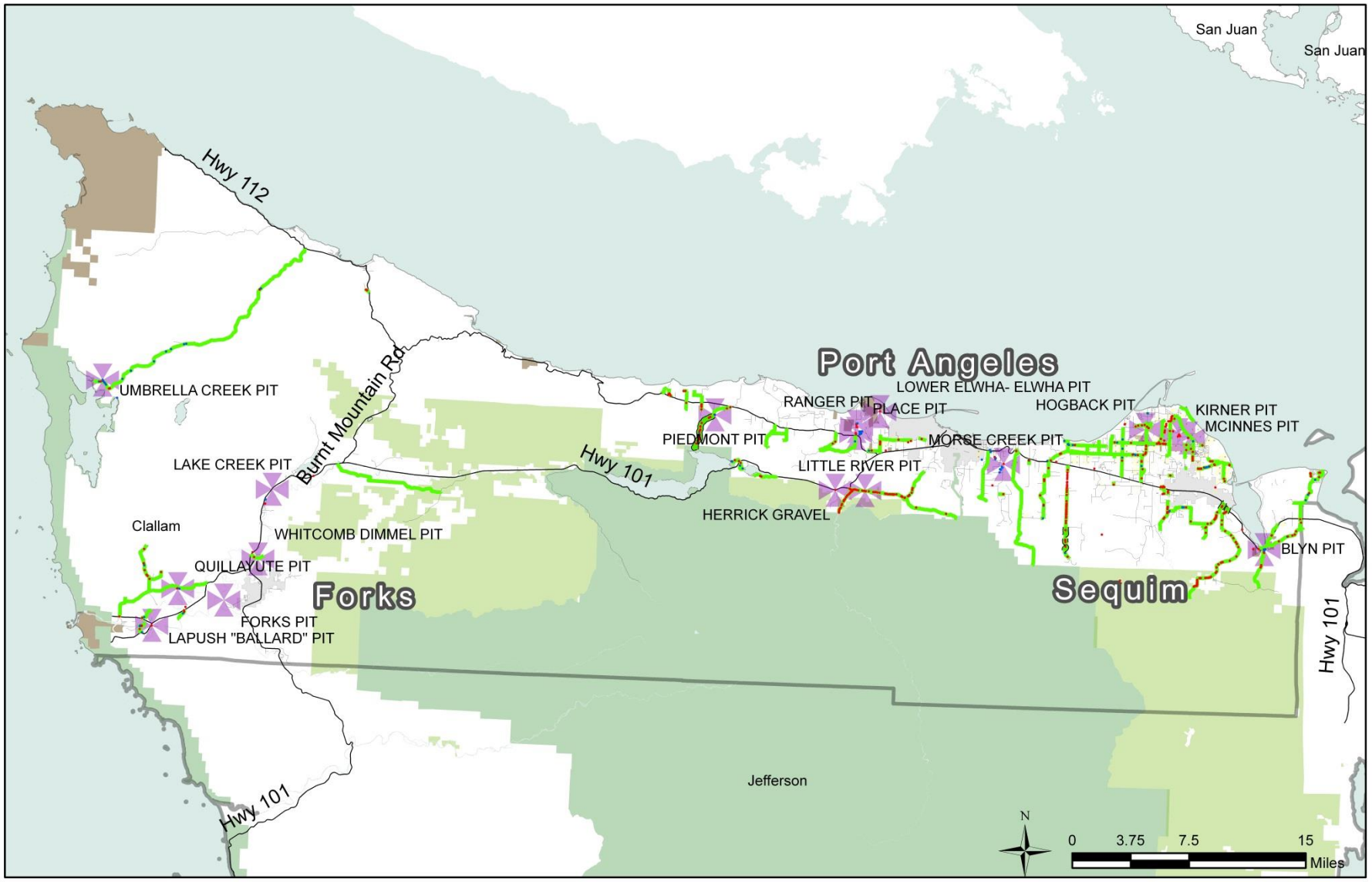
Map 2. Blyn – Miller Peninsula Treatment Area
Map 3. Sequim-Dungeness Valley Treatment Area

Port Angeles/Central Clallam County

Map 4. East Port Angeles Treatment Area
Map 5. West Port Angeles – Elwha Valley Treatment Area
Map 6. Joyce Treatment Area

West Clallam County

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

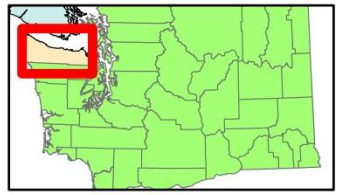


Legend

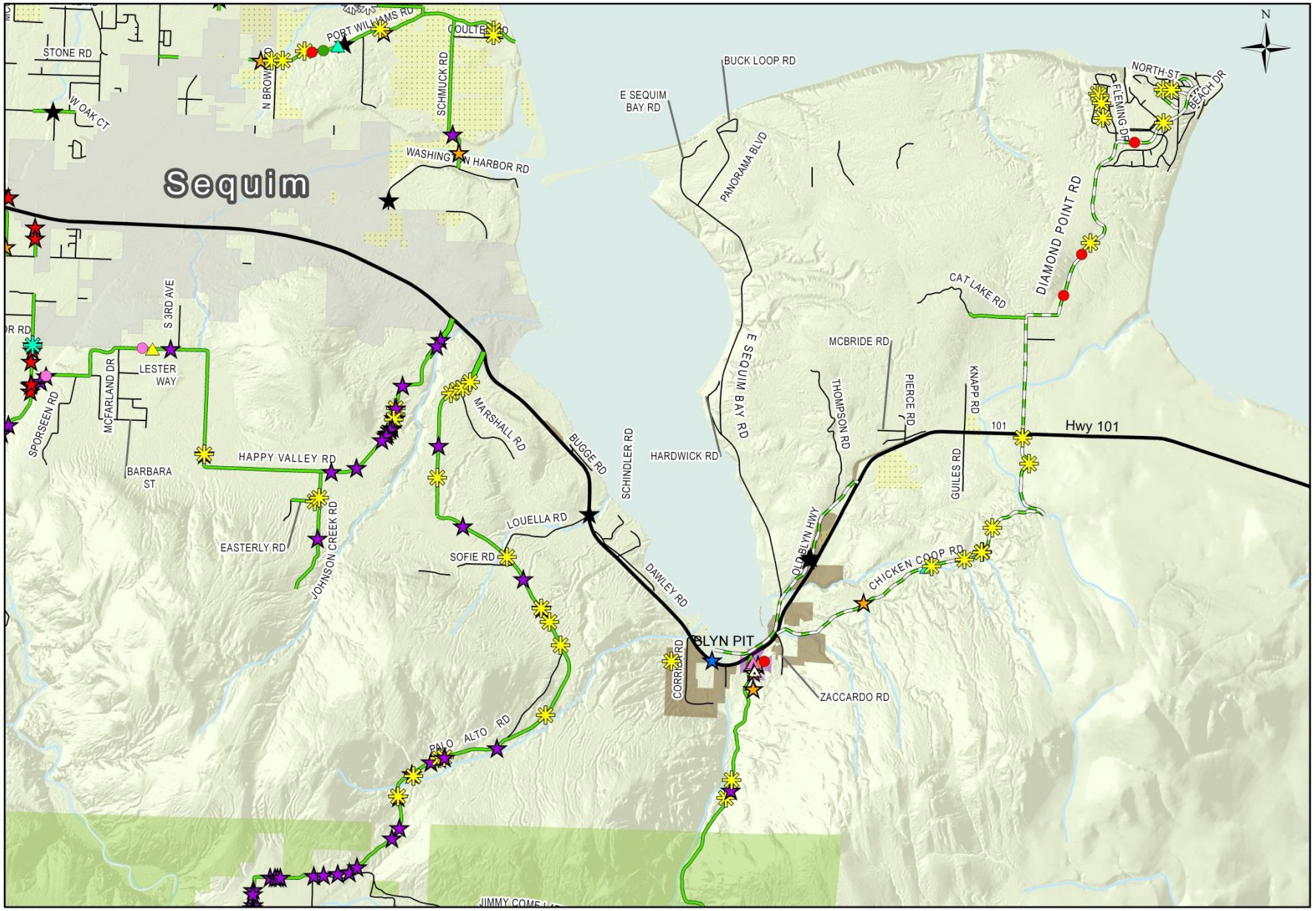
Treated Species

- Regulated species
- Other species

Treated Roads
County Roads
State Highway
County Pits
Olympic National Forest
Olympic National Park

