



# 2019 PROJECT REPORT

## OLYMPIC PENINSULA COOPERATIVE NOXIOUS WEED CONTROL

A TITLE II PARTICIPATING AGREEMENT BETWEEN:  
USDAFS OLYMPIC NATIONAL FOREST  
AND  
MASON COUNTY NOXIOUS WEED CONTROL BOARD



# **Olympic Peninsula Cooperative Noxious Weed Control 2019 Project Report**

A Title II Participating Agreement between:  
USDAFS Olympic National Forest  
And  
Mason County Noxious Weed Control Board

March 26, 2020

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## Table of Contents

<b>Report Recipients</b>	<b>1</b>
<b>Acknowledgements</b>	<b>2</b>
<b>Executive Summary</b>	<b>3</b>
<b>Project Summary</b>	<b>5</b>
<b>2019 Mason County Work Plan Maps</b>	<b>17</b>
<b>Post Season Observations</b>	<b>26</b>
<b>Recommendations</b>	<b>33</b>
<b>2019 Protocols</b>	<b>39</b>
<b>Appendix A: Forest Service 2019 Mason County Project List</b>	<b>43</b>
<b>Appendix B: Summary of 2019 Project Accomplishments</b>	<b>47</b>
<b>Appendix C: Rock Source Surveys and Treatment</b>	<b>51</b>
<b>Appendix D: Mason County 2019 Treatment Area</b>	<b>54</b>
<b>Appendix E: Outreach and Education</b>	<b>58</b>
<b>Appendix F: 2019 Forest Service Treatment Priority List</b>	<b>59</b>
<b>Appendix G: 2019 Olympic National Park Treatment List</b>	<b>61</b>
<b>Appendix H: 2019 Washington State Noxious Weed List</b>	<b>62</b>
<b>Appendix I: 2019 Public Notice</b>	<b>65</b>
<b>Appendix J: Project Forms</b>	<b>68</b>
<b>Appendix K: Calibration Protocol and Results</b>	<b>71</b>

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**A copy of this report will be posted to the Mason County WSU Extension website at:**  
<http://extension.wsu.edu/mason/natural-resources/noxious-weed-program/mcnwcb-reports/>  
**2019 Title II Report**

## **Acknowledgements**

We would like to acknowledge the support and cooperation from the following people and organizations. Thanks for your continued efforts in reducing the impacts of invasive plants and noxious weeds on the resources of Mason County!

### **Mason County Noxious Weed Control Board Assistants**

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## Executive Summary

### Project Goal:

The Mason County Board of County Commissioners reactivated the Mason County Noxious Weed Control Board (MCNWCB) in 2003. The initial Title II participating agreement was crafted between the USDA Forest Service, Olympic National Forest (ONF) and Mason County in 2005.

Today, the Mason County Noxious Weed Control Board continues to work with the Olympic National Forest and others to further the Forest Service mission, "To sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations".

Guided by the USDA Forest Service motto, "**Caring for the land and serving people**", the Mason County Noxious Weed Control Board works to support the Forest Service mission by:

- Promoting a conservation ethic which recognizes the health, productivity, diversity, and beauty of our natural resources.
- Providing technical assistance to private landowners, encouraging them to practice good stewardship in meeting their land management objectives.
- Developing and providing scientific and technical knowledge aimed at improving our capability to protect, manage, and use forests and rangelands.
- Providing work, training, and education in pursuit of the mission.

### Project Overview:

Since 2005, Title II funding has been instrumental in the development of a noxious weed control program in Mason County. Cooperation and collaboration between federal and local governments are among the goals of the Title II program of the Secure Rural Schools Act. These funds have provided the MCNWCB the opportunity to further develop the capacity to undertake projects that require the availability of field going expertise, labor and equipment. In 2019, Title II funding augmented county and grant funds to provide seasonal employment for field staff and additional staff time for the part-time coordinator.

Funding from these agreements has given MCNWCB staff the opportunity to survey and treat noxious weed infestations adjacent to Forest Service lands.

### 2019 Project Goals:

- Control invasive plants in areas planned for future forest management activities.
- Control invasive plants on roads scheduled for project work or decommissioning.
- Survey for, document, and treat invasive species in rock sources within the ONF.
- Control invasive plants in campgrounds, at trailheads and other frequently visited sites
- Revisit previously controlled sites to monitor treatment efficacy, and perform necessary follow-up control work.
- Identify and treat new populations utilizing Early Detection and Rapid Response (EDRR).

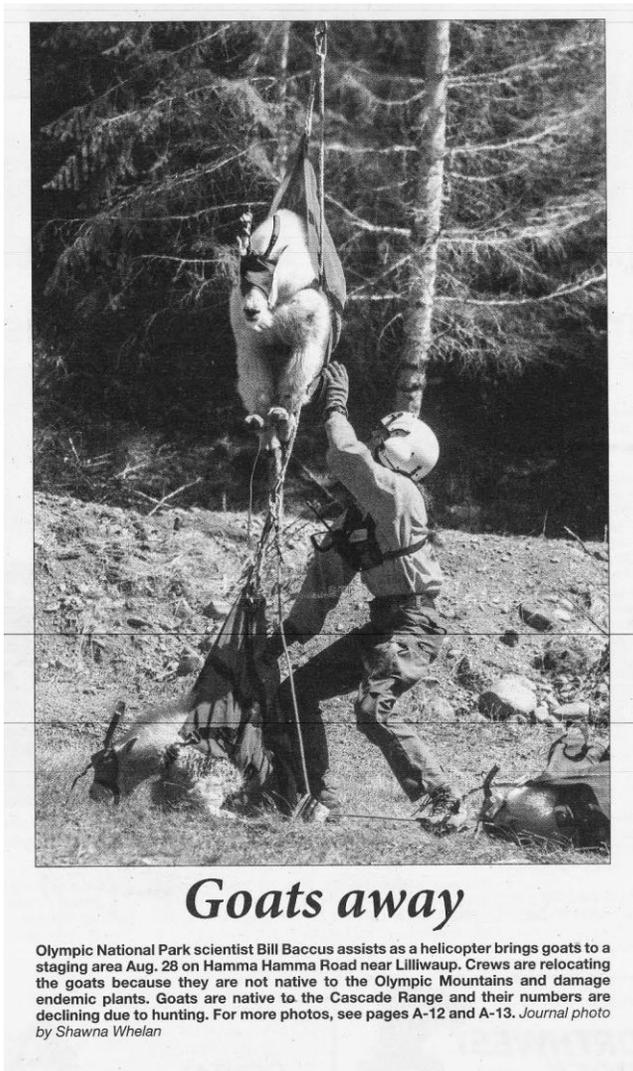
- Conduct surveys and provide technical advice to owners of private and public rock sources in Mason County.
- Educate forest users about invasive and noxious weed identification and impacts.
- Build new relationships with other agencies, citizens, businesses and non-profits in Mason County.

**2019 Resources:**

- Mason County Noxious Weed Control Board Coordinator (173.5 hours)
- MCNWCB Field Assistants (308.5 hours)

**2019 Accomplishments:**

- Treated, either manually or with herbicide, approximately 104 weed-infested acres within the ONF.
- Completed and submitted 45 paper accomplishment forms for the Forest Activity Tracking System (FACTS) database. In addition, site specific notes and recommendations were included for many locations.



- Upon request, completed inspection of four private rock sources in Mason County. The proposed Cushman Road construction project prompted several of these requests.
- Inspected four Forest Service rock sources and completed treatment on five.
- Participated in seven public events or meetings, resulting in over 1,500 contacts with Mason County residents or visitors.
- Assisted with invasive species treatment at Hamma Hamma rock pit. The pit was utilized as a staging area for the 2019 goat capture and translocation project. Treatments were completed on June 19 and July 1, 2019.
- Completed annual project report.

[Shelton-Mason Journal Article discussing Goat Capture and translocation project, September 5, 2019.](#)

## PROJECT SUMMARY

### Project Goal

The Mason County Noxious Weed Control Board (MCNWCB) was established in 1975 and had been inactive since the mid 1980's. As a result of citizen engagement, the Mason County Board of County Commissioners (BOCC) reactivated the Weed Board in the fall of 2003. The mission of the MCNWCB was, and remains, "Protection of Mason County's agricultural resources and natural area resources from the negative impacts of noxious weeds".



MCNWCB staff after survey and treatment of spotted knapweed infestation at Lake Cushman.

In early 2004, the Mason County Board of County Commissioners appointed five persons to the Mason County Noxious Weed Control Board in the manner provided by RCW 17.10.050. In 2005, the first Title II funded Participating Agreement was crafted between the USDA Forest Service, Olympic National Forest and Mason County.

MCNWCB staff have utilized this funding during the past 16 years to build capacity to

provide a knowledgeable resource to other Mason County departments, public and private landowners, while working to reduce the impact of noxious weeds on the Olympic National Forest.

Today, the Mason County Noxious Weed Control Board continues to work collaboratively with the Olympic National Forest and others to contribute to the mission of the Forest Service, "To sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations".

Throughout Mason County, grant funded or locally funded noxious weed control activities benefit the Mason County economy, public health and way of life. With nearly 21% of Mason County's land base, or just over 127,000 acres, located within the Olympic National Forest (ONF), activities benefitting this area comprised approximately 12% of the program's 2019 expenditures. This Participating Agreement continues the federal contribution to strengthening the framework within which the ONF, Mason County and other community stakeholders can build a collaborative noxious weed control effort in Mason County.