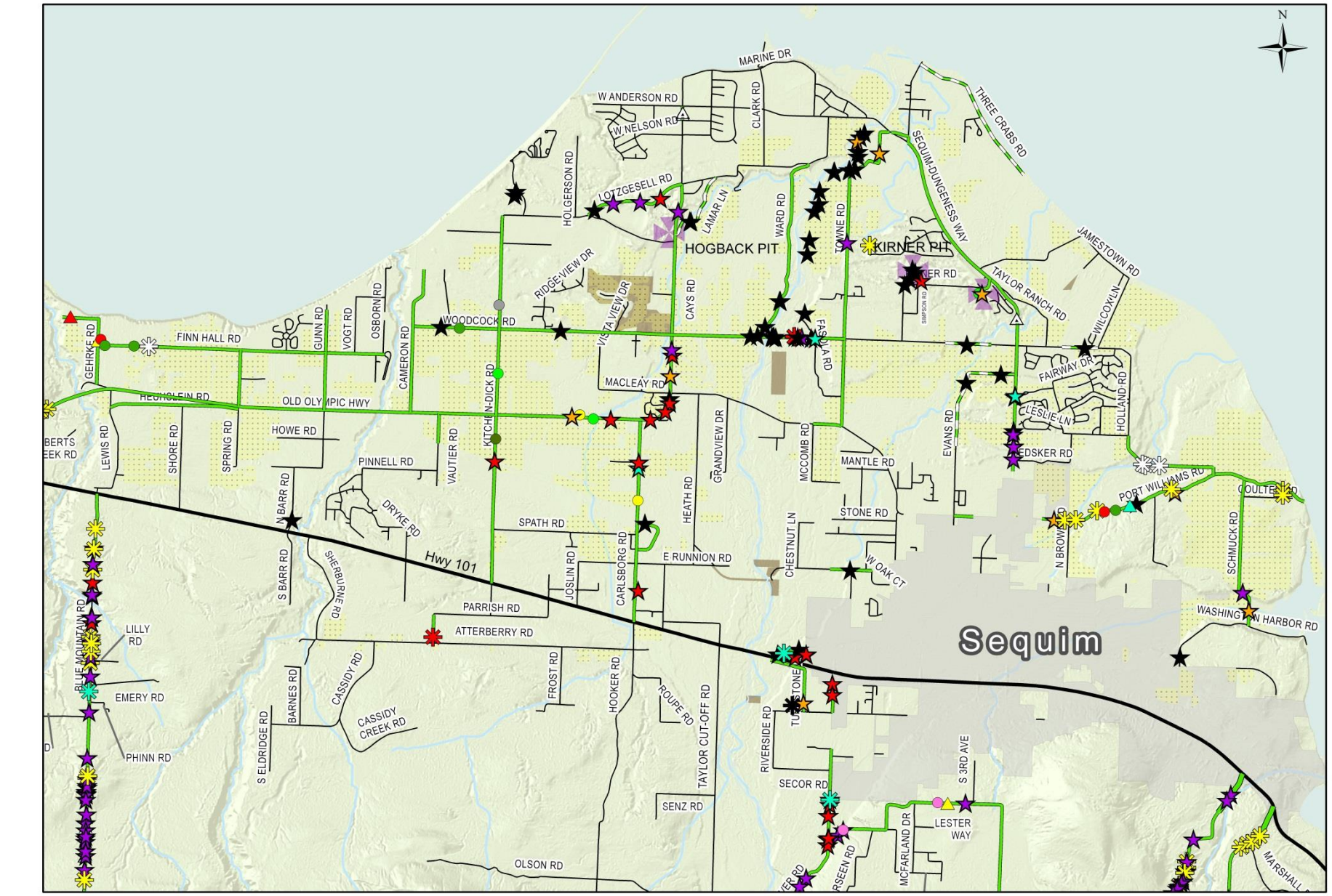


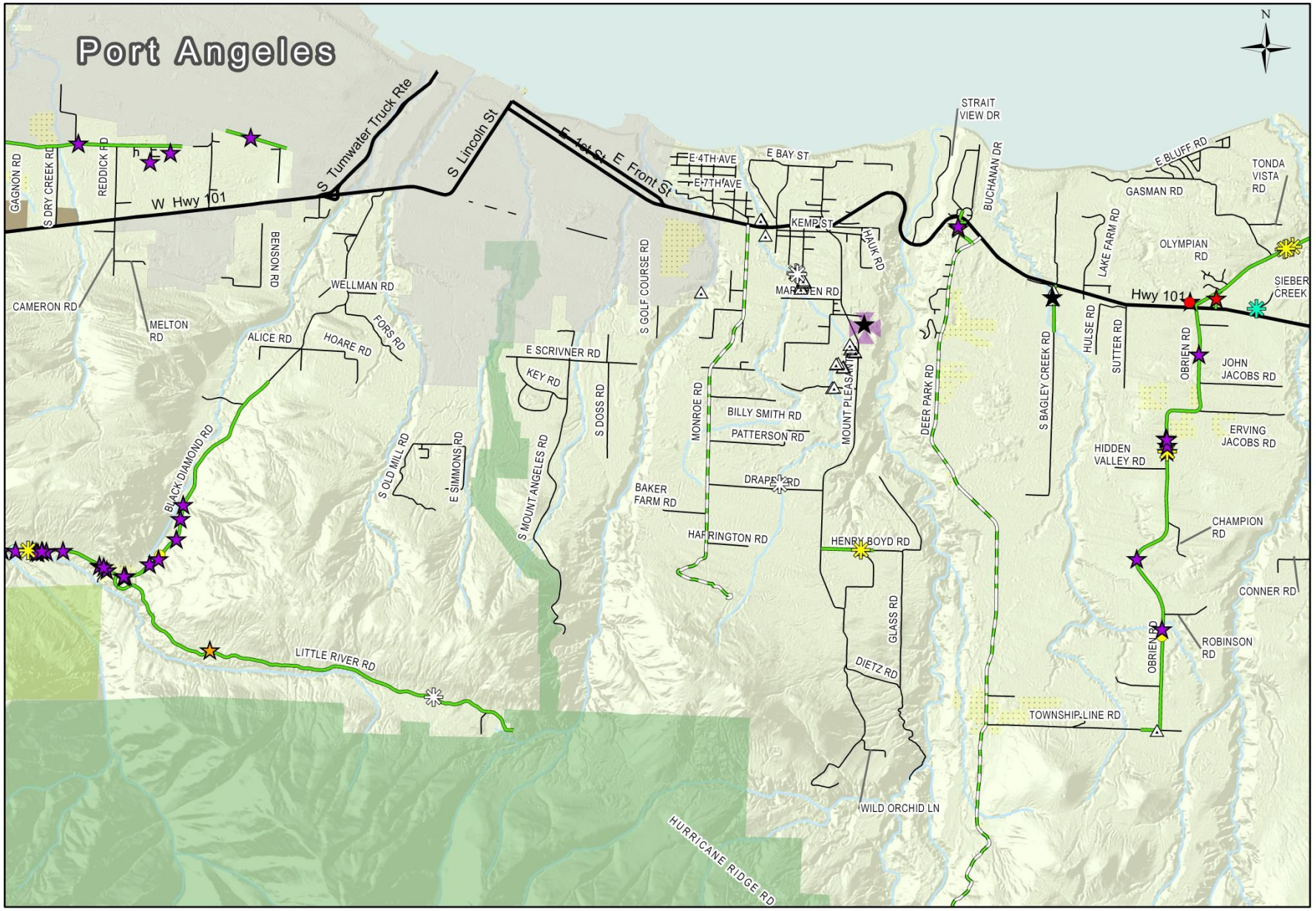
Map 1. Clallam County IWM Overview



Map 2. Blyn – Miller Peninsula Treatment Area

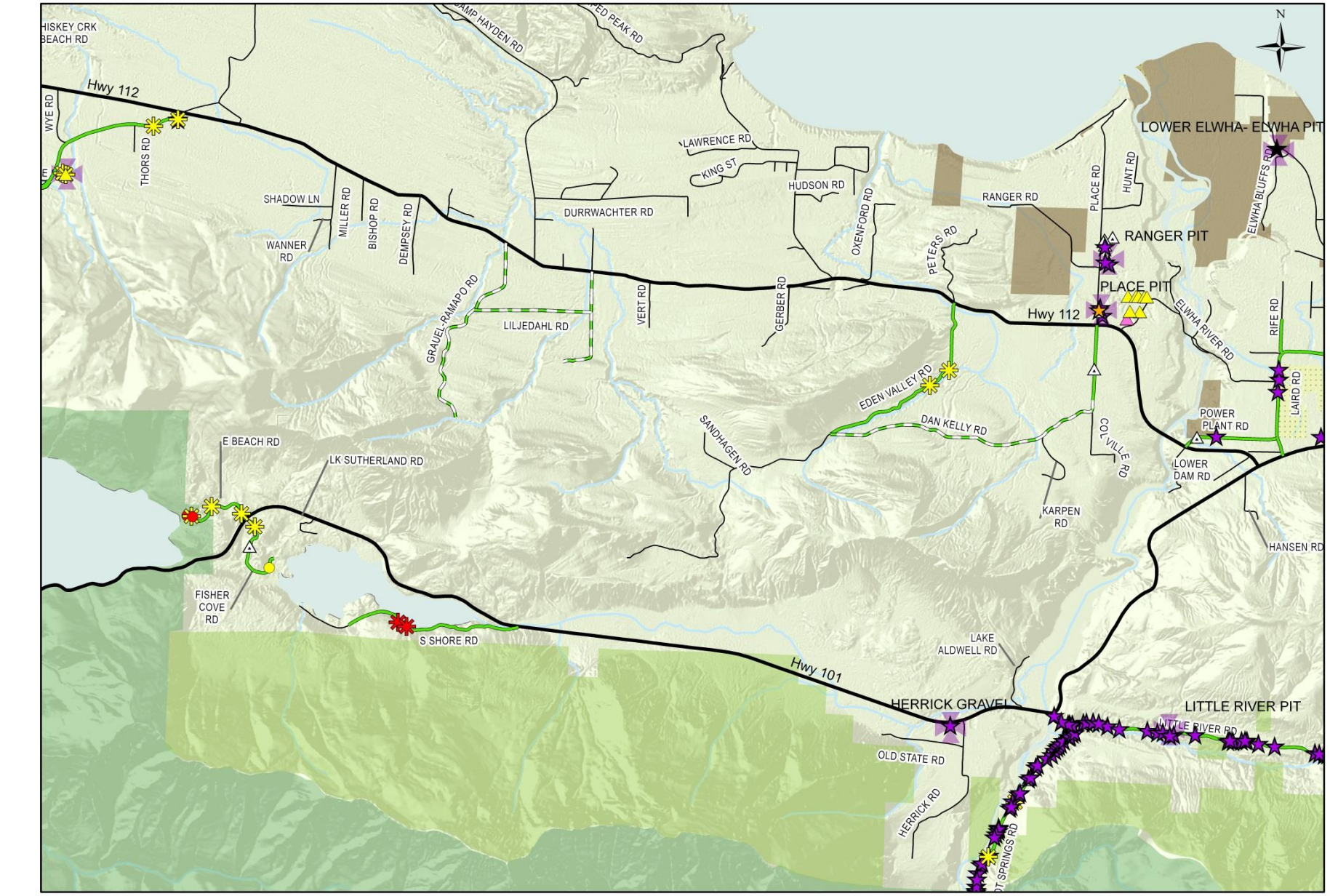
Map 3. Sequim-Dungeness Valley Treatment Area

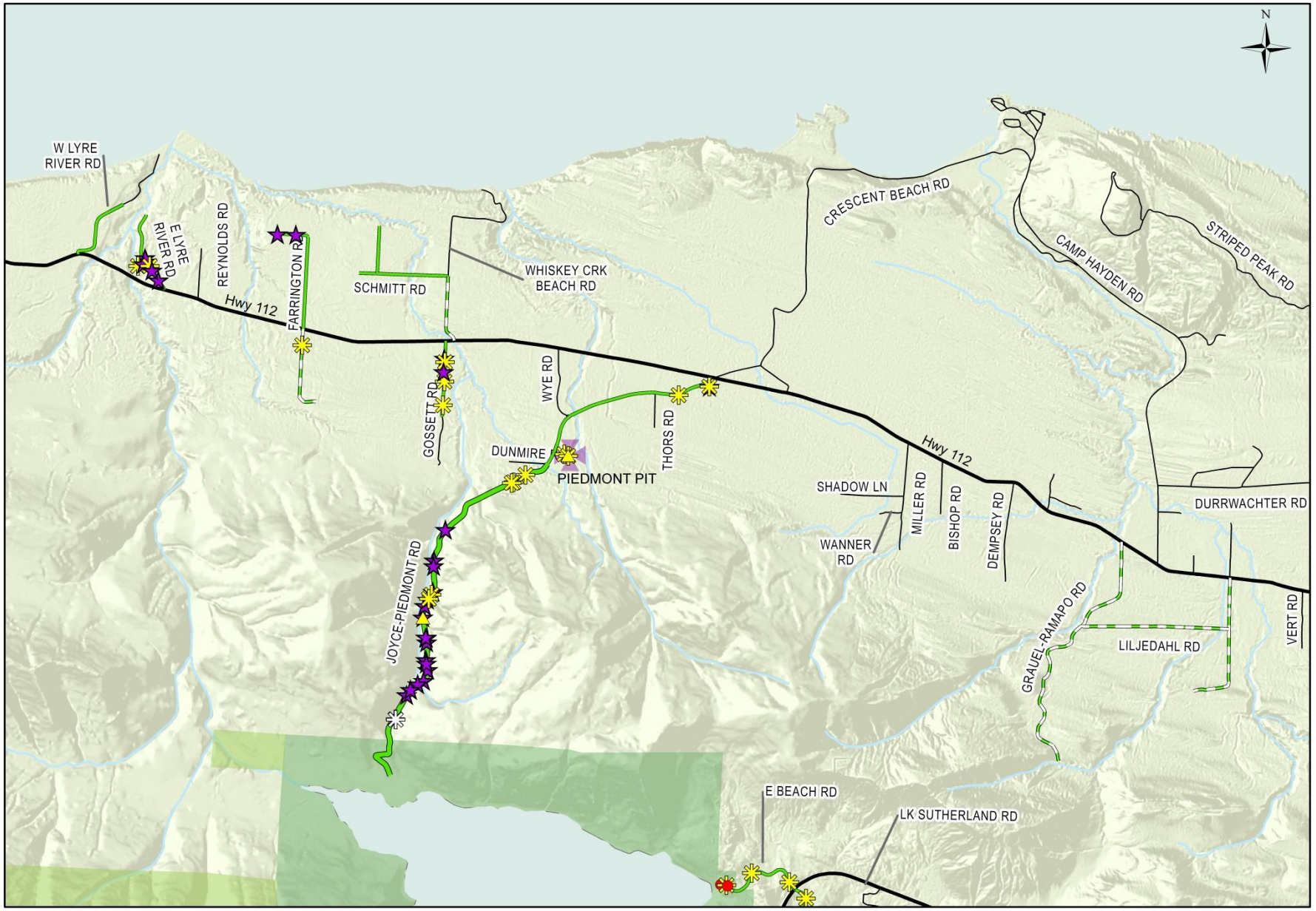




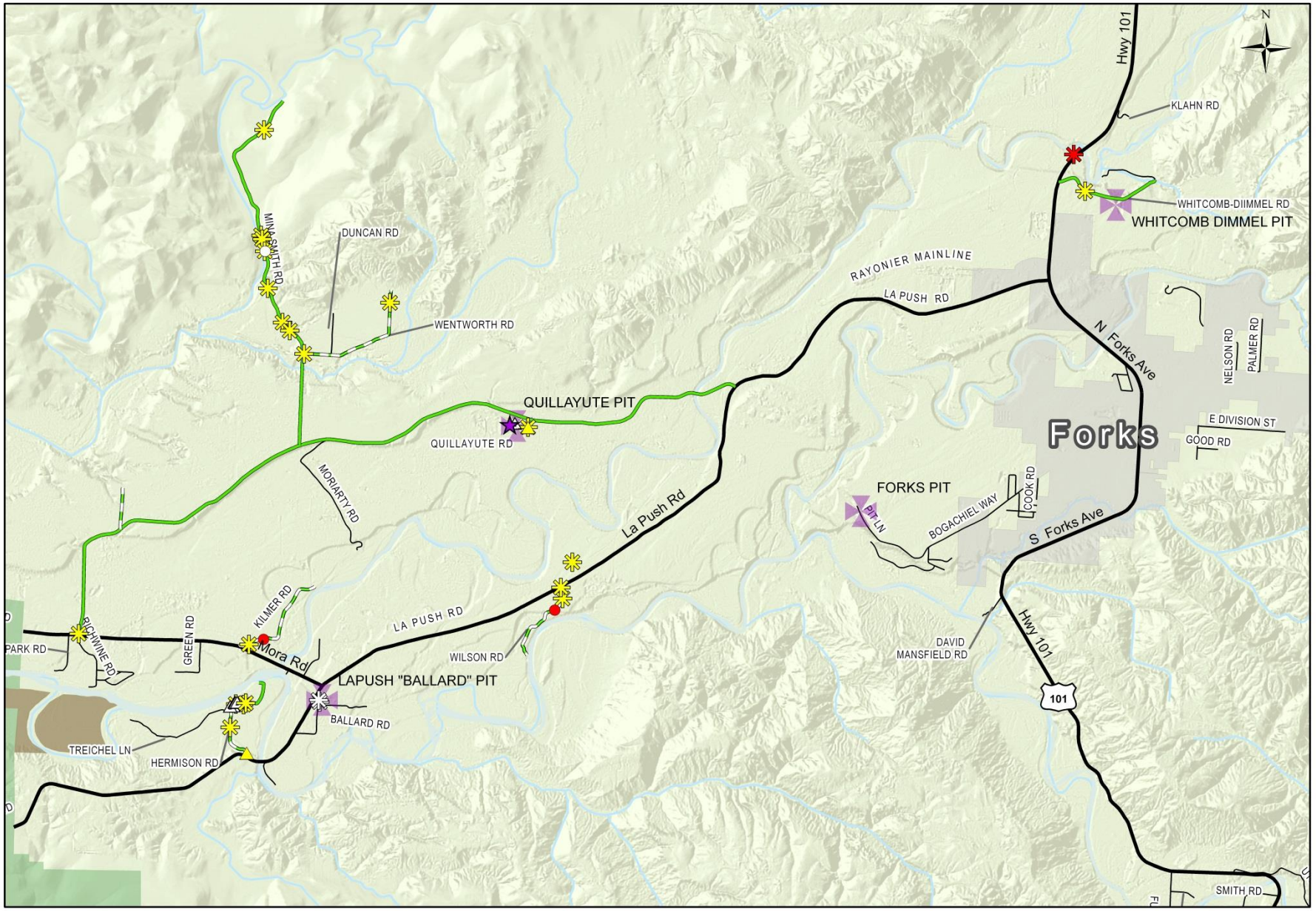
Map 4. East Port Angeles Treatment Area

Map 5. West Port Angeles – Elwha Valley Treatment Area

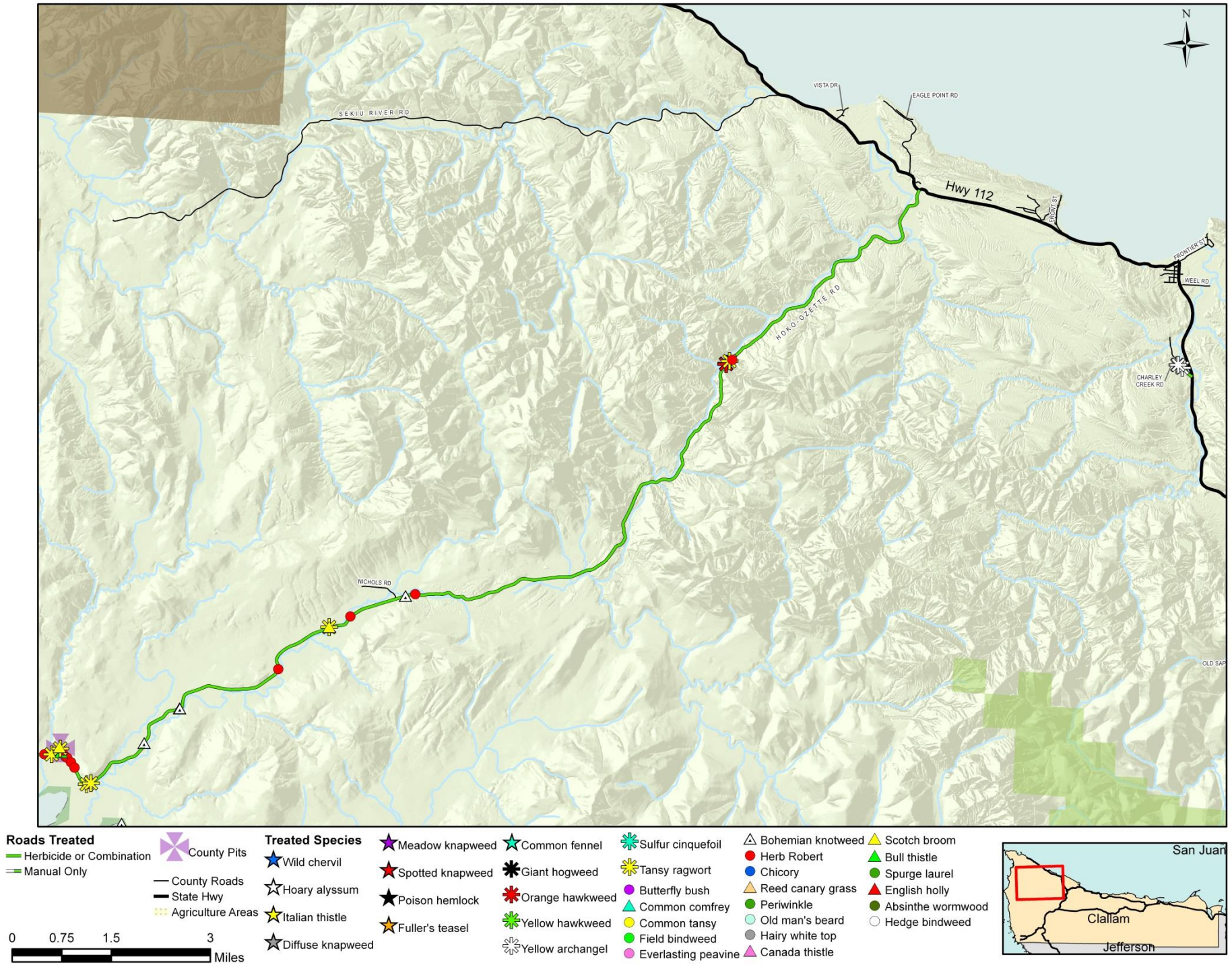




Map 6. Joyce Treatment Area



Map 7. Forks Treatment Area



Map 8. Hoko – Clallam Bay Treatment Area

POST SEASON OBSERVATIONS:

2018:

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 2018 Plan was designed to complement our 2017 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 in 2017 and revised where needed for 2018.

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.

We developed specialized trainings for each district shop and consulted with each shop supervisor to create preliminary pit management plans. The pit plans and trainings improved communication and weed awareness with maintenance staff. The pit plans helped us utilize mechanized brushing and expand our partnership with the Chain Gang.

We staffed a larger crew, began roadside treatments earlier and completed more work than in 2017. Our early start prompted the discovery of new species and infestation locations. In general, we observed the infestations treated in 2017 had reduced infestation densities and distributions. However, treatment efficacies varied between locations and species.

The crew was less experienced this year but was specifically trained to interact with the public and the vast majority of recorded interactions were positive. The vehicles used during roadside treatments were satisfactory, but lacked in carrying capacity and were not clearly marked as Clallam County Road Department vehicles. The WSDA smartphones provided access to information that was crucial to decision making in the field.

Our pilot Pollinator Plantings locations were excellent initial planting sites and provided considerable insight for future plantings. Complex coordination with adjacent land owners, road department, and the PUD was necessary to execute the plantings and to ensure the long-term success of the plantings.

Specific observations:

Program Development

- We updated and published the "Adopt-a-patch" and "Owner Will Control" public engagement opportunities online, but did not receive applications to either option.
- We developed permission forms that provided for improved control infestations of regulated weeds that crossed jurisdictional boundaries.
- We provided maintenance staff with specialized trainings at each district shop location to provide an overview of integrated weed management and progressive, "light-touch" mowing BMPs that support effective weed control.
- The trainings provided the foundation for valuable, constructive discussion with maintenance staff regarding mowing protocols, pit management and long-term control strategy for future IWM plans.
- The current Clallam PUD brushing techniques are not in alignment with the IWM Plan but our initial communications to better coordinate vegetation management activities were positive and encouraging.
- The preliminary pit plans coordinated resource management and weed management goals for each pit location.
- Our partnership with the Clallam County Sheriff Department Chain Gang was extremely beneficial in accomplishing our treatment goals in the pits.
- We identified scheduling conflicts and improved communication between the Chain Gang, Shop Supervisors, Roads Management and the NWCB. Collectively, we outlined expectations, identified roles and improved our accountability by implementing a shared calendar of tasks.
- In-field training with the Master Gardeners Roadside Weed Monitoring Team (RWMT) improved synchronization between treatments and monitoring.