The Mason County Noxious Weed Control program continues to participate at community events providing noxious weed education to the public as a key component of the program. This emphasis on education and prevention integrates with “Early Detection, Rapid Response” (EDRR) to further a coordinated and efficient approach to the protection of Mason County’s resources from the adverse effects of invasive plants

The Mason County Noxious Weed Control Board continues to work collaboratively with the Olympic National Forest in:

**“Caring for the land and serving people”**



**Woodland penstemon, *Nothochelone nemorosa*, at Oxbow campground.**

## Project Overview

Executive Order 13112 of February 3, 1999 (Invasive Species), called upon executive departments and agencies to take steps to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control invasive species that are established. On December 05, 2016, President Barack Obama amended Executive Order 13112 to direct actions to continue coordinated Federal prevention and control efforts related to invasive species. This order maintains the National Invasive Species Council (Council) and the Invasive Species Advisory Committee; expands the membership of the Council; clarifies the operations of the Council; incorporates considerations of human and environmental health, climate change, technological innovation, and other emerging priorities into Federal efforts to address invasive species; and strengthens coordinated, cost-efficient Federal action.

Extensive invasive plant survey work took place on National Forest lands in the mid 1990's. This work became the foundation of the *Olympic National Forest Final Environmental Impact Statement and Record of Decision Beyond Prevention: Site-Specific Invasive Plant Treatment Project* (March 17, 2008). This analysis incorporated the best available science related to invasive plant management on National Forest system lands and is tiered to the *Pacific Northwest Invasive Plant Program Final Environmental Impact Statement* (R6 2005 FEIS). Mason and Clallam County Weed Board staff, a Forest Service crew and crews from the Washington Conservation Corps (WCC) are now actively involved with implementation of components for control of invasive plants identified in the FEIS.

Control priorities are based on a matrix of criteria that includes:

- Ecological impact.
- New infestations of aggressive species (EDRR).
- Treatment in areas of high public use and infestation potential (e.g. parking lots, campgrounds, trailheads, horse camps, gravel pits).
- Containment/control of existing large infestations of species with focus on boundaries of infestation.



Flowering class B and C noxious weeds in vicinity of clean gravel piles at Brown Creek Quarry (Ref # 369), July 30, 2019.

Treatments continue to emphasize control of high priority noxious weeds (Appendix F) in areas with high potential for spread, such as rock sources, roadsides or campgrounds.



Native vegetation flourishes along Finch Creek in Hoodspport, WA. The MCNWCB has worked to control giant hogweed and knotweed along this creek adjacent to Olympic National Forest Administrative offices since 2009.

On non-Forest Service lands, including other federal lands, state, county and private lands, the emphasis continues to be in areas where uncontrolled noxious weed populations are spreading and hindering coordinated control activities. The MCNWCB provides a link to private landowners whose weeds threaten federal lands. Program goals include public education, monitoring infested sites, surveying for new noxious weed infestations, seeking both private and public landowner compliance with RCW 17.10 and WAC 16-750

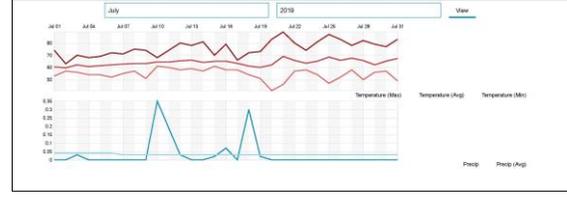
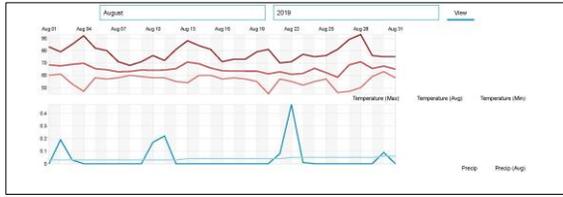
and assisting other public agencies with their efforts to control noxious weeds.

Title II funding continues to support the MCNWCB program of public education and “Boots on the Ground” control efforts and provides employment to several local residents and training opportunities to county staff, partners and volunteers.

In Mason County, several individuals and crews accomplish control efforts within the ONF. During the 2019 season, the MCNWCB coordinator and assistants received funding through this agreement.

Reta Laford, Olympic National Forest Supervisor, finalized modification 3 to Agreement 16-PA-11060900-006 on September 04, 2019. This modification added \$21,263.88 to the agreement. Due to the timing of signature, funds remaining after the 2018 invoice were the primary source for the 2019 work plan.

In March 2019, MCNWCB received WSDA funding to carry out giant hogweed survey and treatment. A final report was submitted on June 10, 2019. This allocation of staff time resulted in a delay to initiation of Forest Service treatments. Wet weather further hindered treatment opportunities.



July, August, September weather 2019.

The MCNWCB continues to use the Washington State Department of Agriculture’s iPhones and iForm database. This has expanded our ability to collect updated noxious weed occurrence data on National Forest and adjacent lands.



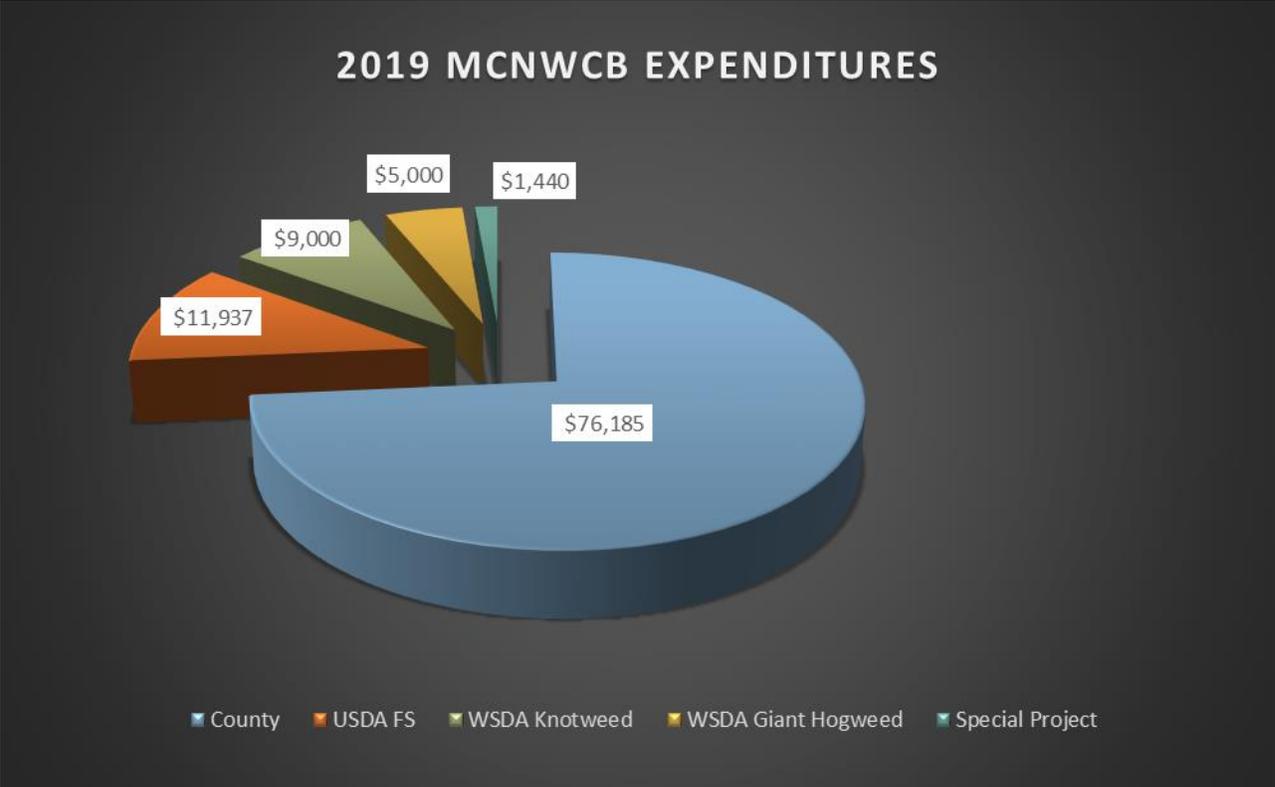
Field assistant documenting butterfly bush along Mason County ROW using WSDA iForm.

<b>Mason County Noxious Weed Control program</b>	
<b>2019 Snapshot</b>	
Number of weed species known to occur in Mason County (2019 Noxious Weed List)	61
Number of regulated species	32
Most common regulated weeds	tansy ragwort, knapweeds, giant hogweed
Least common regulated weeds	common reed, Spanish broom, yellow nutsedge
Most common treated weeds	tansy ragwort, giant hogweed, bohemian knotweed, scotch broom, herb Robert
Educational Events – Events, Presentations, etc.	7
Public contacts at educational events	1,502
County funding for Noxious Weed Control program (General fund)	\$76,185.00

### **2019 Project Description**

A preseason work session was held on April 24, 2019. A project work plan, developed by the Forest Service that established priority sites (Appendix A) and species for the season (Appendix F) was provided for developing work priorities for the MCNWCB. The planned work involved treating previously identified weed infestations on Forest Service land. The Forest Activity Tracking Sheet (FACTS) form was used to document manual or chemical treatments. Treatment reporting was based on a unique “Reference Number” assigned within Project Areas.

Funding from the Title II Participating Agreement and other funding sources continue to augment the part-time Coordinator salary and additional field staff. Expertise and equipment utilized to support the Title II work has been leveraged to secure funding from other grant sources, including the Washington State Department of Agriculture and the Washington State Department of Ecology.