- The RWMT provided us with valuable in-season control updates and notified us of areas with low efficacy in need of rechecks.
- The RWMT was a very valuable asset to the program and provided excellent feedback (Appendix H).
- The RWMT Pollinator corridor map provided a framework to prioritize future control work and implement pollinator plantings as sites become ready.

Weed Control

- The 2017 treatments of Canada thistle were effective.
- There was a reduction in weed species diversity on roads treated in the Sequim-Dungeness Valley in 2017.
- All chemical treatments were entirely non-mechanized and carefully targeted allowing us to maximize the protection of native or desirable vegetation.
- The preliminary pit plans helped us improve overall weed control; the improved organization helped us use mechanized brushing equipment and expand the role of the Chain Gang.
- The combination of mechanical, manual, and chemical (foliar and cut-stump) methods used to control Scotch broom in the pits was very effective.
- Treatments on roadsides and pits started in April and were early in the 2018 growing season.
- Early season weed treatments yielded multiple benefits; led to the discovery of unknown infestations, reduced the number of widespread flowering plants during treatments, and reduced the amount of noxious weed waste generated.
- Milestone® was effective for control of small scotch broom (<1.5 ft. tall) but ineffective on larger plants.
- Milestone® provided minimally effective control of sulfur cinquefoil, spurge laurel and common tansy and was ineffective to control common fennel and hairy white-top.
- We approximately doubled our number of treatment days on the roadside in 2018 from 2017.
- The increased number of treatment days helped us increase our control of Category 2 species and the total number of roads and road miles treated.
- Land leasee and land use maps derived from agricultural outreach were helpful decision making tools in the field.
- We completed in-season retreatments on four roads with low, in-season efficacy ratings from RWMT; retreatments provided for an increased treatment on young, newly germinated species of meadow knapweed.
- The Highway 101 construction at Lake Crescent greatly increased travel time to the west end during this season.
- All treatments were conducted on foot and made us visible and readily approachable to the public at all times.
- We recorded over 140 interactions with interested persons during treatments; the vast majority consisted of brief explanations of the IWM plan and described as positive interactions with curious neighbors.
- We invested substantial time and effort to communicate with individuals and businesses with specific concerns regarding herbicide treatments.
- The Chain Gang fulfilled public requests for control of roadside Scotch broom.
- The 10K Years Institute and the Coastal Restoration Crew provided weed control assistance on Quillayute Rd.

Plantings

- The two pilot Pollinator Plantings (Black Diamond Rd and Old Olympic Hwy/ODT) required extensive communication between departments and with volunteers.
- The sites were located along potential pollinator corridors identified by the RWMT.
- The sites encompassed a variety of roadside habitats suitable for the native plants available for 2018.
- Both pilot sites had been controlled for weeds and contained sufficient space for habitat enhancement.
- Existing volunteer groups (Olympic Discovery Trail Volunteers and members of the Black Diamond Community) were instrumental for volunteer recruitment and organization.
- The partnership between Clallam County and the Matt Albright Center was invaluable to the success of our goals. They were a flexible, local resource that provided us with healthy plants and technical advice.
- The Matt Albright Center held salvaged plants for County construction projects.
- Native plant material was shared between County departments as needed.
- The plantings occurred in mid to late October and the projects were unexpectedly complicated by the need to water plants due to unseasonably warm and dry conditions.
- The pilot project sites were easy to access and had sufficient nearby facilities.

- Many potted plants were root-bound which increased time and effort to plant.
- Future plantings projects may benefit from additional site preparation and additional tools (manual or chemical).
- We flagged planting boundaries to increase visibility for other County departments, contractors and the public.

Crew and Equipment

- The published 2018 IWM was a valuable guide for crew and a helpful reference for the public.
- The roadside crew included up to 2 full-time staff and 3 seasonal employees but varied by project area.
- All crew passed WSDA examination and acquired Washington State Pesticide Licenses.
- Seasonal crew required considerable training; crew efficiency improved over the season.
- Increased crew size greatly expanded our capacity.
- The vehicles lacked water carrying capacity and were not readily recognizable as belonging to the County.
- The hand held mini mattocks planting tools worked well to plant the small- to medium- potted plants.
- 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 coordinate treatments with wider landscape goals.

Crew uses a combination of control methods and equipment to treat infestations of noxious weeds. Clockwise (beginning from top left): Manually removal of common teasel flowers; chemical control of Italian thistle; chemical control of meadow knapweed along roadside; chemical control of common tansy with hand-held sprayer.

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 2019 IWM Program:

- Continue to support coordination and communication between the Noxious Weed Control Board, Road Department, Sheriff Department, WSU Extension, Clallam PUD and other partners.
- Collaborate with Road Department maintenance staff and Clallam PUD to identify landscape goals and harmonize maintenance techniques where possible.
- Finalize and distribute pit plans with input from ER&R Manager, shop supervisors and engineers.
- Collaborate with Road Department to identify suitable roads to implement “light touch” maintenance techniques and create pilot maps for mow staff.
- Conduct early season Road Department training that includes the IWM Plan, plant identification, effective vegetation management strategies and finalized pit plans.
- Provide Chain gang with additional training, focus area maps and shared work schedules.
- Coordinate with Road Department to obtain vehicle with greater carrying capacity and official marking.
- Continue to diligently map and record all new infestations of high priority, category 1 species.
- Develop and implement eradication plans for the two infestations Italian thistle.
- Coordinate with Clallam County GIS department to support and utilize all technical upgrades for data collection.
- Continue to support native plant consortium partnership through the Matt Albright Native Plant Center.
- Develop native seed mix for Road Department projects where bare ground is necessary.
- Increase communication with Olympic Discovery Trail Volunteers and provide weed control trainings.
- Recruit and train seasonal crew earlier in 2019.
- Develop strategy to carry and apply specific herbicide mixtures necessary to for specific species, ex. common fennel.
- Monitor and support the pilot Pollinator Plantings with follow-up weed control and volunteer maintenance.
- Further develop Strategic Pollinator plantings and coordinate with Road Department, WSU Extension to incorporate existing volunteer programs.
- Develop a program through WSU Extension to recruit and train the public for roadside plantings consistent with the IWM Plan and County stewardship goals.

General 2019 Treatment Recommendations:

1. Treat category 1, priority weeds on roadsides.
    a. Repeat treatment of roads in 2018 IWM Plan as necessary.
    b. Roads intersecting or adjacent to 2018 treatments as necessary to complete control.
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: 2018 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 **46** of 56 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 2018 activities; blue check marks indicate completed tasks, orange check marks indicate incomplete or partially completed tasks.

Task Status[1]	**Biological**
✓	**Identify release appropriate sites adjacent to County right-of-way:** Released 1500 individual Scotch broom biological control agent (*Bruchidius villosus)* at three suitable locations.
✓	**Coordinate with WSU Extension and Noxious Weed Control Board for Releases as they become available:** No additional, site appropriate biocontrol agents currently available; potential availability of Bohemian knotweed control in 2019. Suitable sites TBD.
✓	**Assist with research projects where possible:** Plans to monitor results of 2018 biocontrol release locations as needed.
	Physical
✓	**Update contact list to be shared between departments:** Updated contacts with Road engineers, maintenance staff, and ER&R Manager. Shared contact between Olympic Discovery Trail volunteers and volunteer coordinator. Shared contact with Clallam County PUD and City of Port Angeles.
✓	**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:** Pre-season focus maps were provided to all roads managers for distribution and inclusion into planning process.
✓	**Clearly mark areas, communicate location to field crews:** All treatment sections were posted with Herbicide Notice during and after treatments for at least 24 hours. Supervisors were notified when treatments were to occur in their district.
✓	**Schedule and oversee six weeks of Chain Gang time for large pulling projects:** Clallam County Chain Gang assisted in four weeks of manual/chemical weed control with direct supervision by NWCB staff. Chain Gang continued to assist in manual noxious weed control for a total of 44 work days.
✓	**Provide training and focus area maps for Chain Gang projects:** Created and provided preliminary Pit Plans with manual control instructions and guidance; plans included aerial maps, weed locations and prioritization.
✓	**Support volunteer opportunities for weed pulling projects as appropriate**: Supported "Weed Busters" volunteer group with removal equipment Weed Busters removed 7800 Scotch broom plants from Olympic Discovery Trail locations in Sequim/Dungeness Valley.
✓	**Identify "Adopt-a-Patch" locations appropriate for manual control that can be adopted by members of the public; post online before treatment season begins:** Retained 2017 list of 20 adoptable roads based on the species present, severity of infestation, and location.
✓	**Review public involvement opportunities to ensure the available material meets program goals and is readily accessible online:** Maintained an online process for the public to apply for "Adopt-a-Patch" sites on appropriate roadways.
✓	**Create *Report It!* forms so that road crews can report weed infestations:** Provided seasonal trainings to each district road crew; training included weed ID and protocols to report sightings.

✓	**Discourage mowing of desirable native vegetation wherever possible:** Provided trainings to each district mow staff with progressive mow BMPs. Focus on a "light touch" techniques to maintain desirable vegetation.
✓	**Collaborate with mowing personnel to update mowing practices**: Pre- and post- season meeting with shop supervisors to develop updated maintenance BMPs to promote synchronization between maintenance activities and weed control.
✓	**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:** Partnered with Roads Environmental Coordinator to salvage more than 40 native tree seedlings and transplant to McDonald bridge revegetation project. Provided for the exchange of native plant material with Road department plantings, including rain garden, pump station, wetland mitigation sites and post-construction revegetation. Began plans to develop Road specific native seed mix for post construction seeding.
✓	**Create maps to incorporate roadside environmental typing system:** Master Gardner's Roadside Weed Monitoring Team integrated environmental typing to create Pollinator Corridor map.
✓	**Compile list of plant material sources and needs from other government entities:** Continued collaboration with local agencies including: USFS, Olympic National Park and DNR to address plant material needs and potential sources.
✓	**Seek grant opportunities to implement pilot projects:** Completed two pilot projects (Black Diamond Rd and Old Olympic Hwy) consisting of more than 3100 native shrubs and forbs, six planting days, and over 25 volunteers.
✓	**Foster partnership with Olympic National Park Matt Albright Plant Material Center and update native plant material list and program as necessary:** Received 21 roadside-specific, native species from contract with ONP and Native Plant Center for pilot plantings. Final plant list was updated as species became available and specific roadside plantings were determined. ONP staff provided technical expertise and species specific advice and planting protocols.
✓	**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:** Continued dialogue to foster the development of a cooperative agreement to establish a local native plant source to support public entities.
✓	**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. Include roadside appropriate list in "Owner Will Control" packet as it becomes available:** Created online protocols for "Owner Will Control" agreements - did not receive any applications in 2018.
✓	**Identify suitable county pit locations for native plant seeding and implement as material becomes available and when seasonally appropriate:** Site appropriate, native seed mix not yet available from ONP and Native Plant center. Finalized Pit Plans should incorporate native seeding of desirable, native vegetation.
	Preventative
✓	**Update rock and gravel source weed management protocols:** Met with Roads management (ER&R manager, engineers, and shop supervisors) to identify Pit Management goals, short term plans, and general strategies to protect and improve current resources.
✓	**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 all County pits (26). preliminary Pit Plans were created; Plans to be finalized with support from ER&R and supervisors, winter 2019.

✓	**Create county pit reference maps to include in management plans:** Aerial maps created for all weed control efforts. Maps to be included in finalized Pit Plans for reference.
✓	**Adopt weed free material requirements for all county projects:** Provided "weed-free" criteria reminder to County project managers. Requested list of upcoming Roads projects and prospective material providers.
✓	**Develop clean equipment standards and requirements for all county projects:** "Weed-free" requirements included in all Road Department engineer projects. Parks Department and Department of Community Development IWM plans adopted annually by Clallam Noxious Weed Control Board.
✓	**Provide inspection services for all privately sourced material for county projects that may be weed-contaminated:** Completed 13 private pit inspections. Discovered and notified County engineers of material source potentially contaminated with a Class A noxious weed, Italian thistle.
✓	**Compile list of sources that meet weed-free standards:** Updated list included in NWCB USFS Report 2018
✓	**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:** Provided preseason trainings to maintenance staff at each district shop and included ID booklets.
	Chemical
✓	**Implement project list based on tables 4-8 and planned reduction of Category 2 weed sites:** Accomplished 2018 IWM Plan and treated 70 roads and 22 pits (including a wetland mitigation site) using chemical methods or a combination of methods. See Appendix C and Appendix D.
✓	**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 training and resource materials for 10K Years Institute and utilized work force for assistance on three county roadsides in District 3.
✓	**Complete treatment records:** Completed "Herbicide/Manual Treatment Data Form" (Appendix K) for all noxious weed control activities (excluding manual treatments conducted by Chain Gang Only).
✓	**Enter data into Clallam county noxious weed control program database:** To be completed February 2019
✓	**Identify any additional equipment needs and take steps to incorporate any available resources, including; vehicles, application equipment, water tanks, or technical equipment:** Identified need for greater vehicle capacity (crew, equipment, water). Utilized an additional vehicle (Hybrid Ford Escape) for 2018 season. Roads ER&R evaluated fleet availability and determined appropriate vehicle specifications for 2019. Proposed 2019 vehicle will improve crew efficiency, safety and visibility on the county Roadside.
✓	**Post annual project list and treatments online. Update as often during season as resources allow:** NWCB staff periodically posted updated list of herbicide treatment locations and dates to website.
✓	**Monitor at least 10% of all treatments, retreat as needed and as resources allow**: Volunteer Master Gardener Roadside Weed Monitoring Team monitored 65% of treated roads. Retreatments occurred on four 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 a pre-season technical training and an in-season field training for RWMT. Provided appropriate vehicle identification lights. Post-season meeting scheduled.
✓	**Develop protocols to monitor treatments in county pits:** Pit locations were determined to be poorly suited for monitoring by RWMT volunteers. Pits were monitored by NWCB and Roads staff, treatment efficacy to be included in pit plans.
✓	**Conduct a weed inventory on at least 25% of all county roads annually:** In the course of treatment NWCB staff surveyed 30% of County roadsides.

✓	**Identify, document and map additional species, location, size and density:** Mapped and recorded information on all pertinent species encountered on county roadsides and rock sources during 2018 activities.
✓	**Update survey data of county roadsides and catalog infestations over time:** Infestations and survey results to be recorded in NWCB database.
✓	**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 "Islands" 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 revegetation, and revegetation projects:** Completed five volunteer planting events to implement pilot-pollinator projects. Volunteer Master Gardener RWMT recorded 374 volunteer hours dedicated to the 2018 IWM Plan.
✓	**Compile locations and instructions for special management areas. Include and update field maps as frequently as needed:** No special management areas identified in 2018. The 2018 IWM planning process included substantial outreach to individuals at locations with the potential for extraordinary concerns. Outreach data and maps were included in the plan and utilized in the field by crew over the course of treatments.
✓	**Promptly respond to all public inquiries. Address any public concerns regarding applications:** Provided project information and specific activity information to over 140 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. No applicants at this time.
✓	**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
✓	**Develop on-line, Report It! process and forms for interdepartmental communication:** Contact information and training material distributed to Departments.
✓	**Compile annual report summarizing accomplishments, effectiveness, and recommendations for subsequent year. Brief the Road Department and County Commissioners by December 31st:** In process.
✓	**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 2018; Yellow check marks indicate partial completion.

Appendix B: Weed Species Treated on County Roadsides and Rock Sources 2018

The table below alphabetically lists all weed species controlled in 2018 on County roadsides or rock sources/soil disposal sites (Pits). The species listed in Green (10) were treated on **roadsides** only; species listed in Pink (3) were treated in **Pits** only. Species without color coding (30) 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 2018 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/ClallamWeedList2018.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, mustard	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
holly, English	ILAQ	*Ilex aquifolium*	P	Shrub	Dense thickets can dominate shrub layer and suppress desirable vegetation	3	WW

Common Name	4-Letter Weed Code	Scientific Name	Life Cycle[1]	Growth Form	Threat	Cate-gory	Status
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, diffuse	CEDI	*Centaurea diffusa*	B, P	Forb	Spreads seed by tumbling; prickly flower heads; unpalatable after early spring	1	NCR
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
old man's beard	CLVI	*Clematis vitalba*	P	Shrub - vine	Aggressive invader, blankets trees and shrubs to potentially collapse. Prevents germination of other plants and leaves bare ground beneath vines.	2	NW
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
thistle, Canada	CIAR	*Cirsium arvense*	P	Forb	Aggressive competitor, unpalatable; decreases forage; host species for several agricultural pests	2	NW

Common Name	4-Letter Weed Code	Scientific Name	Life Cycle[1]	Growth Form	Threat	Cate-gory	Status
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: 2018 Roadside Treatment Activities:

This table includes all county roadsides managed for noxious weeds in 2018 under the Clallam County Road Department IWM Plan. The table is sorted alphabetically by road name. Names shown in italics are roads that were also treated in 2017. The table contains the **Species Treated**, **Examined Acres**, **Treated Acres**, **Solid Treated Acres**, and **Solid Manual Acres** for each day a road was worked on; 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.