In 2019, treatments on Forest Service lands were prioritized as follows:

- Control weeds in special project areas such as timber sale areas, quarries and other rock sources on National Forest Land.
- Control weeds in campgrounds, trailheads and other heavily used sites.
- Revisit previously controlled sites and perform necessary follow-up control work
- Identify and treat new populations (EDRR), identified by Forest Service or MCNWCB personnel.
- Reseed treatment areas utilizing blue wildrye (*Elymus glaucus*) seed, or other native plant seed, provided by the Forest Service.

## 2019 Project Resources and Accomplishments

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

- **Supervisor (MCNWCB coordinator): 173.5 hours, licensed applicator**
  - Supervised and administered the project.
  - Provided crew training, technical information and support; and planned and supervised most field treatments.
  - Reviewed, finalized and submitted 45 FACTS forms, representing 26 unique reference numbers for all treated sites.
  - Completed end-of-season reporting and planning for 2019 field season.
  
- **Two Program Assistants: 308.5 hours, one licensed applicator**
  - Responsible for daily preparation for field activities.
  - Assisted in reviewing, finalizing and submitting FACTS FORMs and Rock Source inspection Form.
  - Rock Source Inspection mapping.
  - Assisted with end of season reporting.

<b>2019 Accomplishments</b>	
<b>Acres Treated</b>	<b>104</b>
<b>Acres Examined for Weeds</b>	<b>117</b>
<b>New sites (EDRR)</b>	<b>1</b>

County staff completed all treatments. Appendix B summarizes types of treatment and specific weed species treated.

Where infestation levels are large, a program of maintenance control or containment has replaced an eradication effort. With species such as herb Robert or Scotch broom, this approach is the only practical way to limit ecological or economic damage where eradication is highly unlikely.

2019 accomplishments included:

- Low water levels at Lake Cushman allowed for treatment of the spotted knapweed along the shoreline. In past years, high water levels have prevented access and control.
- Completed treatment of Ref# 348, a 9.5-mile long segment on FS Rd. 2300-000. Survey and treatment had not been completed on this entire Ref # since 2014.
- Completed treatment of Ref # 399, a 3.8-mile segment along FS Rd. 2340-000. This segment is the primary haul route for the Oh No KV timber sale. Since priority 1 and 2 species were found in trace amounts, treatment was initiated for tolerate species. This entire Ref # had not been completed since 2015.
- The Mason County Noxious Weed Control Board has held a “LAND USE LICENSE” with the Washington State Department of Natural Resources since August 01, 2019 for the purpose of “Survey for, treat, and remove knotweed and other noxious weeds”. This license provides an opportunity to control noxious weeds on DNR lands anywhere in Mason County and, for the purposes of this agreement, on those lands, adjacent to, or within the Olympic National Forest. This agreement is helpful in facilitating EDRR on DNR land.

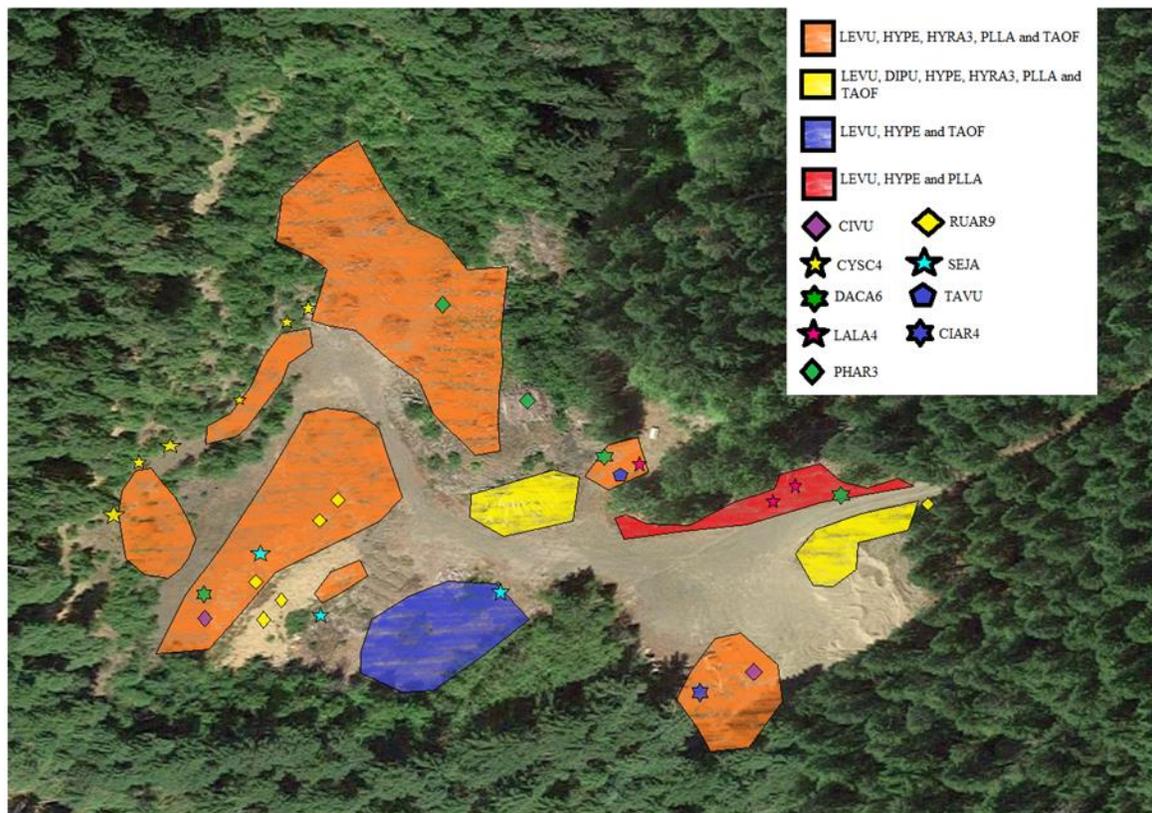


Treatment of spotted knapweed at Lake Cushman (Ref #361)



Posting for Oh No KV timber sale on F.S. Rd. 2340-000

- Assisted with invasive species treatment at Hamma Hamma rock pit. The pit was utilized as a staging area for the 2019 goat capture and translocation project. Treatments were completed on June 19 and July 1, 2019.
- Initiated treatment of herb Robert on Upper Big Creek Loop Trail #827.1. EDRR site was reported by a hiker early summer of 2019. MCNWCB located and treated the infestation on August 29, 2019. Follow-up manual removal was completed on November 20, 2019.
- Reseeded areas of Brown Creek campground where treatment of herb Robert had taken place with blue wildrye (*Elymus glaucus*).
- Further developed rock source mapping protocols to show more detail in species distribution.



Mapping of Big Creek pit, 2019.

- MCNCB staff provided reports and maps with control recommendations for all pits and quarries inspected.

2019 Forest Service Rock Pits Inspected/Treated						
Rock Source	Ref.#	Option A Rock Source Exceeds Requirements	Option B Rock Source Meets Requirements	Option C Rock Source Meets Minimum Requirement	Treatment (Manual)	Treatment (Herbicide)
Cushman Pit	327		XX		N/A	05/13/2019
Hamma Hamma Pit	355	Treatment complete, not inspected			06/19/2019	06/19/2019 07/01/2019
Lake Cushman Quarry	364		XX		N/A	06/12/2019
Brown Creek Quarry	369			XX	N/A	07/31/2019
V1043 Quarry	394		XX		N/A	07/30/2019
2300 road deep patch borrow	610		XX		N/A	05/02/2019



Clean gravel stockpiles downwind of flowering noxious weeds at Brown Creek quarry. All blooming plants were deadheaded and treated.

2019 Private Rock Pits Inspected/Treated					
Rock Source	Option A Rock Source Exceeds Requirements	Option B Rock Source Meets Requirements	Option C Rock Source Meets Minimum Requirement	Treatment (Manual)	Treatment (Herbicide)
Sheldon Pit			XX	N/A	N/A
Miles Sand and Gravel Company		XX		N/A	N/A
Kennedy Creek Quarry		XX		N/A	N/A
NW Rock – Taylor Towne		XX		N/A	N/A



NW Rock-Taylor Town, June 2019.