We treated **92** roads and completed a total of **167 miles** (**359 examined acres**) of county roadside comprised of **29.4 miles** manual only, **81.1 miles** of manual/ chemical, and **55.6 miles** chemical only. Treatments occurred within a total **302 acres** and included **40 species**. We treated **2.67 solid acres** of weeds with manual methods only and **33.8 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.

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
Black Diamond Rd	**H**	7/25/2018	0.68	1.5	1.50	0.41	-	**CEMO**, GERO, LALA
		9/18/2018	0.99	9.6	2.00	0.01	-	**CEMO**
Blue Mountain Rd	**M, H**	9/24/2018	6.50	13.0	13.00	0.18	0.05	**CEMO**, **CEST**, POBO, **PORE**, **SEJA**, TAVU
Business Park Loop	**H**	8/13/2018	0.50	1.0	1.00	0.23	-	ARAB, CASE*, CIAR, CIIN*, CIVU
Cameron Rd	**H**	6/4/2018	0.70	1.8	1.75	0.16	-	CIAR, HYPE, LALA, RUAR
Carlsborg Rd	**M, H**	8/13/2018	1.80	3.7	3.70	0.47	0.02	ARAB, **CEST**, CIAR, CIIN, CIVU, CYSC, LALA, RUAR, VETH
Cat Lake Rd	**M, H**	8/2/2018	0.30	1.0	1.00	1.84E-04	0.18	CYSC, **SEJA**
		9/10/2018	0.15	0.5	0.50	0.002	0.09	CYSC, **SEJA**
		9/11/2018	0.05	0.2	0.20	0.001	0.04	CYSC
Cays Rd	**H**	6/18/2018	0.10	2.0	2.00	0.76	-	**CAPY**, CIAR, CIVU

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
		6/21/2018	0.10	0.5	0.50	0.36	-	**CAPY**
		9/27/2018	0.11	0.1	0.01	0.00	-	POBO
	M, H	8/13/2018	1.60	3.9	3.90	0.90	0.0002	**CEMO**, **CEST**, CIAR, CIVU, **DIFU**, LUAR
Charley Creek Rd	**H**	9/17/2018	0.75	1.5	0.20	0.06	-	**LAGA**
Chicken Coop Rd	**M**	9/10/2018	3.50	7.0	7.00	-	0.001	**DIFU**, **SEJA**
Dan Kelly Rd	**H**	9/17/2018	0.10	1.0	0.10	0.07	-	POBO
	M	8/6/2018**	-	-	-	-	0.08	CYSC
Deer Park Interchange	**H**	9/6/2018	0.29	5.3	5.30	0.80	-	**CEMO**, CYSC, **DIFU**, LUAR, RUAR*
Deer Park Rd	**M**	1/22/2018**	0.00	-	-	-	0.06	CYSC
Diamond Point Rd	**M**	8/2/2018	3.95	8.0	8.00	-	0.01	**CEST**, CIVU*, **SEJA**
Dungeness Dike	**H**	5/2/2018	1.00	5.5	5.50	1.38	-	CIAR, **COMA**, **DIFU**, GERO, SYOF
	M, H	5/30/2018	0.50	1.0	1.00	0.02	0.003	**COMA**
Dungeness Rec Area	**H**	5/8/2018	0.10	0.5	0.50	0.02	-	**COMA**
East Beach Rd	**H**	7/11/2018	0.11	0.3	0.25	0.08	-	**CEMO**, CIVU, CYSC*, GERO, **SEJA**
		7/12/2018	0.70	1.4	1.40	0.20	-	**CEMO**, CYSC, GERO, **SEJA**
East Lyre River Rd	**H**	7/3/2018	0.50	0.9	0.90	0.16	-	**CEMO**, GERO, **SEJA**
Easterly Rd	**H**	7/16/2018	0.20	0.4	0.40	0.06	-	**CEMO,** CYSC, GERO, **SEJA**

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
Eden Valley Rd	**M, H**	9/20/2018	1.80	3.6	0.20	0.01	0.20	**DIFU**, **SEJA**
Evans Rd	**M**	6/6/2018	0.10	0.1	0.001		0.0001	**COMA**
Farrington Rd	**H**	7/26/2018	0.90	1.8	1.80	0.07	-	CASE, **CEMO**, CIAR, CIVU, **SEJA**
	M	7/9/2018	0.90	1.1	1.10	-	0.01	**SEJA**, CIVU
Finn Hall Rd	**H**	8/16/2018	2.50	4.8	4.80	0.94	-	CIAR, CIVU, CYSC, DALA, GERO, LAGA, RUAR, **SEJA**
Fisher Cove Rd	**H**	7/11/2018	0.80	1.9	1.90	1.02	-	**CEMO**, CIVU, CYSC, GERO, POBO, **SEJA**, TAVU
Gehrke Rd	**M, H**	8/16/2018	0.30	0.7	0.70	0.12	0.01	CIAR, CIVU, CYSC, ILAQ, RUAR*
Gossett Rd	**H**	7/5/2018	0.30	0.6	0.60	0.03	-	**CEMO**, CIVU, GERO*, **SEJA**
Grant Rd	**H**	5/8/2018	0.10	0.0	0.01	0.01	-	**CEST**
Grauel-Ramapo Rd	**M**	10/2/2018	1.90	-	3.80		0.02	CYSC
Gunn Rd	**H**	8/16/2018	0.90	1.8	1.80	0.15	-	CIAR, CYSC, LALA*, RUAR*
Happy Valley Rd	**M, H**	8/7/2018	5.90	14.3	14.30	1.55	0.06	**CEMO**, **CEST**, CIAR*, CIIN, CIVU, CYSC*, DACA*, **DIFU**, LALA, MEAL, **SEJA**
Henry Boyd Rd	**M, H**	9/25/2018	0.50	1.0	0.10	0.01	0.0004	POBO, **SEJA**
Hermison Rd	**M, H**	9/17/2018	0.80	1.2	0.60	0.02	0.01	CYSC, POBO, **SEJA**
Heuhslein Rd	**H**	9/5/2018	1.10	2.2	2.20	0.39	-	CIAR, CIVU, CYSC, RUAR*
Hoko-Ozette Rd	**M, H**	8/8/2018	7.80	17.6	17.20	0.45	0.19	CIAR, CIVU, CYSC, GERO, **SEJA**
		8/9/2018	10.10	18.0	18.00	0.48	0.02	CIAR, CIVU, CYSC, GERO, LALA, POBO, **SEJA**

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
Holland Rd	**H**	6/18/2018	0.10	0.1	0.10	0.07	-	**LAGA**
		8/22/2018	0.50	1.0	1.00	0.02	-	GERO, **LAGA**
Howard Rd	**M**	7/9/2018	0.35	0.6	0.01	-	0.0004	CIVU, **SEJA**
Johnson Creek Rd	**H**	7/16/2018	0.30	1.3	1.25	0.60	-	**CEMO**, CYSC, **SEJA**
		9/24/2018	0.50	1.5	1.50	0.11	-	**CEMO**
Joyce-Piedmont Rd	**M, H**	7/12/2018	4.20	3.8	1.90	0.23	0.005	**CEMO**, CIAR*, CIVU*, **LAGA**, LALA*, **SEJA**
Kaufman Dr	**M**	9/11/2018	0.14	0.3	1E-05	-	2.5E-05	**SEJA**
Kilmer Rd	**M**	9/13/2018	0.90	1.8	0.90	-	0.0002	**SEJA**
Kitchen-Dick Rd	**H**	5/8/2018	1.73	3.0	3.00	0.37	-	BUDA, CIAR, COAR*, LEAP, LUAR, TAVU
		8/21/2018	0.25	0.5	0.50	0.44	-	CIAR, COAR
	M, H	5/14/2018	1.65	4.8	4.80	1.31	0.0002	**CEST**, CIAR, CIVU, COAR, CYSC, RUAR*
Laird Rd	**M, H**	8/23/2018	0.87	2.6	2.60	0.52	0.02	**CEMO**, CIAR, CIVU, CLVI, CYSC, HYPE, LALA
Lake Dawn Rd	**H**	7/5/2018	0.50	0.5	0.50	0.01	-	**HIAU**
Lamar Ln	**M**	6/12/2018	0.70	1.4	0.01	-	0.01	**COMA**
Liljedahl Rd	**M**	10/2/2018	1.00	2.0	2.00	-	0.05	CYSC
Little River Rd	**H**	7/5/2018	1.90	3.8	0.75	0.02	-	**DIFU**, **LAGA**
		7/17/2018	0.80	1.6	1.60	1.09	-	**CEMO**, CIAR, CIVU, CYSC, GERO*, LALA

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
		7/19/2018	0.50	0.8	0.75	0.08	-	**CEMO**, CIAR, CIVU, DACA, GERO*
		9/18/2018	3.40	6.8	6.80	0.02	-	**CEMO**
	M, H	7/18/2018	2.40	4.2	4.20	0.30	0.001	**CEMO**, CIAR, CIVU, CLVU, CYSC, GERO, LALA, **SEJA**
Lotzgesell Rd	**H**	9/5/2018	0.90	3.0	3.00	0.90	-	**CEMO**, **CEST**, CIAR, CYSC, HYPE*, LUAR, TAVU
Lupine Dr	**M**	9/11/2018	0.50	1.3	0.75	-	0.01	**SEJA**
Mary Clark Rd	**M**	6/25/2018	0.00	-	-	-	0.12	CYSC
Masters Rd	**M**	4/9/2018**	-	-	-	-	0.02	CYSC, RUAR*
Matson Road	**H**	8/16/2018	0.50	1.0	1.00	0.21		CIAR, CIVU, CYSC, ILAQ, RUAR*
Mcgarvie Rd	**M**	7/9/2018	0.30	0.3	0.30		0.001	**SEJA**
	M, H	9/20/2018	0.30	0.6	0.30	0.01	0.0004	**SEJA**
Mina Smith Rd	**M, H**	9/13/2018	3.80	8.0	8.00	0.23	0.01	CYSC*, GERO*, **LAGA**, RUAR*, RULA*, **SEJA***
Monroe Rd	**M**	7/23/2018**	-	-	-	-	0.17	CYSC
O'Brien Rd	**M, H**	9/18/2018	3.80	7.6	4.00	0.04	0.0001	**CEMO**, **SEJA**, TAVU
Old Blyn Hwy	**M**	6/4/2018	0.10	0.3	0.005	-	2.3E-05	**COMA**
Old Olympic Hwy	**H**	6/5/2018	0.70	3.0	2.00	0.57	-	**CEST**, CIAR, CIVU, CYSC, HYPE, **PORE**
		6/6/2018	1.30	6.6	6.60	0.87	-	CIAR, CIVU, CYSC, RUAR, **SEJA**
		6/11/2018	2.60	7.0	7.00	0.71	-	BUDA, **CEMO**, CIAR, CIVU, **COMA**, CYSC, HYPE, LALA, **SEJA**

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
		6/18/2018	0.01	0.0	0.01	0.01	-	**COMA**
		6/26/2018	0.75	1.5	1.10	0.35	-	CIAR, CIVU, **DIFU**
		6/27/2018	0.75	1.5	1.50	0.67	-	CIAR, CIVU, **SEJA**
		7/31/2018	0.15	1.0	1.00	0.67	-	**CEMO**, CIAR, PHAR
		8/13/2018	0.90	1.9	1.90	0.37	-	**CEST**, CIAR, CIVU, COAR, CYSC, DACA*, LALA
Olympic Discovery Trail	**H**	6/26/2018	0.25	0.5	0.50	0.27	-	CIAR
		6/27/2018	0.15	0.3	0.30	0.25	-	CIAR, CIVU
		8/14/2018	0.20	0.2	0.20	0.05	-	**CEST**, CIAR, CIIN*, CIVU
		9/5/2018	0.75	2.3	2.25	0.73	-	CIAR, CIVU, CYSC, HYPE*, LEVU*, RUAR
	M	6/4/2018	0.00	1E-04	1E-04	-	5.7E-10	**COMA**
		7/23/2018**	0.15	1.1	1.10	-	0.25	RUAR
Olympic Hot Springs Rd	**H**	9/18/2018	2.10	4.2	2.60	0.02		**CEMO**, POBO
	M, H	7/19/2018	0.70	1.5	1.50	0.33	0.002	**CEMO**, CIAR, CIVU, CYSC, DACA*, GERO, LALA*, **SEJA**
		7/23/2018	1.40	1.5	1.50	0.76	0.003	**CEMO**, CIAR, CIVU, GERO
		7/25/2018	0.60	1.0	1.00	0.37	0	**CEMO**, CIAR, CIVU, CYSC, GERO, LALA
Palo Alto Rd	**M**	6/25/2018	1.10	2.2	2.20	-	0.02	CYSC, **SEJA**
	M, H	8/15/2018	3.60	7.2	7.20	0.22	0.04	**CEMO**, CIAR*, GERO*, **PORE**, **SEJA**

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
		8/29/2018	4.00	8.0	8.00	0.03	0.002	**CEMO**, **SEJA**
		9/11/2018	0.20	0.8	0.50	6.89E-04	0.19	CYSC
Port Williams Rd	**M, H**	8/22/2018	2.15	4.3	4.30	0.80	0.003	CASE, **CEMO**, CIAR, CIIN, CIVU, CYSC, **DIFU**, GERO, **SEJA**, SYOF, VIMA
Power Plant Rd	**H**	8/23/2018	0.84	1.7	1.68	0.14	-	**CEMO**, CIAR, CIVU, CYSC, GERO, HYPE, POBO
Quillayute Airport Rd	**M**	9/13/2018	0.30	0.5	0.50	-	0.002	**SEJA***
		10/3/2018	0.30	0.6	0.60	-	0.06	CYSC
Quillayute Rd	**H**	7/17/2018	7.00	14.0	0.45	0.23	-	BUDA, CIAR, HYPE, GERO, PHAR, **SEJA**
	M	9/19/2018	6.80	14.0	14.00	-	0.01	**SEJA**
Rife Rd	**H**	8/23/2018	0.01	0.003	0.003	0.00	-	POBO
River Rd	**M, H**	7/31/2018	2.70	5.4	5.40	1.05	0.01	CASE, **CEDI**, **CEMO**, **CEST**, CIAR, CIIN, CIVU, CYSC*, DACA*, GERO, HYPE, **PORE**, TAVU
S Bagley Creek Rd	**H**	5/17/2018	0.10	0.3	0.10	0.01	-	**COMA**, GERO
		8/15/2018	0.17	0.5	0.50	0.05	-	POBO
S South Shore Rd	**H**	7/5/2018	0.10	0.5	0.10	0.00	-	**HIAU**
	M, H	7/3/2018	0.10	1.6	0.25	0.02	0.0008	CIVU, CLVU, **HIAU**
Schmitt Rd	**M**	7/9/2018	0.50	0.5	0.50	-	0.01	CIVU, **SEJA**
	M, H	9/20/2018	0.50	1.5	1.00	0.17	0.001	CIAR, CIVU, GERO, RUAR*, **SEJA**
Schmuck Rd	**H**	8/22/2018	1.30	1.6	1.60	0.23	-	CASE, **CEMO**, CIAR, CIVU, DACA