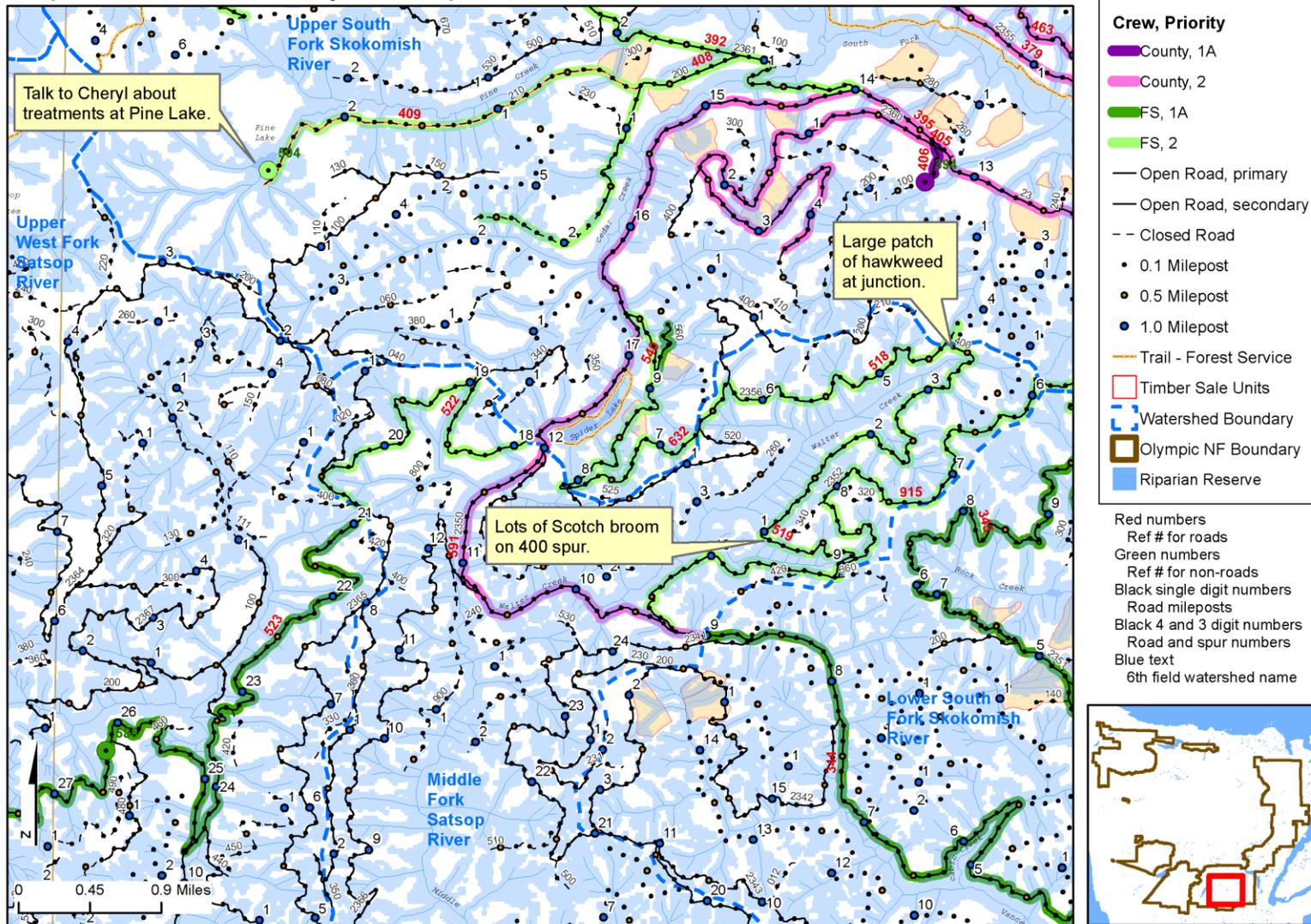
## WORK PLAN MAPS

The following eight maps were created by Forest Service personnel and depict the various areas of National Forest land within Mason County where noxious weed control activities were prescribed in 2019. Callout boxes provide valuable information pertaining to species, degree of infestation, road closures, etc.



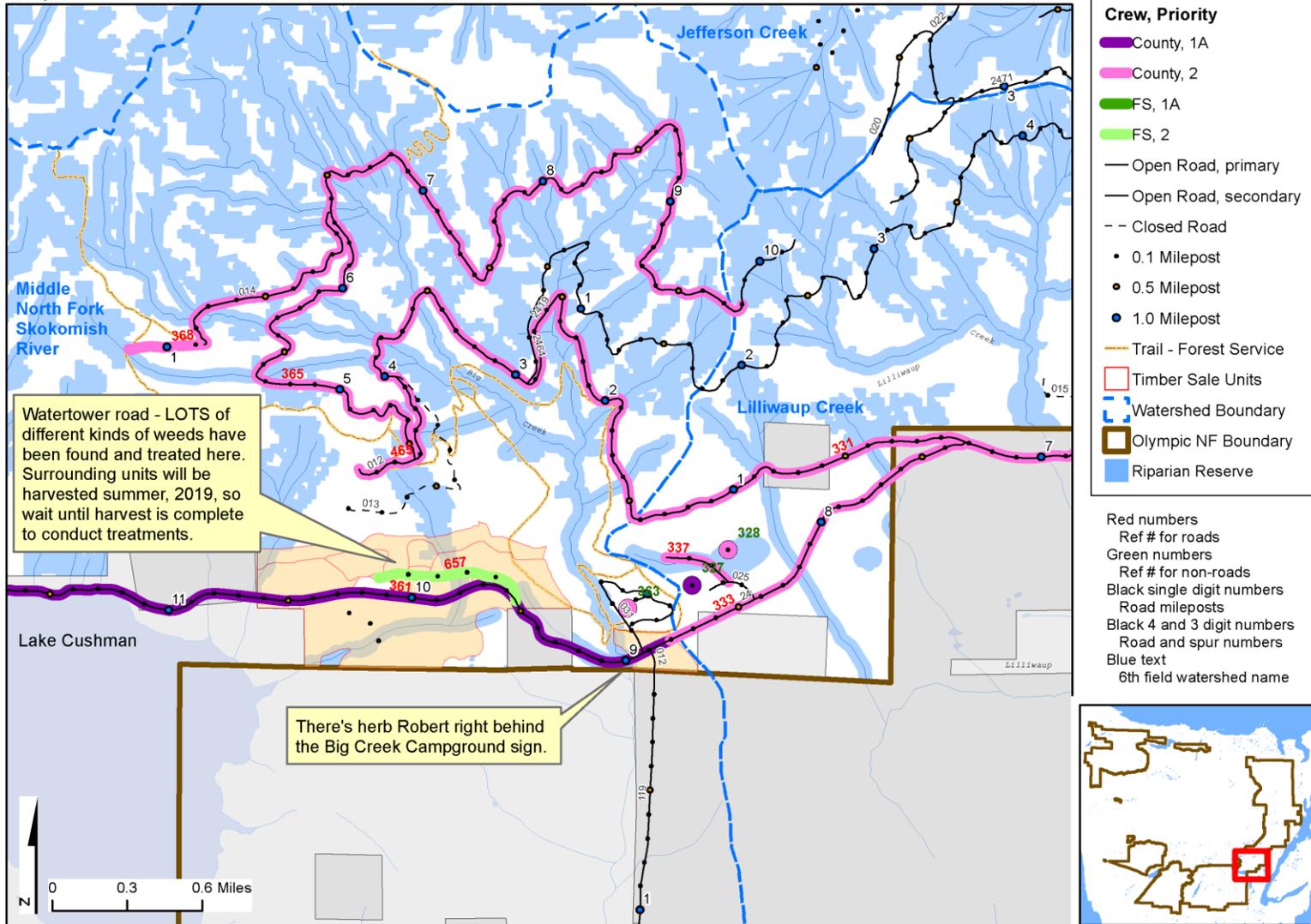
# Olympic National Forest FY 2019 Invasive Plant Program

## Map 31. Mason County: Satsop and South Fork Skokomish River



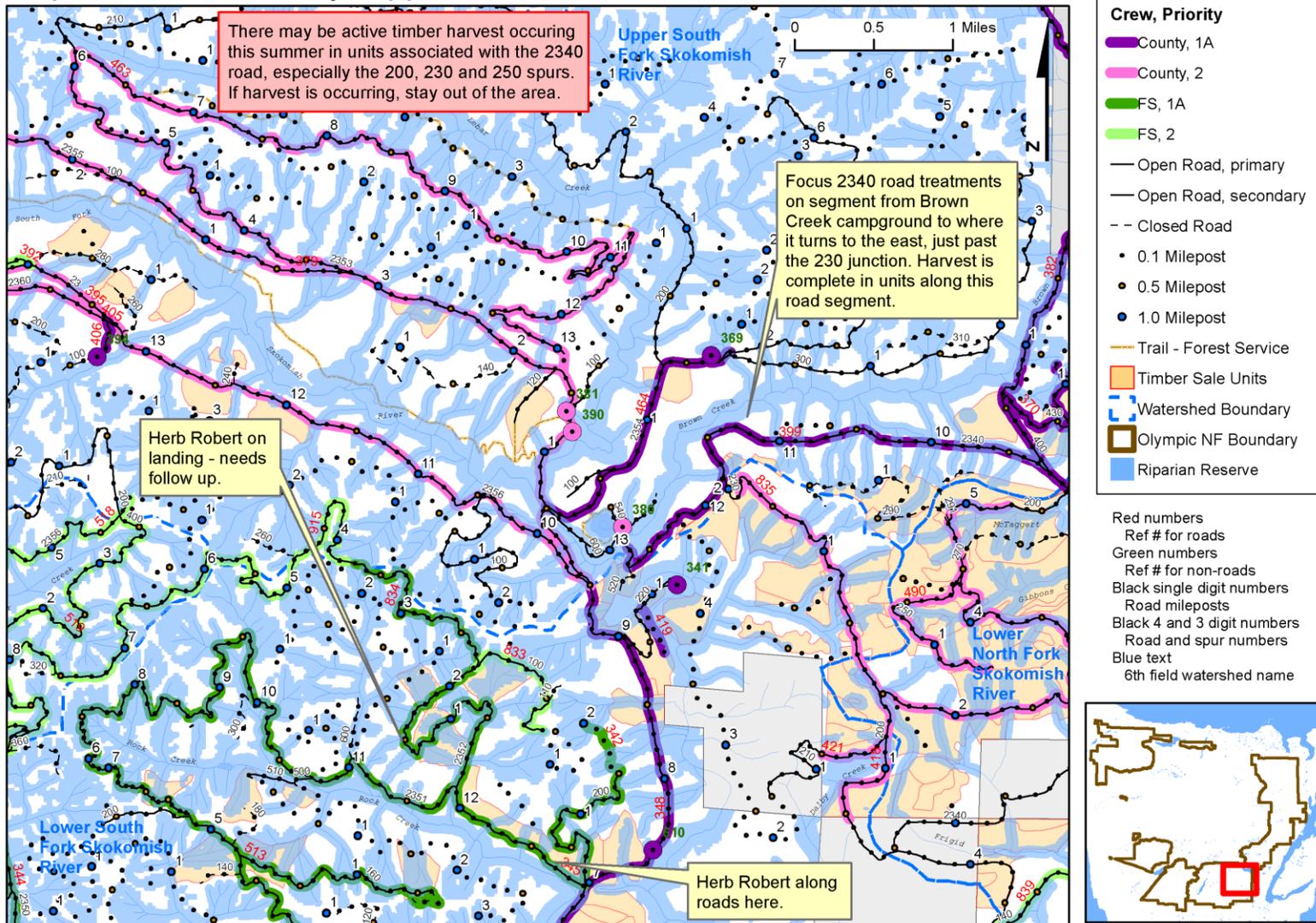
# Olympic National Forest FY 2019 Invasive Plant Program

## Map 32: 2419 road



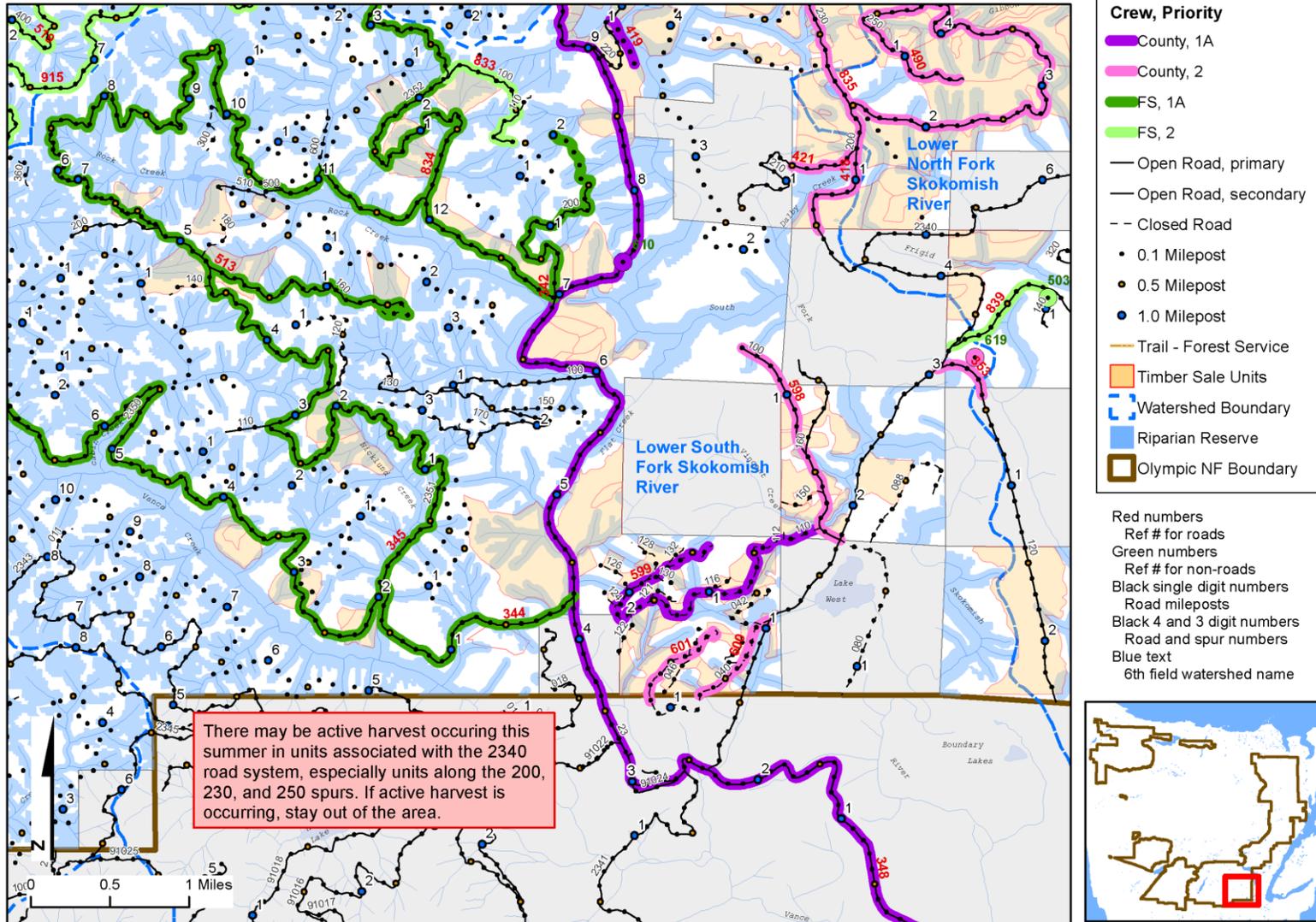
# Olympic National Forest FY 2019 Invasive Plant Program

## Map 33. Mason County: Upper South Fork Skokomish River East



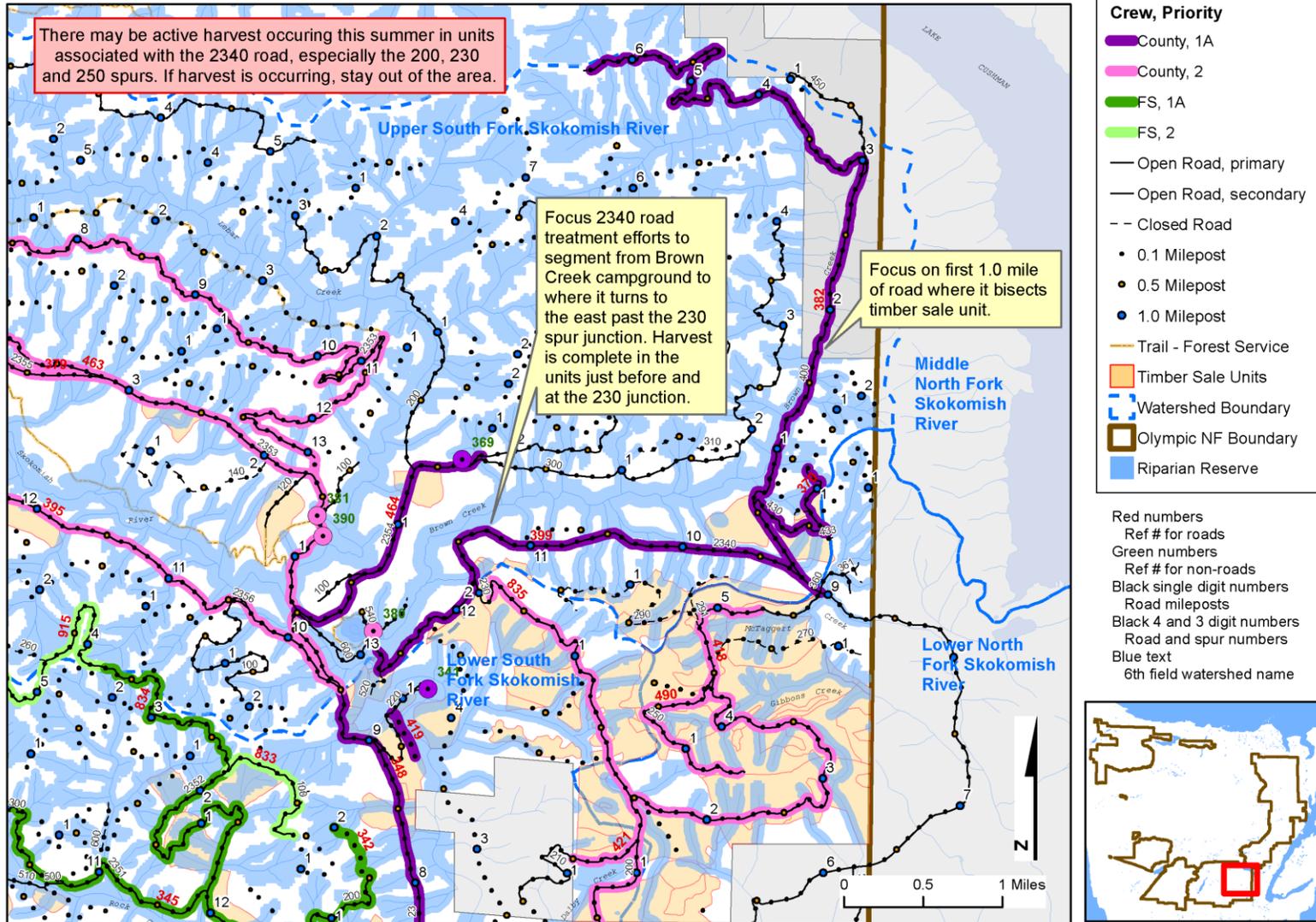
# Olympic National Forest FY 2019 Invasive Plant Program