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
Sequim-Dungeness Way	**H**	5/3/2018	0.05	0.0	0.04	0.06	-	**COMA**
		6/18/2018	2.40	1.0	1.00	0.02	-	CIAR, **COMA**
	M	5/30/2018	0.05	0.1	0.003	-	1.7E-05	**COMA**
		6/4/2018	0.82	1.0	1.00	-	0.01	**COMA**
		6/6/2018	0.05	0.1	0.01	-	1.4E-07	**COMA**
	M, H	8/21/2018	2.90	5.6	5.60	1.17	0.25	ARAB, **CEMO**, **CEST**, CIAR, CIIN, CIVU, COAR, **COMA**, CYSC*, DACA*, DIFU, **FOVU**, GERO, HEHE*, HYPE*, LALA, RUAR*, TAVU, **SEJA**
Sherwood Rd	**M**	9/11/2018	0.30	0.6	0.60	-	0.01	**SEJA**
Swan Bay Rd-EDRR	**H**	8/20/2018	0.05	1.0	0.01	0.00		POBO
Three Crabs Rd	**M**	6/4/2018**	-	-	-	-	-	MEAL
		7/2/2018**	-	-	-	-	-	MEAL
		7/9/2018**	-	-	-	-	-	MEAL
Towne Rd	**H**	6/12/2018	1.30	3.1	3.10	0.28	-	**CEMO**, **CEST**, CIAR, CIVU, CYSC, **FOVU**, LALA
	M, H	6/26/2018	1.25	1.3	1.25	0.24	0.03	CIAR, CIIN*, CIVU, **COMA**, **DIFU**, LEAP
Township Line Rd	**H**	9/18/2018	1.50	3.0	0.01	0.00	-	POBO
Tripp Rd	**H**	9/19/2018	0.25	0.5	0.15	0.05	-	CIAR*, **HIAU**, LALA*, SYOF*
Turnstone Ln	**H**	5/8/2018	0.35	2.0	2.00	0.14	-	BUDA, **CEST**, CIAR, CYSC, **DIFU**, RUAR
Vautier Rd	**H**	6/11/2018	0.10	0.1	0.10	0.05	-	CIAR

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
Vistas Dr	**H**	8/22/2018	0.15	1.0	1.00	0.32	-	**CEMO**, CIAR, CIVU, CYSC, DACA, LEVU*
W Edgewood Dr	**M, H**	8/23/2018	2.20	5.8	5.75	0.80	0.0004	**CEMO**, CIAR, CIVU, CYSC, LALA, **SEJA**, TAVU
W Hendrickson Rd	**H**	5/14/2018	0.10	0.3	0.10	0.01	-	**COMA**
W Lauridsen Blvd	**M, H**	8/23/2018	1.10	2.8	2.75	0.28	0.0004	**CEMO**, CIAR, CIVU, CYSC, **SEJA**, TAVU
W Washington St	**H**	5/8/2018	0.50	1.5	1.50	0.41	-	**CEST**, CIAR, **COMA**, CYSC, LALA, **PORE**, RUAR
		5/30/2018	0.50	0.5	0.50	0.01	-	**CEST**
Ward Rd	**H**	6/18/2018	0.10	0.1	0.10	0.02	-	**COMA**
	M	6/12/2018	1.60	3.1	0.23	-	0.001	**COMA**
Wasankari Rd	**M**	7/23/2018**	-	-	-	-	0.01	CYSC
Wentworth Rd	**M**	9/12/2018	1.20	2.4	0.01	-	0.01	**SEJA**
West Lyre River Rd	**H**	7/3/2018	0.60	1.3	1.30	0.16	-	**CEMO**, CIAR, CIVU, **SEJA**
		9/17/2018	0.45	1.2	0.40	0.03	-	**CEMO**, **SEJA**
Whiskey Creek Beach Rd	**M**	7/9/2018	0.47	0.6	0.57	-	0.002	**SEJA**
		9/20/2018	0.50	1.0	0.01	-	0.01	CYSC
Whitcomb-Diimmel Rd	**M, H**	9/19/2018	0.70	2.0	2.00	0.00	0.15	CYSC, **SEJA**
Wilson Rd	**M**	9/13/2018	0.75	1.5	1.50		0.01	**SEJA**
Woodcock Rd	**H**	4/23/2018	0.02	0.0	0.002	0.14	-	**COMA**

Road Name[1]	Treatment Method[2]	Date	Total Miles	Examined Acres[3]	Treated Acres[4]	Solid Treated Acres[5] (Chemical)	Solid Manual Acres[6]	Species Treated[7]
		5/14/2018	0.10	1.0	0.20	0.01	-	**COMA**
		6/4/2018	1.60	2.5	2.50	0.37	-	CIAR, CIVU, **COMA**, CYSC, **FOVU**, LALA, RUAR
		6/6/2018	0.10	0.1	0.07	0.05	-	**COMA**, GERO, HEHE
	M	6/4/2018	0.10	0.3	0.002	-	5.7E-08	**COMA**
		6/12/2018	0.10	0.1	0.10	-	0.003	**COMA**
	M, H	6/5/2018	1.90	3.8	3.80	0.32	0.01	CIAR, **COMA**, CYSC, **FOVU**
Woods Rd	**H**	8/6/2018	1.00	1.2	1.20	0.75	-	**CEMO**, CIVU, GERO, LALA, RUAR*, **SEJA**
	M	7/23/2018**	-	-	-	-	0.09	CYSC, **SEJA**
Total Roads: **92**		Days: **63**	**167 mi**	**359 ac.**	**302 ac.**	**33.8 ac.**	**2.67 ac.**	**40 Species**

[1]**Italiscized** roads treated in 2017

[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 crew 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.

*Species intermittently treated.

**Chain Gang did not provide exact treatment dates; the first day of the week for work recorded is shown.

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

This table includes all County rock sources/spoil disposal sites (pits) managed for noxious weeds in 2018 under the Clallam County Road Department IWM Plan. The table is sorted alphabetically by pit name. 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.

We completed work in **23 pits** (**194 examined acres**) over **47 days** to control **33 species**. We controlled **1.3 solid acres** of weeds with manual methods only and **29.9 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. The Sherriff Department Chain Gang partnered to assist with weed control in **13 pits**. Chain Gang crew worked under the direct supervision of Noxious Weed Control Board staff or independently by manual control means only.

Pit Name	Treatment Method[1]	Date	Examined Acres[2]	Treated Acres[3]	Solid Treated Acres[4] (chemically)	Solid Manual Acres[5]	Species Treated[6]
BLYN PIT	**H**	9/13/2018	7.00	7.00	0.09	-	**DIFU**, **POBO**, **SEJA**, SOPH
		10/21/2018	0.03	0.03	0.03	-	LALA, **POBO**, RUAR, **SEJA**
	M	8/27/2018**	NR	NR	NR	NR	UNKNOWN
	M, H	5/3/2018	9.00	9.00	0.64	-	CASE, CIAR, **CYSC**, DACA*, **DIFU**, **GERO**, VETH, BRRA*, RUAR*, **SEJA**
DISTRICT 1 SHOP	**M**	9/10/2018**	NR	NR	NR	0.02	UNKNOWN
		9/27/2018**	NR	NR	NR	0.00	UNKNOWN
DISTRICT 2 SHOP	**M**	9/3/2018**	NR	NR	NR	0.01	UNKNOWN
FORKS PIT	**M**	10/1/2018**	NR	NR	NR	0.17	**CYSC**, **SEJA**
		10/22/2018**	NR	NR	NR	0.12	**CYSC**
		10/8/2018**	NR	NR	NR	0.12	**CYSC**
HERRICK GRAVEL	**H**	9/20/2018	1.50	1.50	0.16	-	**CEMO**
	M	2/26/2018**	NR	NR	NR	0.05	**CYSC**
		3/12/2018**	NR	NR	NR	0.01	**CYSC**
	M, H	5/7/2018	5.75	5.75	2.34	0.10	**CEMO**, CIAR, **CYSC**, DIPU*, HYPE*, **GERO**, RUAR*

Pit Name	Treatment Method[1]	Date	Examined Acres[2]	Treated Acres[3]	Solid Treated Acres[4] (chemically)	Solid Manual Acres[5]	Species Treated[6]
HOGBACK PIT	**H**	8/13/2018	0.25	0.25	0.07	-	CIAR, **CYSC**, LUAR, TAVU
HOKO-OZETTE RD 13	**M**	8/9/2018	1.50	1.50	0.00	-	**SEJA**
HOKO-OZETTE RD 4.5	**M, H**	8/9/2018	1.25	1.25	0.22	0.22	CASE*, **HIAU**, **GERO**, RUAR*, **SEJA**
HWY 101 STORAGE YARD	**H**	6/5/2018	1.00	1.00	0.06	-	**COMA**, **GERO**
KIRNER PIT	**H**	4/23/2018	20.00	20.00	1.01	-	CIAR, CIIN, CIVU, **CEST**, **COMA**, **CYSC**, DIFU, RUAR
		5/30/2018	4.00	4.00	0.21	-	CASE*, **CEST***, **COMA***, **CYSC***, RUAR*
	M	4/30/2018	2.00	2.00	0.00	-	**CYSC**, LUAR, RUAR
	M, H	6/12/2018	12.00	12.00	0.25	-	CASE, **CEST**, **COMA**, **CYSC***, LUAR
		7/31/2018	1.50	0.25	0.09	-	**CEMO**, **CEST**, CIAR, **CYSC**, DACA
LA PUSH "BALLARD" PIT	**H**	5/21/2018	1.00	1.00	0.09	-	**LAGA**
		5/23/2018	1.00	1.00	0.11	-	CIAR, CIVU, **CYSC**, RUAR, **SEJA**
		5/29/2018	1.20	1.00	0.07	-	**CYSC**, RUAR*, RULA*
		9/12/2018	2.10	2.10	0.07	-	**CYSC**, **GERO**, **LAGA**, **SEJA**, SYOF
LAKE CREEK PIT	**H**	5/23/2018	7.00	7.00	5.23	-	DIPU*, **CYSC**, RUAR*, RULA*, **SEJA**
	M	5/21/2018**	NR	NR	NR	0.20	**CYSC**
		9/12/2018	12.00	2.00	0.00	-	**SEJA**
LITTLE RIVER PIT	**H**	7/18/2018	1.00	1.00	0.18	-	CASE, **CEMO**, CIAR, CIVU, **CYSC**, GERO*, **SEJA**
LOWER ELWHA-ELWHA PIT	**H**	6/7/2018	1.00	0.25	0.00	-	**COMA**
	M	9/13/2018	0.25		0.00	-	**SEJA**
MCINNES PIT	**H**	4/6/2018	1.50	1.50	0.44	-	**CAPY**, CIAR*, CIIN*, CIVU*, **COMA**, PHAR*
		5/3/2018	1.50	1.50	0.03	-	**CAPY**, **COMA**
		5/30/2018	3.60	3.60	0.16	-	**CAPY**, **CEMO***, **CEST**, CIAR*, **COMA**
		8/22/2018	3.60	3.60	0.48	-	**CEMO**, CIAR, CIIN, CIVU, COAR, **COMA**, **CYSC**
	M, H	6/21/2018	1.00	0.25	0.01	-	**CAPY**
MORSE CREEK PIT	**H**	4/19/2018	2.00	1.50	0.48	-	CIAR*, **COMA**, RUAR
		5/17/2018	11.00	11.00	1.72	-	CIAR, **COMA**, **CYSC**, HYPE, **GERO**, LALA, RUAR*
	M	5/7/2018**	NR	NR	NR	0.07	**CYSC**, RUAR*

Pit Name	Treatment Method[1]	Date	Examined Acres[2]	Treated Acres[3]	Solid Treated Acres[4] (chemically)	Solid Manual Acres[5]	Species Treated[6]
	M, H	9/6/2018	2.75	2.75	0.53	-	CIAR, **COMA**, **CYSC**, LALA, LUAR, RUAR*
PIEDMONT PIT	**H**	5/24/2018	1.20	1.20	0.64	-	**CEMO**, CIAR*, CIVU*, **CYSC***, **GERO***, PHAR*, RUAR*, **SEJA**
		7/3/2018	0.50	0.10	0.00	-	CIVU*, **CEMO**
	M	8/27/2018**	NR	NR	NR	0.03	**CYSC**
	M, H	9/20/2018	2.00	2.00	0.21	-	**CYSC**, **SEJA**
PLACE PIT	**H**	9/13/2018	2.20	2.00	0.02	-	**CEMO**, **GERO***, **DIFU**, **POBO**, **SEJA**
	M	2/26/2018**	NR	NR	NR	0.02	**CYSC**
		3/12/2018**	NR	NR	NR	0.01	**CYSC**
		8/6/2018**	NR	NR	NR	0.09	**CYSC**
		9/20/2018**	NR	NR	NR	0.02	**CYSC**
	M, H	5/15/2018	2.00	2.00	0.48	-	CIAR, CIVU, **CYSC***, **DIFU**, **GERO**, RUAR*
QUILAYUTE PIT	**H**	5/21/2018	6.00	6.00	2.39	-	**CYSC**, DIPU*, RUAR, RULA, **SEJA**
		5/22/2018	7.00	7.00	3.21	-	**CYSC**, RUAR*, RULA*, **SEJA**
		9/12/2018	6.25	6.25	0.77		**CYSC***, **POBO**, RUAR*, **SEJA**
	M	5/21/2018**	NR	NR	NR	NR	**CYSC**
		5/7/2018*	NR	NR	NR	NR	**CYSC**
RANGER PIT	**H**	5/1/2018	19.00	19.00	2.02	-	CIAR, CIVU, **CEMO**, **CYSC**, **DIFU**, DIPU, RUAR, VIMA
		5/15/2018	3.40	3.40	1.26	-	CIAR, CIVU, **CYSC**, **GERO***, RUAR
		7/3/2018	0.10	0.10	0.02	-	**DIFU**, **GERO***
		9/18/2018	8.30	8.30	0.16	-	**CEMO**, PHAR, **POBO**
	M	1/29/2018**	NR	NR	NR	0.03	**CYSC**
		2/12/2018**	NR	NR	NR	0.12	**CYSC**
		2/19/2018**	NR	NR	NR	0.36	**CYSC**
		7/23/2018**	NR	NR	NR	0.01	**CYSC**
		7/30/2018**	NR	NR	NR	0.05	**CYSC**
		9/13/2018	0.25	0.25	0.00	-	**DIFU**
SEQUIM STORAGE YARD	**H**	5/30/2018	2.10	2.10	0.39	-	**CEMO**, **CEST**, CIAR*, CIIN*, DALA, **FOVU**, RUAR*
UMBRELLA CREEK PIT	**M, H**	8/8/2018	1.00	1.00	0.33	-	CIVU*, **CYSC***, **GERO***, **POBO**, **SEJA***

Pit Name	Treatment Method[1]	Date	Examined Acres[2]	Treated Acres[3]	Solid Treated Acres[4] (chemically)	Solid Manual Acres[5]	Species Treated[6]
		8/9/2018	0.25	0.25	0.03	-	**CYSC***, **SEJA**
WHITCOMB DIIMMEL PIT	**H**	5/29/2018	5.80	5.80	2.66	-	CASE, CIAR, CIVU, **CYSC**, DIPU, HYPE, RUAR*, RULA, **SEJA**
		9/12/2018	6.50	6.50	0.50	-	CIAR, **CYSC**, **POBO**, RUAR*, **SEJA**
Total Pits: **23**		Days: **47**	**194 ac.**	**180 ac.**	**29.9 ac.**	**1.3 ac.**	**33 Species**

[1]**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; NR- not recorded

[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; UNKNOWN – species unable to be identified by Chain Gang

*Species intermittently treated.

**Chain Gang did not provide exact treatment dates; the first day of the week for work recorded is shown.

Appendix E: Herbicide Volumes by County Roads and Rock Sources

The table alphabetically lists the county roads and rock sources that received chemical treatment in 2018. Roads included in treatments as “early Detection, Rapid Response” locations (3) are show in italics.

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.

In 2018 we applied a total of **6.66 gallons** and **15.34 gallons** of herbicide on County roadside and in County pits, respectively. Milestone® was used on **61** of the **70** roads included in chemical treatment and was chosen for its efficacy on expected weed species. Additional herbicides were included when necessary for specific weed species and infestation locations (Vastlan® or Element 3A® was added for efficacy with woody species e.g. Scotch broom, butterfly bush, chicory; Polaris® was used for Knotweed (sp.) only; and AquaNeat® was only used on Quillayute Rd). All treatment locations were posted and signs left in place for 24 hours. An online table of treated roads and treatment dates was maintained and updated throughout the season.