## Map 34. Mason County: Lower South Fork Skokomish River



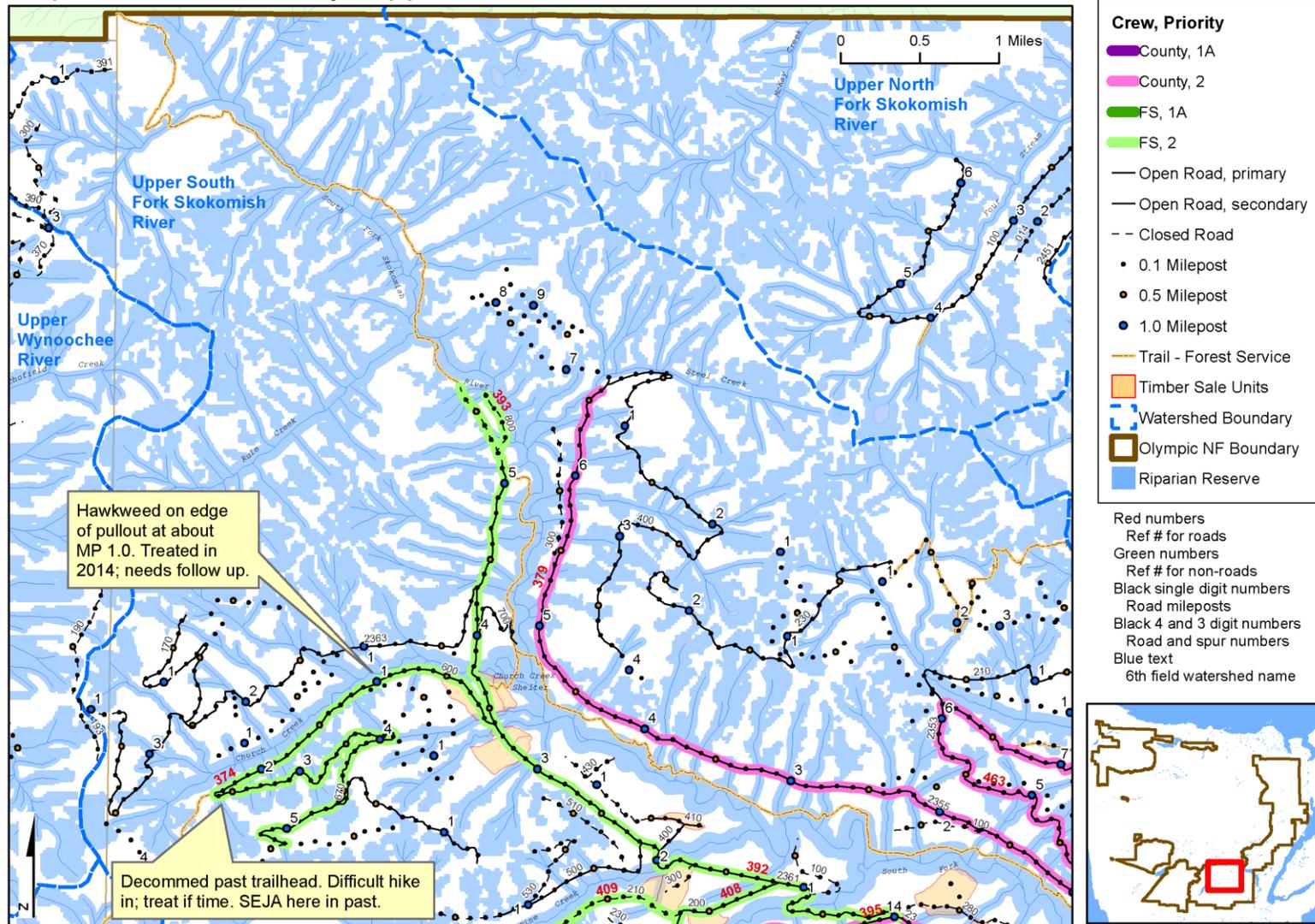
# Olympic National Forest FY 2019 Invasive Plant Program

## Map 35. Mason County: North and South Fork Skokomish River



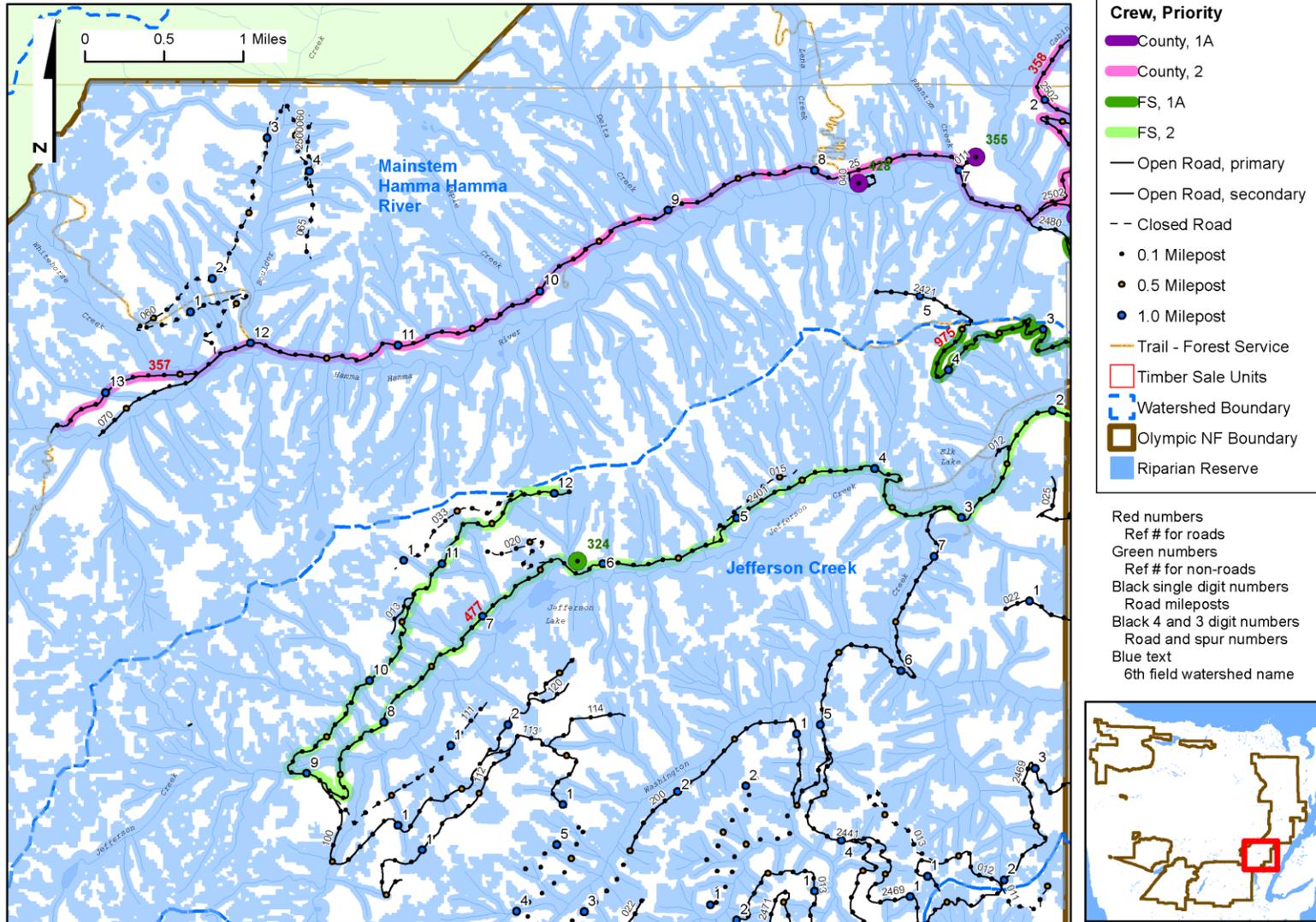
# Olympic National Forest FY 2019 Invasive Plant Program

## Map 36. Mason County: Upper South Fork Skokomish River



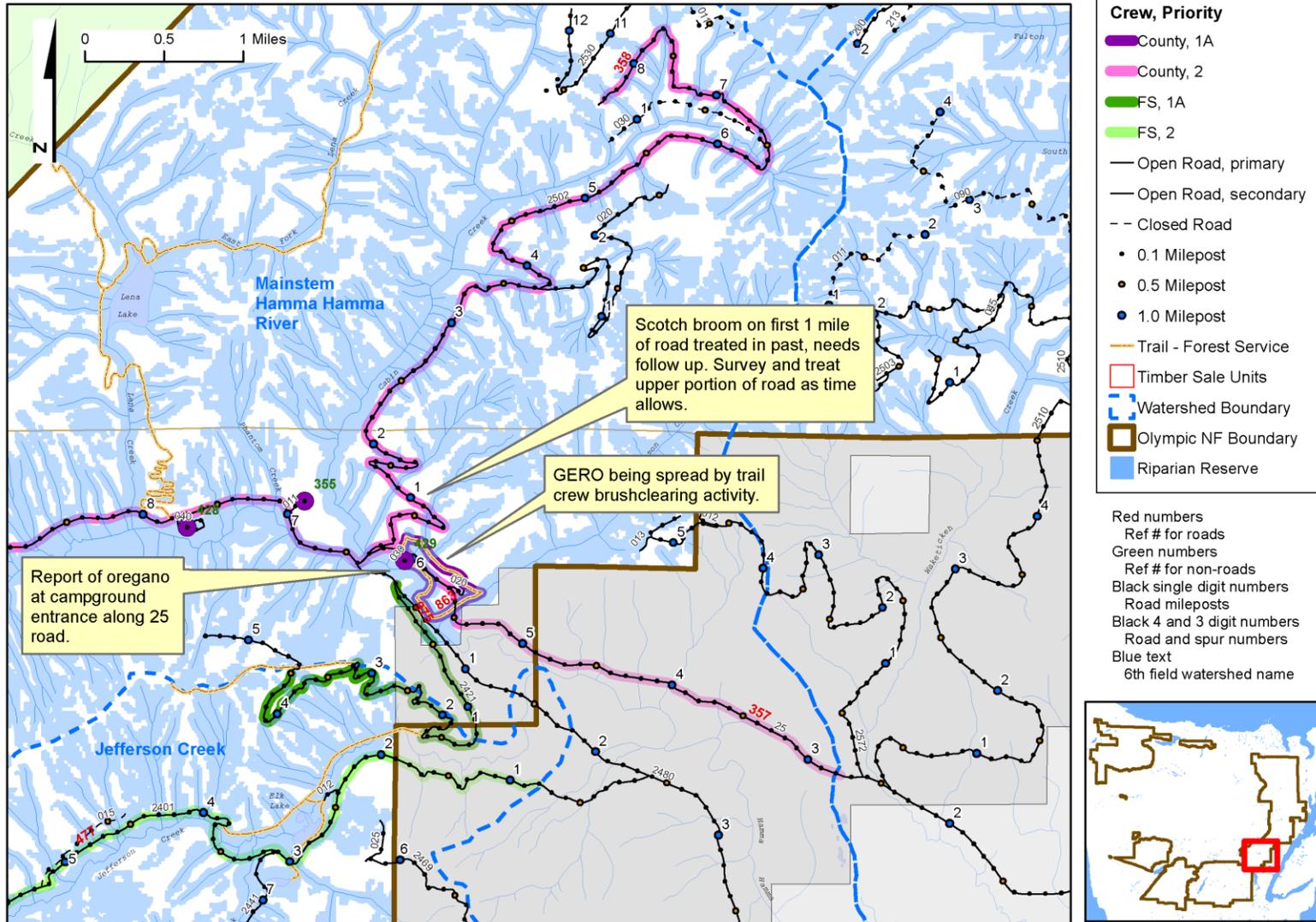
# Olympic National Forest FY 2019 Invasive Plant Program

## Map 38. Mason County: Hamma Hamma West



# Olympic National Forest FY 2019 Invasive Plant Program

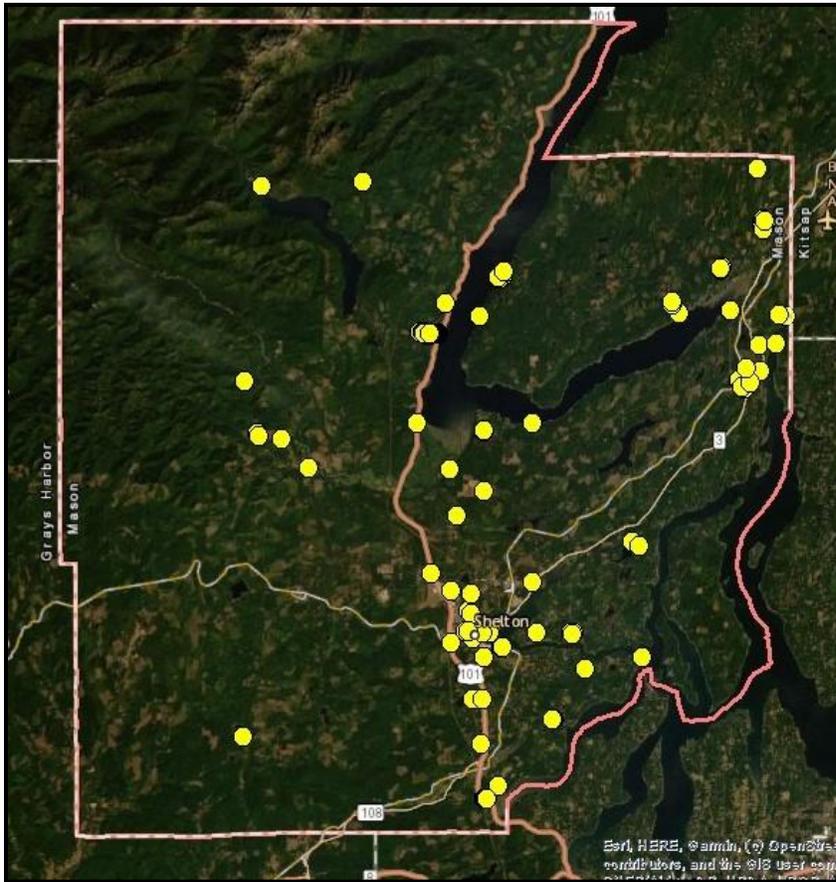
## Map 39. Mason County: Hamma Hamma East



## POST-SEASON OBSERVATIONS

### Nature of the Problem

Invasive species occurrence, distribution and abundance were well documented on USDA Olympic National Forest (ONF) lands in the mid 1990's. This documentation is the basis for the *Olympic National Forest Final Environmental Impact Statement and Record of Decision Beyond Prevention: Site Specific Invasive Plant Treatment Project* (March 17, 2008).

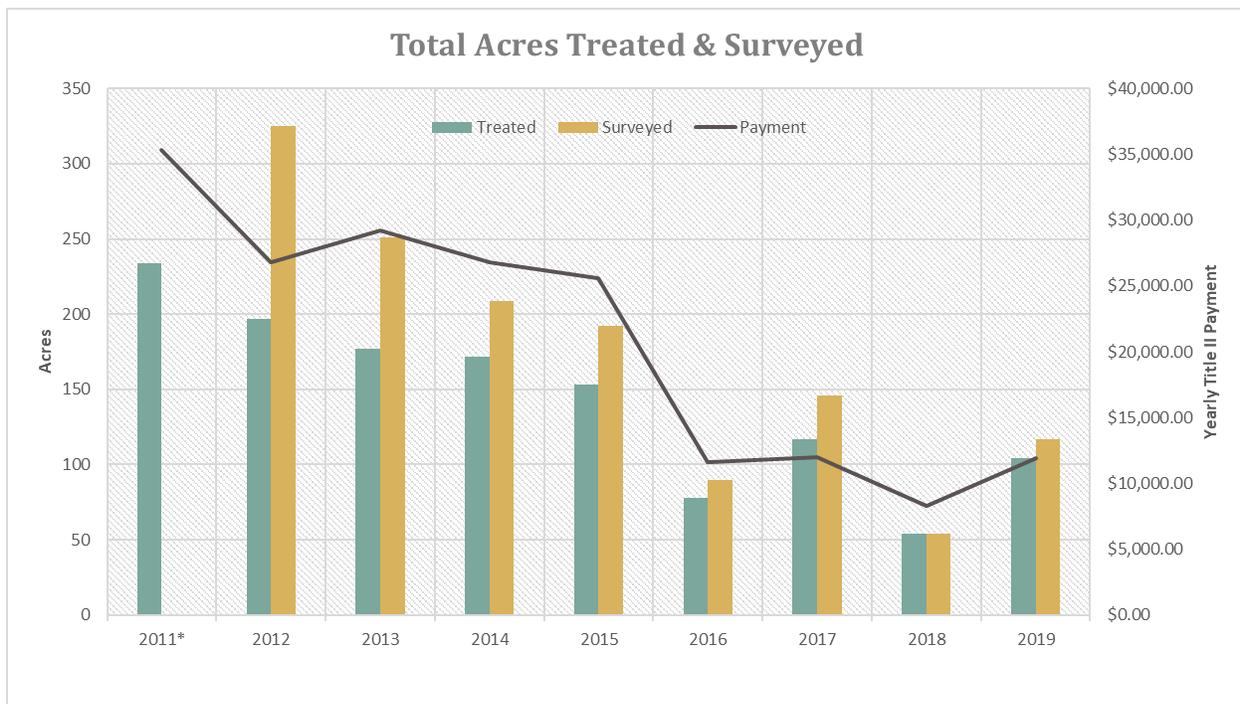


2019 Mason County iForm detections.

*Prevention: Site Specific Invasive Plant Treatment Project* (March 17, 2008). Today, this documentation is captured in other databases, including the Washington State Department of Agriculture, iForm database. Size and extent of invasive species populations have changed since the initial documentation, 20 years ago. We continue to utilize iPhones and Collector for ArcGIS and iForm to build our ability to survey for, and document, noxious weed infestations. This year Mason County staff added 127 points to the iForm database, representing

giant hogweed, tansy ragwort, butterfly bush, poison hemlock, knotweed, spotted knapweed and other noxious weed infestations throughout Mason county. Knotweed infestations were thoroughly mapped along Coulter Creek, Sherwood-Anderson Creek, Finch Creek, Mission Creek, Stimson creek and along North Bay, near the town of Allyn, Washington.

The Forest Service species list is updated each year, as presence and potential impacts of non-native species are recognized. Species such as St. Johnswort, yellow archangel and common mullein were not on the Forest Service invasive species list during early surveys, therefore, were not documented. In 2019, there were 50 **Treatment Priority 1 or 2** species on the Olympic National Forest Invasive Species List compared to 47 in 2018. (Appendix F).

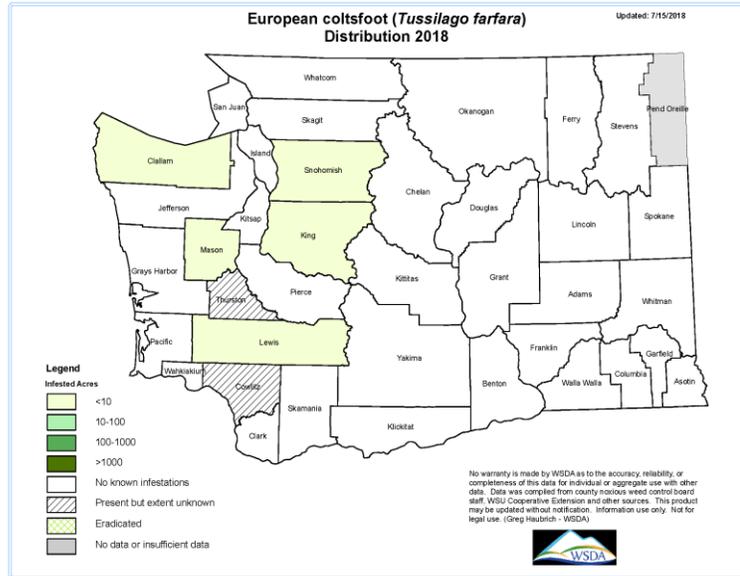


Since 2009, Mason County personnel, Forest Service employees, WCC crews and contract weed control personnel have treated noxious weeds on sites identified in the ONF’s Integrated Weed Management Program as adopted in the 2008 Final Environmental Impact Statement (EIS). Survey efforts and the number of acres treated by MCNWCB staff have been closely tied to available funding through Title II. Although funding is the most significant factor which can affect the “total acres treated”, size and density of the infestation also play a role. Small plants, such as herb Robert, demand greater time and attention to detail to excise individuals from the margins of the population. Effective long-term control, and eventual eradication, can only be accomplished with yearly revisits to the sites and a long term commitment to control.