Road Name[7]	Treatment Road Section[1]	Total Miles	Milestone[2] (Oz)	Vastlan[3] (Oz)	Element 3A[4] (Oz)	Polaris[5] (Oz)	AquaNeat[6] (Oz)
Black Diamond Rd	JCT w/ Little River Rd to 3433 Black Diamond Rd	1.0	3.1	0.6	-	-	-
Blue Mountain Rd	JCT w/ Hwy 101 to JCT w/ Marmot Loop	6.5	1.1	8.1	-	1.9	-
Business Park Loop	Entire road	0.5	1.7	-	-	-	-
Cameron Rd	Entire road	0.7	1.1	-	-	-	-
Carlsborg Rd	JCT w/ Hwy 101 to JCT w/ Old Olympic Hwy	1.8	3.4	10.2	-	-	-
Cat Lake Rd	Entire Rd	0.5	-	7.5	-	-	-
Cays Rd	JCT w/ Old Olympic Hwy to JCT w/ Lotzgesell, JCT w/ Libby St to 2452 Cays Rd	1.9	14.4	-	-	0.2	-
Charley Creek Rd	JCT w/ Hwy 112 to 0.75 mi North	0.75	-	3.1	-	-	-
Dan Kelly Rd	JCT w/ Hwy 112 to JCT w/ La Polma Ln	0.1	-	-	-	3.8	-
Deer Park Interchange	PIN#: 053008429040, 053008420300, 05300420230, 053008430455, 053008430350, 053008439080	0.3	4.5	43.8	-	-	-
Dungeness Dike*	NA	1.5	10.2	90.0	-	-	-
Dungeness Rec Area*	NA	0.1	0.2	-	-	-	-

Road Name[7]	Treatment Road Section[1]	Total Miles	Milestone[2] (Oz)	Vastlan[3] (Oz)	Element 3A[4] (Oz)	Polaris[5] (Oz)	AquaNneat[6] (Oz)
East Beach Rd	JCT w/ Hwy 101 to JCT w/ Beach Access Rd	0.8	2.0	15.0	-	-	-
East Lyre River Rd	JCT w/ HWY 112 to JCT w/ DNR Campground Access	0.5	1.1	-	-	-	-
Easterly Rd	JCT w/ Johnson Creek Rd to 341 Easterly Rd	0.2	0.4	3.2	-	-	-
Eden Valley Rd	JCT w/ HWY 112 to JCT w/ Dan Kelly Rd	1.8	0.1	0.7	-	-	-
Farrington Rd	Entire road	0.9	0.5	-	-	-	-
Finn Hall Rd	Entire road	2.5	6.6	10.2	-	-	-
Fisher Cove Rd	Entire road	0.8	7.4	55.8	-	0.1	-
Gehrke Rd	Entire road	0.3	0.8	4.0	-	-	-
Gossett Rd	JCT w/ Hwy 112 to DNR/Adventure Trail	0.3	0.2	-	-	-	-
Grant Rd	0.12 mi W of JCT w/ S 14th Ave	0.1	0.04	-	-	-	-
Gunn Rd	Old Olympic Hwy to Maritime Dr	0.9	1.1	3.8	-	-	-
Happy Valley Rd	Entire road	5.9	10.7	2.0	-	0.5	-
Henry Boyd Rd	JCT w/ Mount Pleasant Rd to JCT w/ Black Hawk Loop	0.5	-	-	-	0.6	-
Hermison Rd	JCT w/ Treichel Ln to Terminus	0.8	-	1.3	-	0.3	-
Heuhslein Rd	Entire road	1.1	2.6	1.3	-	-	-
Hoko-Ozette Rd	JCT w/ HWY 112 to ONP boundary	17.9	6.7	1.3	-	-	-
Holland Rd	1236 Holland Rd to JCT w/ Medsker Rd	0.6	0.5	1.3	-	-	-
Johnson Creek Rd	Entire road	0.5	5.0	39.5	-	-	-
Joyce-Piedmont Rd	Entire road	4.2	1.7	4.5	-	-	-
Kitchen-Dick Rd	Entire Rd	3.6	15.2	22.0	-	-	-
Laird Rd	From Granite Rd to Edgewood Dr	0.9	3.7	32.1	-	-	-
Lake Dawn Rd	Entire road	0.5	0.1	-	-	-	-
Little River Rd	JCT w/ Olympic Hot Springs Rd to JCT w/ Lake Dawn Rd	9.0	10.5	7.7	-	-	-
Lotzgesell Rd	JCT w/ Hogback Rd to JCT w/ Cays Rd	0.9	6.5	50.0	-	-	-
Matson Road	Entire road	0.5	1.5	0.1	-	-	-

Road Name[7]	Treatment Road Section[1]	Total Miles	Milestone[2] (Oz)	Vastlan[3] (Oz)	Element 3A[4] (Oz)	Polaris[5] (Oz)	AquaNneat[6] (Oz)
Mcgarvie Rd	Entire road	0.3	0.1	0.7	-	-	-
Mina Smith Rd	Entire road	3.8	1.7	9.0	-	-	-
O'Brien Rd	Entire road	3.8	0.3	2.2	-	-	-
Old Olympic Hwy	JCT w/ Hwy 101 to JCT w/ Cays Rd	7.2	29.0	-	-	7.7	-
Olympic Discovery Trail	JCT w/ Abbot Rd to 0.75 mi W of JCT of Spring Rd/Old Olympic Hwy, 0.2 mi E of JCT w/ Carlsborg Rd	1.4	7.3	15.0	-	-	-
Olympic Hot Springs Rd	JCT w/ Hwy 101 to ONP boundary	2.1	10.5	0.8	-	0.1	-
Palo Alto Rd	JCT w/ Hwy 101 to USFS boundary	7.8	1.9	2.0	-	-	-
Port Williams Rd	JCT w/ N Brown Rd to Marlyn Nelson County Park	2.2	5.8	10.0	-	-	-
Power Plant Rd	Entire road	0.8	1.0	7.5	-	0.3	-
Quillayute Rd	Entire Rd	6.8	-	-	-	-	18.2
Rife Rd	At intersection with Edgewood Dr	0.01	0.01	0.1	-	0.1	-
River Rd	Entire road	2.7	7.3	-	-	0.1	-
S Bagley Creek Rd	JCT w/ Hwy 101 to 185 S Bagley Creek Rd	0.2	-	1.3	-	2.6	-
S South Shore Rd	JCT w/ Eyres Ln to JCT w/ Yew Tree Dr	0.2	0.2	-	-	-	-
Schmitt Rd	Entire road	0.5	1.3	10.0	-	-	-
Schmuck Rd	Entire road	1.3	1.6	-	-	-	-
Sequim-Dungeness Way	JCT w/ E Anderson Rd to City of Sequim Border	5.4	6.1	40.9	-	0.1	-
Swan Bay Rd	Boat Launch	0.05	-	-	-	0.1	-
Towne Rd	JCT w/ Old Olympic Hwy to JCT w/ E Anderson Rd	2.5	3.7	-	-	-	-
Township Line Rd	JCT w/ O'Brien Rd to JCT w/ Watershed Rd	0.2	-	-	-	0.2	-
Tripp Rd	Entire road	0.25	0.3	2.5	-	-	-
Turnstone Ln	JCT/ Silberhorn to Terminus	0.7	0.5	-	-	-	-
Vautier Rd	JCT w/ Old Olympic Hwy to 102 Vautier Rd	0.1	0.3	-	-	-	-
Vistas Dr	JCT w/ Sequim-Dungeness Way to JCT w/ Kirner Rd	0.2	0.7	18.0	-	-	-
W Edgewood Dr	Entire road	2.2	5.8	15.4	-	-	-

Road Name[7]	Treatment Road Section[1]	Total Miles	Milestone[2] (Oz)	Vastlan[3] (Oz)	Element 3A[4] (Oz)	Polaris[5] (Oz)	AquaNneat[6] (Oz)
W Hendrickson Rd	JCT w/ N Priest Rd to JCT w/ Lois Ln	0.1	0.04	-	-	-	-
W Lauridsen Blvd	1033 W Lauridsen BLVD to JCT w/ W Edgewood Dr	1.1	2.0	7.7	-	-	-
W Washington St	1453 W Washington St to Terminus	0.5	2.4	4.0	-	-	-
Ward Rd	Ward Rd - across from Honeybee Ln and South	0.1	0.2	-	-	-	-
West Lyre River Rd	JCT w/ Hwy 112 to County Road Terminus	0.6	1.4	1.3	-	-	-
Whitcomb-Diimmel Rd	JCT w/ Hwy 101 to Flemarski Rd	0.7	0.02	5.2	-	-	-
Woodcock Rd	JCT w/ Cameron Rd to JCT w/ Fasola Rd	3.7	5.4	3.0	10.0	-	-
Woods Rd	1 mi S of JCT w/ Hwy 101 to USFS boundary	1	5.4	-	-	-	-
Total Roads: **70**	Total:	**131.9 (mi)**	226.6 (oz.) **1.8 (gal)**	575.1 (oz.) **4.5 (gal)**	10.0 (oz.) **0.08 (gal)**	18.3 (oz.) **0.14 (gal)**	18.3 (oz.) **0.14 (gal)**

Pit Name	Treatment Pit Section[1]	Pit Acres	Milestone[2] (Oz)	Vastlan[3] (Oz)	Element[4] 3A (Oz)	Polaris[5] (Oz)	AquaNeat[6] (Oz)
Blyn Pit	-	14.3	-	78.5	40.0	4.4	-
Clallam Bay Yard	-	1.2	-	-	-	-	-
Forks Pit	-	3.8	-	-	-	-	-
Herrick Pit	-	6.6	1.3	217.0	-	6.0	-
Hogback Pit	-	1.7	0.5	-	-	-	-
Hoko-Ozette MP 4.5	-	1.2	1.1	-	-	3.8	-
Hwy 101 Storage Yard	-	1.2	0.4	-	-	-	-
Kirner Pit	-	15.6	3.7	2.5	-	30.0	27.5
La Push “Ballard” Pit	-	2.1	-	16.0	8.0	-	2.0
Lake Creek Pit	-	15.1	-	168.0	-	17.5	52.5
Little River Pit	-	1.0	0.2	8.3	-	-	-
Lower Elwha-Elwha Pit	-	1.0	0.02	0.2	-	-	-
McInnes Pit	-	3.6	4.8	7.3	-	11.3	11.3
Morse Creek Pit	-	25.3	3.8	122.5	-	13.5	13.5
Piedmont Pit	-	2.0	1.5	51.0	-	5.0	-
Place Pit	-	4.6	-	50.3	-	1.3	-
Quilayute Pit	-	13.5	0.7	118.6	352.0	8.8	-
Ranger Pit	-	48.6	0.2	76.7	140.0	6.9	-

Pit Name	Treatment Pit Section[1]	Pit Acres	Milestone[2] (Oz)	Vastlan[3] (Oz)	Element[4] 3A (Oz)	Polaris[5] (Oz)	AquaNeat[6] (Oz)
Sequim Storage Yard	-	2.1	2.8	-	-	-	-
Umbrella Creek Pit	-	5.5	2.0	10.3	-	-	-
Olympic Wetland Mitigation Site*	-	28.2	21.3	40.1	-	-	-
Whitcomb Diimmel Pit	-	5.8	-	199.9	-	1.3	-
Total Pits: **22**	Total:	**204.0 Acres**	44.3 (oz.)	1166.9 (oz.)	540 (oz.)	109.6 (oz.)	106.8 (oz.)
			0.35 (gal)	**9.1 (gal)**	**4.2 (gal)**	**0.86 (gal)**	**0.83 (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 0.5-1% solution, 25-50% solution for cut-stump application only.
[4]**Element 3A®** - Active ingredient: triclopyr; in 1-2% solution on roadsides, 25-50% solution for cut stump only.
[5]**Polaris®** - Active ingredient: imazapyr in 1% solution
[6]**AquaNeat**® - Active ingredient: glyphosate in 0.5-2% solution on Quillayute Rd and select pits only.
[7]**Road Name** – Italicized roads were included in treatments as Early Detection, Rapid Response sites.
***"Dungeness Dike**," "**Dungeness Rec Area**" and "**Olympic Wetland Mitigation Site**" are not roads or pits but are included in this report as additional management areas and listed in approved 2018 County plans.

Appendix F: Pilot Pollinator Plantings

The table below includes all plants included in the pilot Pollinator Plantings and is arranged alphabetically by the scientific name. The rows highlighted in pink indicate species planted at Old Olympic site only; rows highlighted grey indicated species planted at Black Diamond site only; rows not highlighted indicate species used at both locations. All of the plants were grown by the Olympic National Park's Matt Albright Native Plant Center and locally sourced from existing populations on the Olympic Peninsula. The species included will provide native pollinator resources with a continuous bloom period ranging from early march 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.

Common Name	Scientific Name	Quantity Planted
sea-watch	*Angelica lucida*	95
western red columbine	*Aquilegia formosa*	180
kinnikinnick	*Arctostaphylos uva-ursi*	244
goat's beard	*Aruncus dioicus*	72
Douglas aster	*Symphyotrichum subspicatum*	144
fireweed	*Chamaenerion angustifolium*	100
Oregon sunshine	*Eriophyllum lanatum*	396
Virginia strawberry	*Fragaria virginiana*	252
salal	*Gaultheria shallon*	189
ocean spray	*Holodiscus discolor*	164
tall Oregon grape	*Mahonia aquifolium*	85
low Oregon grape	*Mahonia nervosa*	74
coast penstemon	*Penstemon serrulatus*	242
mock orange	*Philadelphus lewisii*	106
pacific nine-bark	*Physocarpus capitatus*	40
wild currant	*Ribes sanguineum*	238
bald-hip rose	*Rosa gymnocarpa*	100
Henderson's checkermallow	*Sidalcea hendersonii*	90
Canada goldenrod	*Solidago canadensis*	158
common snowberry	*Symphoricarpos caprifoliaceae*	136
evergreen huckleberry	*Vaccinium ovatum*	48
Total: **21 species**	Total:	**3153 plants**

Appendix G: Protocols

Project selection:

The focus of the Clallam County Road Department 2018 IWM was the control of regulated noxious weeds and invasive, non-native weeds of special concern on Clallam County rights-of-way. The 2018 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 Category 1 and 2 weeds at locations requested by the public and local agencies.

In addition to the prioritized locations listed in the 2018 Plan, locations suitable for manual control during periods of inclement weather and locations discovered to fit "early detection, rapid response" criteria were added to 2018 projects.

Control Methods:

Chemical:

- Used only EPA and WSDA approved aquatic formulation herbicides. 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% solution foliar application, 25-50% Cut-Stump application ONLY
    - Element 3A®- Active ingredient: triclopyr; in 1-2% solution
    - Polaris® - Active ingredient: imazapyr in 1% solution
    - AquaNeat® - Active ingredient: glyphosate in 0.5% solution at select pit locations; 1.5% solution Quillayute Rd only
- All proposed roadside application locations included in Plan, published online and notice listed in local newspaper in advance to 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 all public intersections and at intervals of ½ mile or less.
- 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.
- We 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 (Page 4).

Data Reporting and Monitoring:

- Supported WSU Master Gardener's RWMT with completed Herbicide/Manual Treatment Form and details.
- Published and routinely updated herbicide application information by road section to NWCB website

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 2018 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 374 volunteer hours and assessed 65% of the treated roads. Additionally, the team assisted in the development and implementation of a project to assess roadside habitat, map potential pollinator corridors, and identified 18 potential sites for future native plantings.

CLALLAM COUNTY MASTER GARDENER ROADSIDE WEED MANAGEMENT REPORT

2018

RWMT REPORT 2018

Clallam County Master Gardener
Roadside Weed Monitoring Report
2018

EXECUTIVE SUMMARY:

In 2018, the Master Gardener's Roadside Weed Monitoring Team (RWMT) surveyed 59 road sites, 32% more sites than in 2017. For 2018, 50% more weed species were subjected to weed control activities. Overall, the 2018 weed control efficacy was good (79% effective). Herbicide application was again very precise. Early in the season, one incident of minor off-target damage was noted and effective corrective and preventive actions were immediately enacted.

Two native planting pilot sites were selected to begin cultural weed control aspects of the integrated weed management plan to enhance native plant communities – a small section of the Olympic Discovery Trail and a section of Black Diamond road near Hillcrest Baptist Church. RWMT participated at both locations, helping to plant a total of 3100 seedlings. Twenty-two different native plant species with overlapping bloom times from March through October will provide enhanced pollinator habitat and help to outcompete future weeds.

RWMT developed a one-page handout to explain our work during interactions with the public that were curious about our activities. All interactions were positive, and the handout provided contact numbers for further questions or more information on native plantings. This aids in our mission of community outreach and engagement in activities supporting environmental stewardship.

BACKGROUND:

Entering the second year of the Clallam County Integrated Weed Management Plan, all parties deemed it beneficial to continue the role of the Master Gardeners of Clallam County as an impartial monitor of the weed control efficacy along Clallam County roadsides. The Master Gardeners have been monitoring Clallam County roadsides since 2012, noting specific noxious and invasive weeds. The objective in 2017 was to monitor the roadsides that had been treated by the noxious weed staff primarily to evaluate the efficacy of treatment. This emphasis continued in 2018. Additionally, the next phase of the project was introduced - find potential planting sites that would enhance pollinator habitat. The Master Gardeners working with the noxious weed staff developed an evaluation form to survey pollinator habitat potential along roadsides. A significant portion of the volunteer hours in 2018 involved walking along roadsides, evaluating potential habitat.

2018 RWMT MONITORING:

Commencing in early June, seven Clallam County Master Gardeners initiated this year's treatment site monitoring. During the summer, the team was given completed 2018 Herbicide/Manual Treatment Data Forms (TDF) for treated sites. Fifty-nine roadsides were monitored during the 2018 season (Appendix A), which is an increase of 19 roads over the 2017 season and included the addition of the Dungeness Dike and four small sections of the Olympic Discovery Trail (ODT). Results of the monitoring activity were reported using the Weed Treatment Monitoring Form (WTMF). Since some of the roads were treated on different dates, the number of treatment sites monitored totaled 99. Over 60% of the roads were in East Clallam County, which is centered on Sequim. Most of the remaining roadsides were in Central Clallam County stretching from the east side of Port Angeles to Lake Crescent and the Lyre River. Four roadsides were monitored in the Hoko-Ozette Valley, which is in West Clallam County. The aggregate acreage treated in Clallam County was approximately 172 acres. Slightly more than 50% of the treated acreage was in the East with 20% in the West focused along two roads.

Forty-nine Clallam County noxious weed species were treated (Appendix B), which doubled the number from 2017. Category 1 weeds were the highest priority for control in 2018. The knapweeds (meadow, spotted, and diffuse) were a high priority in 2017 and remained as such for 2018. Meadow knapweed was the most widely spread being noted on 36 of the 99 TDFs. Seventeen of the sites were in the East and 19 were in the Central region. Spotted knapweed was confined to the East with 16 TDFs noting the presence. Diffuse knapweed was documented only once.

Roadside Canada thistle infestations were elevated in priority in East Clallam County to reflect the input of local land owners. It was the most common species listed on the TDFs, noted on 57 of the 99 sheets with 41 indicated in the East. Tansy ragwort was a high priority in 2017 and remained as such for 2018, especially in Central Clallam County. A total of 34 TDFs listed tansy ragwort, fairly equally divided with 14 in the East and 17 in the Central region while the remaining 3 were noted in the West. In the West, Scotch broom infestations were elevated in priority. Scotch broom is a notorious weed common throughout the region and causing problems in forested areas. There were 36 TDFs for Scotch broom across the county with 35 acres treated along the Hoko-Ozette roadsides. Most of the commonly treated species were widespread throughout Clallam County from Lake Crescent to the East County line. An additional frequently treated weed was bull thistle which was documented on 51 of the 99 TDFs. It was not a weed that covered a lot of area but persistently appeared from site to site. Herb Robert was frequently seen in shaded locations, appearing on about a quarter of the TDFs. In the first month of monitoring, poison hemlock was found at twenty sites, but not one thereafter. Everlasting peavine and Himalayan blackberry were also moderately common, and both seem quite persistent. The remaining 38 documented weeds were limited in their distribution; twenty-three of those appeared at five or fewer sites. Twenty of those, with limited distribution, were confined to Eastern Clallam County with some, having even more limited distribution, narrowly confined to the Dungeness Valley north of Sequim.

The area along the roads, treated and monitored for some of the more common noxious weeds (the knapweeds and tansy ragwort), was significant. Almost three and a half million square feet were treated and monitored for the knapweeds (79 acres), which doubled the area

treated and monitored last year. Forty-five of the 79 acres were treated for meadow, spotted, and diffuse knapweed in the East. About one and a half million square feet were treated and monitored for tansy ragwort with about half of the acreage in the West along the Hoko-Ozette Road. Elevating the treatment of Canada thistle for 2018 in the agricultural district around Sequim tremendously increased the treated area for this species. Last year, only 4 acres were treated and monitored in the East, and many roads were only partially treated. This year, the total area treated and monitored for Canada thistle expanded to 89 acres in the East region alone with an additional 9 acres in both the Central and West regions for a total of 107 acres. This treated area was noticeable and easily monitored. Scotch broom was also elevated in priority this year since it is so pervasive, bringing about a concomitant increase in the treated area akin to the increase for Canada thistle. More than 32 acres of roadside were treated and monitored for Scotch broom in 2018, an increase of 27 acres over 2017. Bull thistle, although not elevated in priority for this year, did receive attention with treatment and monitoring along 51 roadsides. Unlike Canada thistle, bull thistle densities were minimal over the 114 acres treated and monitored.

The primary concern in the monitoring process was the efficacy of the noxious weed treatments. The developed efficacy data from our monitoring corresponds to the prescribed codes found on the WTMF (Appendix C in the 2018 Plan). Code numbers are stepped, related to percent of efficacy ratings. A code rating of zero to fifteen was poor. Sixty-five was considered a tipping point for success or failure. A rating higher than 65 up to 95 was notably effective. An evaluation of 100 has less certainty in whether or not the weed species was completely removed from an area. Without specific locations of small infestations, it was impossible to determine if the weed was gone or if the original small area simply wasn't found. It is difficult to find a patch of a weed along a three mile stretch of road without a specific location. Another problem arises with the possibility of a second patch of the weed, if one was found, that looked untreated. Additionally, monitoring was done from 2 weeks to 9 weeks after treatment with manually treated sites monitored quickly if possible.

Efficacy ratings varied noticeably from road to road and weed to weed. However, the combined average efficacy was 79% (good). Everlasting peavine and Herb Robert often had predominately acceptable efficacy ratings while Himalayan blackberry was plagued by unsuccessful ratings. It was noted in monitoring that the everlasting peavine was slow to react to the herbicides, but the treatment was mostly successful with ratings commonly between 65 and 85. Vines tended to be thick, and surface vines shielded the lower vines so a rating of 100 was only noted once. Herb Robert also absorbed the herbicides with high ratings when it could be found. Nine of the 26 roadsides with this weed exhibited no evidence that it had ever been there and thus were classified as an unknown (UN) on the WTMFs. Poison hemlock was another weed that had some high efficacy ratings with three-quarters of the sites receiving a rating of 95 or better but the efficacy of the other sites was poor. These low efficacy ratings were reported to the noxious weed staff shortly after returning from the field. Overall, efficacy ratings showed a wide range for individual species (Appendix C).

There were limited data for evaluating trends from 2017 to 2018, but the following can be estimated:

Category 1 weeds:

- Spotted Knapweed cover class decreased
- Meadow Knapweed cover class increased and control efficacy decreased
- Tansy Ragwort cover class increased and control efficacy increased
- Herb Robert cover class increased

Category 2 weeds:

- Scotch Broom cover class decreased and control efficacy increased
- Canada & Bull Thistle cover class decreased and control efficacy increased
- Everlasting peavine control efficacy increased

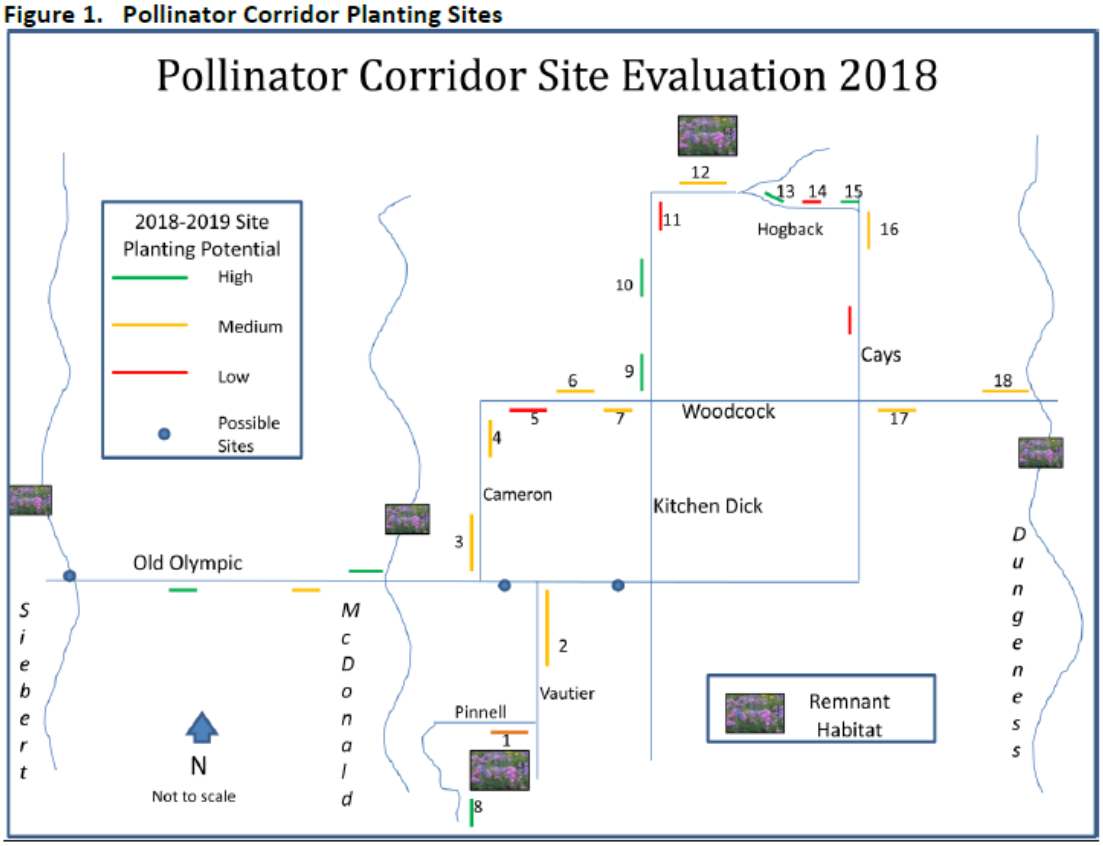
HERBICIDE RETREATMENT NEEDS:

Other data gathered by the monitoring team included retreatment needs for this year and next. Retreatment for this year was communicated to the noxious weed staff shortly after monitoring. For example, the Dungeness Recreational Area had a very low efficacy rating for the treatment of poison hemlock, which was relayed back to the noxious weed staff the afternoon of monitoring. Another example was the poor knapweed efficacy rating along Little River Road, and these results were soon referred to the proper authorities. Communication was common between the noxious weed staff and the Master Gardeners during the season. Retreatment for 2019 was noted on the WTMFs with 66% recommended for such action. With discovery of the Italian thistle along Cays Road this year, retreatment is urgently recommended early in the season, next year. South Bagley Creek road also needs to be treated next year as there are many noxious weeds along the road side which may include Italian thistle. The majority of roadsides were recommended for treatment next year since many of the species' seeds are viable for years and the plants have been reseeding for numerous years. Any site that had field bindweed this year should be a high priority for 2019.

NATIVE PLANTING:

The cultural weed control aspect of the integrated weed management plan to foster native plant communities built off the RWMT's environmental site typing data. In discussions between master gardeners, road department, and noxious weed department personnel, it was recognized that the heaviest anthropogenic effect on pollinators in Clallam County was in the agricultural area northwest of Sequim. Major remnant habitats were identified as Robin Hill Park and the Dungeness Recreational along with the riverine environments of Siebert and McDonald Creeks and the Dungeness River. Several roadsides were evaluated and scored for suitability that would benefit from native plantings. In particular, a "pollinator pathway" road map connecting Robin Hill farm to the Dungeness Recreational Area and the riverine environments was developed for future efforts (Figure 1). Using an RWMT's developed site evaluation sheet, planting sites were carefully rated.

Figure 1. Pollinator Corridor Planting Sites



Other stretches of the county roadsides are in need of pollinator habit enhancement. During the monitoring activity, 18 potential native planting sites were identified to establish future islands for pollinators (Appendix D). Two native planting pilot sites were selected for fall 2018 - a section of the Olympic Discovery Trail west of Agnew and a section of Black Diamond road near Hillcrest Baptist Church. RWMT participated at both locations, helping to plant a total of 3100 seedlings. Twenty-two different native plant species covering overlapping bloom times from March through October will provide enhanced pollinator habitat and help to outcompete future weeds.

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 were the two common land cover types. Few of the sites were noted as wet and only for small sections of the road. Small patches of ephemeral moisture were noted by the presence of cat tails or other hydric vegetation. In the agricultural areas, irrigation ditches were occasionally found. An open area is treeless or where woods occur with less than 50% canopy cover. "Forest" is a wooded area with more than 50% canopy cover and includes forest edges, which one would expect along roadsides. Along roads of length there is, naturally, variation as to the

adjacent land cover. Happy Valley is forested at both ends and open in much of the middle. River road is another example of variation in land cover with forest dominating at the south end. Many other roads exhibit the same character. In the agricultural areas around Sequim, 19 of the roadsides were deemed open environments. Scattered through the area west of Port Angeles there were 7 roadsides that were open. Forested roadsides were fewer with 6 in the East and 5 in the Central region. More common was a mixture of open space and forest along the roadside with a total of 23 exhibiting this mix in the East and Central region and all the roadsides in the West. Environmental site typing serves two main functions: it gives a good indication of the invasive and noxious weeds that might be present and indicates which native planting have a better success potential.

RWMT:

This year 7 Clallam County Master Gardeners participated in the weed monitoring and the pollinator site evaluation activities. They were: Brick Ayola, Peggy Goette, Bev Hetrick, Brenda Lasorsa, John Viada, Lorene Walter and Bruce Pape. When at least 6 people could assemble for a work session, it was possible to split into 2 teams, allowing us to accomplish more than in 2017. There was one foray out to the coast by 3 of the group.

Again, herbicide application was very precise. There was no collateral damage evident from over-spraying or wind drift. However, there was an alder branch that was growing through a Scotch broom plant which appeared to have a few brown leaves. This occurred early in the season, and the noxious weed staff was immediately notified. The weed staff then immediately enacted effective corrective and preventive actions.

During the monitoring, the teams documented post-treatment live noxious weeds and provided point notations for the noxious weed staff.

Being out and about, we occasionally had people inquire about our purpose. Contacts were predominately positive, and to concisely present our story, a handout was developed (Appendix E) for distribution.

Monitoring commenced in mid-June and ended in early October. Roadside monitoring activity occurred on June 22, 27, and 28, July 13, and 18, August 3, 24, 29, and September 5, 7, 10, 12, 14, 21, 28 with a total of 125 hours devoted to this aspect of the project.
Habitat site evaluation was mostly done in the spring with field work on May 12, 18 and June 1, 8, 15, and 29 and totaled 79 evaluation hours. Additionally, 25 hours were directed to training and 54 hours to education. Coordination, administrative activity, and report writing encompassed approximately 91 hours. Total volunteer hours essentially doubled from 179 last year to 374 reported hours for 2018. This report was developed by Brick Ayola and Bruce Pape and edited by the above named Master Gardeners.

Roadside Weed Monitoring 2018 Report Appendices

Appendix A:

Roadsides Monitored

East	Central	West
Business Park Loop	Black Diamond	Hoko-Ozette
Cameron	East Beach	Swan Bay
Carlsborg	East Lyre River	
Cat Lake	Edgewood	
Cays	Farrington	
Chicken Coop	Fisher Cove	
Easterly	Gossett	
Evans	Howard	
Finn Hall	Joyce Piedmont	
Gehrke	Laird	
Grant	Lauridsen	
Gunn	Little Dawn	
Happy Valley	Little River	
Hendrickson	McGarvie	
Heuslein	Olympic Hot Springs	
Holland	Power Plant	
Johnson Creek	Rife	
Kitchen Dick	Schmitt	
Lamar	South Bagley Creek	
Matson	South Shore	
Old Olympic	West Lyre River	
Palo Alto	Whiskey Creek Beach	
Port Williams		
River		
Schmuck		
Sequim Dungeness		
Towne		
Turnstone		
Vautier		
Vistas		
Ward		
Washington		
Woodcock		
Woods		

Appendix B:

Noxious Weeds Monitored

Code	Scientific name	Common name
ARAB	*Artemisia absinthium*	absinth wormwood
BUDA	*Buddleja davidii*	butterfly bush
CAPY	*Carduus pycnocephalus*	Italian thistle
CASE	*Calystegia sepium*	hedge bindweed
CEDI	*Centaurea diffusa*	diffuse knapweed
CEMO	*Centaurea x moncktonii*	meadow knapweed
CEST	*Centaurea stoebe spp micranthos*	spotted knapweed
CIAR	*Cirsium arvense*	Canada thistle
CIIN	*Cichorium intybus*	chicory
CIVU	*Cirsium vulgare*	bull thistle
CLVI	*Clematis vitalba*	old man's beard
COMA	*Conium maculatum*	poison Hemlock
COAR	*Covolvulus arvensis*	field bindweed
CYSC	*Cytisus scoparius*	Scotch broom
DACA	*Dacus carota*	queen Anne's lace
DALA	*Daphne laureola*	laurel, spurge
DIFU	*Dipsacus fullonum*	Fuller's teasel
FOVU	*Foeniculum vulgare*	common fennel
GERO	*Geranium robertianum*	Herb Robert
HEHE	*Hedra helix*	common ivy
HIAU	*Hieracium aurantiacum*	orange hawkweed
HICA	*Hieracium caespitosum*	yellow hawkweed
HYPE	*Hypericum perforatum*	common St John's-wort
ILAQ	*Ilex aquifolium*	common holly
LAGA	*Lamiastrum galeobdolon*	yellow archangel
LALA	*Lathyrus latifolius*	everlasting peavine
LEAP	*Lepidium appelianum*	hairy whitetop
LEVU	*Leucanthemum vulgare*	oxeye daisy
LUAR	*Lupinis arboreus*	tree lupine
MEAL	*Melilotus alba*	white sweet clover
POBO	*Polygonum x bohemicum*	bohemian knotweed
PORE	*Potentilla recta*	sulphur cinquefoil
RUAR	*Rubus armeniacus*	Himalayan blackberry
RULA	*Rubus laciniatus*	evergreen blackberry
SEJA	*Senecio jacobaea*	tansy ragwort
SYOF	*Symphytum officinale*	comfrey
TAVU	*Tanacetum vulgare*	common tansy
VETH	*Verbascum thapsus*	common mullein
VIMA	*Vinca major*	myrtle

Appendix C:

Efficacy Ratings

WEED	EFFICACY	ROAD
ARAB	35	Business Park Loop
	35	Carlsborg
	85	Sequim Dungeness
BUDA	100	Kitchen Dick
	UN	Old Olympic
	85	Sequim Dungeness
CAPY	100	Lamar
	100	Cays
CASE	15	Business Park Loop
	65	River
	100	Schmuck
	UN	Farrington
CEDI	85	River
CEMO	95	Cays
	85	Easterly
	65	Happy Valley
	85	Johnson Creek
	UN	Old Olympic
	35	Palo Alto 8/15
	95	Palo Alto 8/29
	100	Port Williams
	85	River
	100	Schmuck
	100	Sequim Dungeness Way 8/21
	UN	Towne
	100	Vistas
	UN	Woods
	35	Black Diamond
	95	East Beach 7/11
	100	East beach 7/12
	95	East Lyre River
	100	Edgewood
	95	Farrington
	85	Fisher Cove

WEED	EFFICACY	ROAD
CEMO	100	Gossett
	85	Joyce Piedmont
	95	Laird
	95	Lauridsen
	3	Little River 7/17
	15	Little River 7/18
	35	Little River7/19
	15	Olympic Hot Springs 7/19
	15	Olympic Hot Springs 7/23
	15	Olympic Hot Springs 7/25
	100	Power Plant
	15	West Lyre River
CEST	UN	Business Park Loop
	65	Carlsborg
	95	Cays
	100	Grant
	UN	Happy Valley
	100	Kitchen Dick
	UN	ODT 6/5
	UN	ODT 6/6
	100	Old Olympic
	85	River
	100	Sequim Dungeness Way
	UN	Towne
	95	Turnstone
	95	Washington 5/8
	95	Washington 5/30
	95	Woodcock
CIAR	85	Business Park Loop
	85	Cameron
	85	Carlsborg
	85	Cays
	65	Cays/Lamar
	95	Finn Hall
	100	Gehrke
	100	Gunn
	35	Heuslein
	65	Kitchen Dick N 5/8
	35	Kitchen Dick S 5/14
	85	Kitchen Dick 8/21
	95	Matson

WEED	EFFICACY	ROAD
CIAR	85	O D T 6/26
	85	O D T 6/27 0.3
	65	O D T 8/14
	65	Old Olympic 6/11
	85	Old Olympic/Towne
	85	Old Olympic 6/27
	95	Old Olympic Berm
	95	Old Olympic 8/13
	P	Palo Alto 8/15
	95	Port Williams
	85	River
	100	Schmuck
	35	Sequim Dungeness 6/18
	95	Sequim Dungeness 8/21
	95	Towne 6/12
	95	Towne 6/26
	95	Turnstone
	UN	USFW Dungeness
	95	Vautier
	100	Vistas
	65	Washington
	65	Woodcock
	85	Edgewood
	100	Farrington
	P	Joyce Piedmont
	100	Laird
	95	Lauridsen
	85	Little River 7/17
	85	Little River 7/18
	85	Little River 7/19
	85	Olympic Hot Springs 7/19
	85	Olympic Hot Springs 7/23
	85	Olympic Hot Springs 7/25
	85	Power Plant
	100	West Lyle River
	95	Hoko-Ozette
CIIN	15	Business Park Loop
	15	Carlsborg
	35	Happy Valley
	35	O D T 8/14
	65	Port Williams
	15	Schmuck

WEED	EFFICACY	ROAD
CCIN	85	Sequim Dungeness Way
	UN	Towne
CIVU	65	Business Park Loop
	65	Carlsborg
	85	Cays
	85	Cays/Lamar
	95	Finn Hall
	100	Gehrke
	65	Happy Valley
	95	Heuslein
	35	Kitchen Dick S 5/14
	100	Matson
	65	O D T 8/14
	65	Old Olympic 6/5
	35	Old Olympic 6/6
	35	Old Olympic 6/11
	UN	Old Olympic/Towne
	100	Old Olympic 6/27
	100	Old Olympic 8/13
	100	Port Williams
	65	River
	100	Schmuck
	95	Sequim Dungeness Way 8/21
	0	Towne 6/12
	UN	Towne 6/26
	100	Vistas
	95	Woodcock
	UN	Woods
	100	East Beach
	100	Edgewood
	100	Farrington 7/9
	100	Farrington 7/26
	95	Fisher Cove
	95	Gossett
	95	Howard
	P	Joyce Piedmont
	95	Laird
	95	Lauridsen
	95	Little River 7/17
	85	Little River 7/18
	95	Little River 7/19
	85	Olympic Hot Springs 7/19

WEED	EFFICACY	ROAD
CIVU	85	Olympic Hot Springs 7/23
	85	Olympic Hot Springs 7/25
	85	Power Plant
	100	Schmitt
	P	South Shore 7/3
	100	South Shore 7/5
	100	West Lyre River
	95	Hoko-Ozette 8/14
CLVI	UN	Laird
COMA	0	Dungeness Rec. Area
	100	Evans
	95	Hendrickson
	95	Lamar
	UN	Old Olympic 6/11
	100	Old Olympic 6/18
	35	Sequim Dungeness Way 5/3
	100	Sequim Dungeness Way 6/6
	100	Sequim Dungeness Way 6/6-0.1
	UN	Sequim Dungeness Way 6/18
	100	Towne
	35	USFW Dungeness
	100	Ward 6/12
	100	Ward 6/18
	95	Washington
	100	Woodcock 4/23
	95	Woodcock 5/14
	100	Woodcock 6/4-0.25
	35	Woodcock 6/4-2.5
	100	Woodcock 6/6
	100	Woodcock 6/12
COAR	15	Kitchen Dick N 5/8
	100	Kitchen Dick 8/21
	65	Old Olympic
	95	Sequim Dungeness Way
CYSC	35	Carlsborg
	95	Cat Lake
	95	Easterly
	95	Finn Hall
	95	Gehrke

WEED	EFFICACY	ROAD
CYSC	100	Gunn
	35	Happy Valley
	35	Heuslein
	100	Johnson Creek
	100	Kitchen Dick
	95	Matson
	65	Old Olympic 6/5
	85	Old Olympic 6/6
	95	Old Olympic 6/11
	100	Old Olympic 8/13
	85	Port Williams
	65	River
	P	Sequim Dungeness Way
	UN	Towne
	65	Turnstone
	65	Vistas
	95	Washington
	65	East Beach 7/11
	65	East Beach 7/12
	35	Edgewood
	95	Fisher Cove
	35	Laird
	35	Lauridsen
	95	Little River 7/17
	95	Little River 7/18
	95	Olympic Hot Springs 7/19
	95	Olympic Hot Springs 7/25
	35	Power Plant
	95	Hoko-Ozette
DACA	P	Happy Valley
	P	Old Olympic
	85	Schmuck
	35	Sequim Dungeness Way
	100	Vistas
	85	Little River
DALA	100	Finn Hall
DIFU	100	Cays
	85	Chicken Coop
	UN	Happy Valley
	15	Old Olympic/Towne

WEED	EFFICACY	ROAD
DIFU	100	Port Williams
	95	Sequim Dungeness Way
	?	Towne
	95	Turnstone
	100	Little River
FOVU	35	Sequim Dungeness Way
	95	Towne
	UN	Woodcock
GERO	100	Easterly
	100	Finn Hall
	100	Holland
	P	Palo Alto
	100	Port Williams
	UN	River
	UN	Sequim Dungeness Way
	65	USFW Dungeness
	100	Woodcock
	0	Woods
	UN	Black Diamond
	100	East Beach 7/11
	85	East Beach 7/12
	95	East Lyle River
	100	Fisher Cove
	P	Gossett
	UN	Little River 7/17
	UN	Little River 7/18
	UN	Little River 7/19
	UN	Olympic Hot Springs 7/19
	UN	Olympic Hot Springs 7/23
	UN	Olympic Hot Springs 7/25
	100	Power Plant
	85	Hoko- Ozette 8/8 14.8
	95	Hoko-Ozette 8/8 2.8
HEHE	P	Sequim Dungeness Way
	95	Woodcock
HIAU	100	Little Dawn
	100	South Shore 7/3
	100	South Shore 7/5

WEED	EFFICACY	ROAD
HYPE	UN	Cameron
	UN	Old Olympic 6/5
	85	Old Olympic 6/11
	35	River
	P	Sequim Dungeness Way
	15	Laird
	100	Power Plant
ILAQ	100	Matson
LAGA	UN	Holland 6/18
	100	Holland 8/22
	UN	Joyce Piedmont
	100	Little River
LALA	95	Cameron
	100	Carlsborg
	100	Finn Hall
	P	Gunn
	85	Happy Valley
	65	Old Olympic 6/11
	85	Old Olympic 8/21
	65	Sequim Dungeness
	UN	Washington
	65	Woodcock
	85	Woods
	I	Black Diamond
	85	Edgewood
	P	Joyce Piedmont
	65	Laird
	85	Little River
	P	Olympic Hot Springs 7/19
	85	Olympic Hot Springs 7/25
LEAP	100	Kitchen Dick
	UN	Towne
LEVU	I	Kitchen Dick
	100	Vistas
LUAR	35	Cays/Lamar
	15	Kitchen Dick 5/8
	65	Kitchen Dick 5/14

WEED	EFFICACY	ROAD
MEAL	UN	Happy Valley
PHAR	95	Old Olympic Berm
POBO	UN	Fisher Cove
	UN	Power Plant
	35	Rife
	100	S Bagley Creek
	3	Hoko-Ozette
	3	Swan Bay
P0RE	65	Old Olympic
	UN	Palo Alto
	UN	River
	100	Washington
RUAR	35	Cameron
	15	Carlsborg
	15	Finn Hall
	P	Gehrke
	P	Gunn
	15	Heuslien
	15	Kitchen Dick
	15	Matson
	85	Old Olympic
	85	Sequim Dungeness
	65	Turnstone
	3	Washington
	15	Woodcock
	P	Woods
RULA	UN	Old Olympic
SEJA	100	Cat Lake
	100	Chicken Coop
	100	Easterly
	100	Finn Hall
	95	Happy Valley
	100	Johnson Creek
	15	Old Olympic 6/6
	UN	Old Olympic
	85	Palo Alto
	95	Port Williams

WEED	EFFICACY	ROAD
SEJA	100	Sequim Dungeness
	UN	Woods
	95	East Beach
	100	East Lyre River
	100	Edgewood
	95	Farrington
	95	Fisher Cove
	100	Gossett
	95	Howard
	100	Joyce Piedmont
	100	Lauridsen
	UN	Little River
	85	McGarvie
	UN	Olympic Hot Springs
	85	Schmidt
	100	West Lyre River
	100	Whiskey Creek Beach
	95	Hoko-Ozette 14.8
	65	Hoko-Ozette 2.8
SYOF	UN	Port Williams
TAVU	100	Kitchen Dick
	UN	Old Olympic
	UN	River
	95	Sequim Dungeness
	95	Edgewood
	100	Fisher Cove
	85	Lauridsen
VETH	UN	Carlsborg
VIMA	UN	Port Williams

I = Incomplete
P = Partial Treatment

Appendix D:

Potential Native sites noted during monitoring

Islands

- Sequim Dungeness Way and Anderson
  - On the north corner and results from road realignment
- Anderson and Towne Rd
  - South east corner
- Sequim Dungeness Way between Woodcock and Evans on west side
- Sequim Dungeness Way and Taylor Cut Off
  - At the acute angle of the junction, there is a large narrow section of county land
- Old Olympic and Towne
  - Northwest corner
- River and Happy Valley
  - On northeast corner, along Happy Valley with road pushing to south side of ROW
- Happy Valley inside corner east of 3rd as the road changes from east-west to north-south.
  - Road realignment at some point left wide ROW on inside of curve
- Carlsborg and Business Loop
  - ROW widens at Post office on both sides of business loop. Wide spot in ODT as it crosses Carlsborg.
- Little River - Already a prime spot for the weed office
- E Lyle River Road
  - Spot at end of road near campground entrance
- Old Olympic Hot Springs Rd
  - Near parking lot; most of this is Park property

Prime sites for 2018-19 from the pollinator site corridors

- Two sites on the west side of Kitchen Dick, north of Old Olympic
- One at Hogback and Cays
- West of Spring Road on the south side of Old Olympic, including the berm
- Pinnell Street entrance to Robin Hill on the east side of the road
- Old Olympic just west of McDonald Creek on the north side

Site treated but not monitored

- Highway 101 Storage Yard-Pit treated on 6/5/18

Appendix E:

Public Information Sheet

WHAT'S GOING ON?

Who are we? Washington State University Clallam County Extension Master Gardener volunteers

What are we doing?

- Monitoring our county's annual Integrated Weed Management Plan
- Assisting with a new Pollinator Habitat Restoration Project

Why?

There are hundreds of pollinator species in Clallam County that pollinate native plants and assist agricultural production.

Invasive noxious weeds are established along roadsides of highly trafficked areas, resulting in:

- negative impact to farmland,
- increased toxic risk to livestock, and
- reduced native plants for local pollinators.

The Pollinator Habitat Restoration Project is designed to increase native plantings in key roadside corridors to:

- enhance pollinator habitat,
- outcompete invasive noxious weed infestations, and
- still maintain safe and accessible roadsides.

Proper roadside management provides an opportunity to reduce invasive noxious weeds and increase pollinator habitat across the county.

Who else is involved?

- Clallam County Road Department,
- Noxious Weed Control Board,
- Robin Hill Farm, and
- Community Volunteers

If you are interested in finding out more about this effort or would like to help, possibly by hosting some pollinators or native plantings, please contact the Noxious Weed Control office at 360.417.2442.

Appendix I: Peninsula Daily News Legal Notice of Herbicide Use 2018

PUBLIC NOTICE

Clallam County is beginning the 2018 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/RD_IWMP-.html. 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: March 15, 2018
Legal No.800004

Appendix J: Sample Herbicide Notice

NOTICE

The herbicides aminopyralid, glyphosate, imazapyr, triclopyr, or clopyralid 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
Jim Knape, 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)

2018 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: Blue Mountain Road (MP: 0-6.5)

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) DCD Parks Other	CCNWCB (2)

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

Crew Members Present: Jim knape, Tommy Roche

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
9/24/18	9/24/18	13	(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)	Manual/Herbicide or Survey
CEMO	12 acres ~~sq ft~~	2	~~M~~ H
PORE	200 sq ft	4	H
POBO	700,000 sq ft	4	H
SEJA	10 acres ~~sq ft~~	1	M/H
TAVU	500 sq ft	4	H
CEST	1000 sq ft	5	M/H

* 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 # Tommy Rocke 96721, Jim Knope 87945

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
9/24/18	10:30AM	3:30PM	62°	<2	W	Clear	

Application Area (acre)	Total Volume of Mix Applied (gal)	Diluent	Special comment
13	8	Water	

Product Name	EPA Registration #	Amount of herbicide used (oz)	Herbicide Applied/Acre or other measure	Concentration Applied
Polaris	228-534	1.875oz	0.14 oz/acre	1%
Milestone	62719-519	1.1 oz	0.08 oz/acre	0.125%
Competitor	CA: 7935-04001	5.9 oz	0.45 oz/acre	0.5%, 1%
Vastlan	62719-687	8.1 oz	0.62 oz/acre	1%
Blazon Blue	—	2.9 oz	0.22 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: 1.5 gallons of 1% Polaris by 1% Competitor used on PORO.
6.5 gallons of 0.125% Milestone, 1% Vastlan by 0.5% Competitor used on CEMO, CEST, SEJA, TAVU, PORE.

Page 2

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

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	