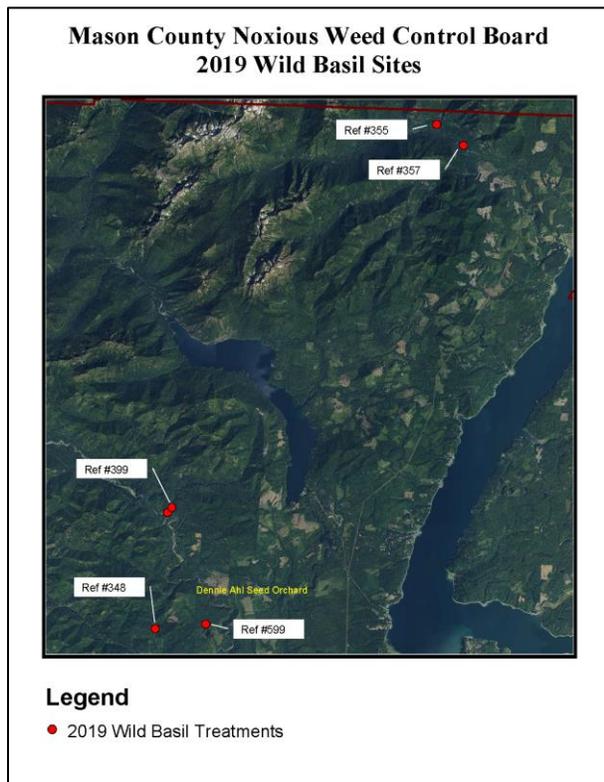
#### Invasive Weed Populations

- Multiple years of treatment have reduced distribution and population densities of targeted weed species at most sites.
- The most commonly recorded invasive species on ONF lands within Mason County are, tansy ragwort, herb Robert, Scotch broom, Canada thistle, bull thistle, purple foxglove, common St. Johnswort or Himalayan blackberry.
- Lemon balm, *Melissa officinalis*, a culinary herb was found at the Hamma Hamma campground (Ref #429) by MCNWCB personnel this season. Plants were manually removed on September 17, 2019 and herbicide treatment completed October 11, 2019.
- A small patch of oregano, *Oregano vulgare*, was located and treated by MCNWCB personnel on FS Rd.2300-00 on October 14, 2019.

- European coltsfoot, *Tussilago farfara*, was listed as a Class B Washington State Noxious Weed in 2018 and added to the 2019 Olympic National Forest Invasive Species list as a priority 1 species. This species has been located at two private quarries in Mason County. As of 2018, it was estimated that < 10 acres are infested with European coltsfoot in Mason County. To date, European coltsfoot has not been found within the ONF.



European coltsfoot distribution 2018



New wild basil sites found by MCNWCB during 2019.

- Clinopodium vulgare*, wild basil, was added to the Olympic National Forest Invasive Species List in 2018. Last year’s survey showed it to be present in the Hamma Hamma area and within ref #599. This year it was located and treated in five reference numbers, ref #348, ref #355, ref #357, ref #399 and ref #598. Survey and treatment records indicate infestations are spreading within ONF. Ideal timing of treatment and efficacy of products used is still being determined.
- St. Johnswort, *Hypericum perforatum*, is increasing in abundance and distribution. It is a Washington State Class C Noxious Weed and is listed as a Treatment Priority 2 species. MCNWCB staff treat this species in rock sources and in high priority areas, such as trailheads, campgrounds, and ecologically sensitive areas. Populations along roadsides, in rock sources, and in campgrounds are partially treated when time and resources are available.

- Tolerate species often receive only partial treatment when priority 1 and 2 species are present. Partial treatments reduce infestation levels; however, these species are continuing to spread.
- To prepare the Hamma Hamma rock pit for staging during the Olympic Mountain Goat Capture and Translocation project, MCNWCB requested an invasive species list from the Olympic National Park (Appendix G) to learn if additional species were of concern to the Park. Treatments targeted species found on both lists.



Posting at entrance to Hamma Hamma rock pit. July 01, 2019.

- Milestone, with aminopyralid as the active ingredient, was utilized on a majority of herb Robert sites.
- Several of the treated areas were re-vegetated with blue wildrye (*Elymus glaucus*) in October and November. Early next spring, MCNWCB personnel will reseed select sites with piggyback plant (*Tolmiea menziesii*) and yarrow (*Achillea millefolium*).
- Herb Robert infestations at the Olympic National Park (ONP) boundary and along State Route 119 continue to re-infest ONF land in the Lake Cushman area. Herb Robert was the primary target for noxious weed treatments in the vicinity of the Olympic National Forest's Collaborative Big Creek Skokomish timber sale.

## Survey and Treatment

- The required legal notice appeared in the April 25, 2019 edition of the Mason County Journal (Appendix I).
- In 2016, the Olympic National Forest approved the active ingredient aminopyralid for use on Forest Service lands. This year, utilizing a typical mixing rate of 0.13%, Mason County Noxious Weed Control personnel continued to utilize Milestone on a majority of treatment sites. Since Milestone can provide extended control, this characteristic has proven to be an effective tool for managing herb Robert infestations on the Forest.
- Reed canarygrass infestations were treated using a 1.5% Polaris mix.
- This year, there were 20 priority 1A projects, with work accomplished on 19. There were 27 priority 2 projects, with work accomplished on six. One EDRR treatment was completed this season at Upper Big Creek Loop Trail #827.1.
- Herbicide treatments were performed from May 2, 2019 to October 30, 2019.
- Travel to assigned treatment project areas provided an opportunity for informal surveys. No new Class A, or Class B “designate” species were located during the 2019 season on the ONF.
- The MCNWCB continues to utilize Integrated Vegetation Management (IVM) to develop site specific treatments.
- MCNWCB personnel utilized glyphosate, aminopyralid, imazapyr, clopyralid and triclopyr for field treatments during the 2019 season. Considering volumes of herbicide utilized, triclopyr was the active ingredient most widely utilized at 39.18%, imazapyr at 22.09%, aminopyralid at 20.75%, glyphosate at 16.58%, and clopyralid at 1.4%. Primary use of glyphosate was for a cut stump application to control Scotch broom. Milestone, active ingredient aminopyralid, was utilized for the greatest number of acres treated, typically at 0.5 ounce per 3 gallon backpack sprayer or 0.17 ounce/gallon.
- Rock sources continue to be a high priority for inspection and treatment. Six pits or quarries were identified as priority 1A sites on the 2019 project list. MCNWCB completed treatment on all of these pits or quarries.

- This year, the work plan identified 6 campgrounds for treatment. Three were listed as priority 1A, and three as priority 2 treatment sites. Manual and herbicide treatments were completed at the Old Oxbow (1A), Hamma Hamma (1A), Lena Creek (1A) and Brown Creek (2) campgrounds. We did not complete treatment at Big Creek (2) or Lebar Horse (2) campground.
- Completing treatment in campgrounds was difficult this year due to heavy usage throughout the summer. MCNWCB was asked to delay treatment at Big creek campground (priority 2) until after an herbicide sensitive camper visited the area. MCNWCB works to accommodate such requests to ensure Forest users have an enjoyable experience. However, these requests impact planning and, in some cases, delay treatment to sites.
- Repeated attempts were made to treat the herb Robert infestation throughout Brown Creek campground and along the 2340-000 road edge east of the bridge. MCNWCB visited these sites several times to find they were occupied by vehicles or campers.
- One priority 1A (Ref # 399) and three priority 2 (Ref # 418, 490 and 835) treatment areas were within the Oh No KV timber sale area. Updates by John Busscher, ONF Timber Sale Administrator, were useful in tracking logging activity in the area. Due to this activity, some treatments were delayed or not completed.
- With information from Forest Service personnel, planned temporary roads within the Big Stewardship timber sale along FS Rd 2400-000, Ref #361, were prioritized for treatment. At many of these locations, herb Robert infestations extended 50-100'+ from the road.

#### **Data Collection/Mapping**

- Full Color 8 ½ by 11 inch maps were provided by Forest Service personnel with site reference numbers and call-out comments marked on them to identify issues of concern for a particular area. These were very useful and are found on pages 18-25 of this report.
- The field going materials consist of a notebook which contains the work plan, maps, forms and a field safety notebook which contains emergency contacts, spill plan and copies of herbicide labels and Material Safety Data Sheets (MSDS).
- FACTS forms were reviewed, scanned, and entered into an excel spreadsheet. Scanned copies were submitted to the Forest Service on a regular basis.

## Education

- MCNWCB personnel set up and staffed educational booths at Matlock Old Timer's Fair, Washington State University (WSU) Mason County Master Gardener's Plant Sale, Allyn Days, Shelton Rock and Mineral show and Oyster Fest (Appendix E). MCNWCB personnel gave noxious weed presentations for the WSU Master Gardener training and at Phillips lake community event. In 2019 MCNWCB made contacts with over 1,500 community members at public events.



The danger of giant hogweed was the theme for the noxious weed display at the 2019 Matlock Old Timers' Fair.

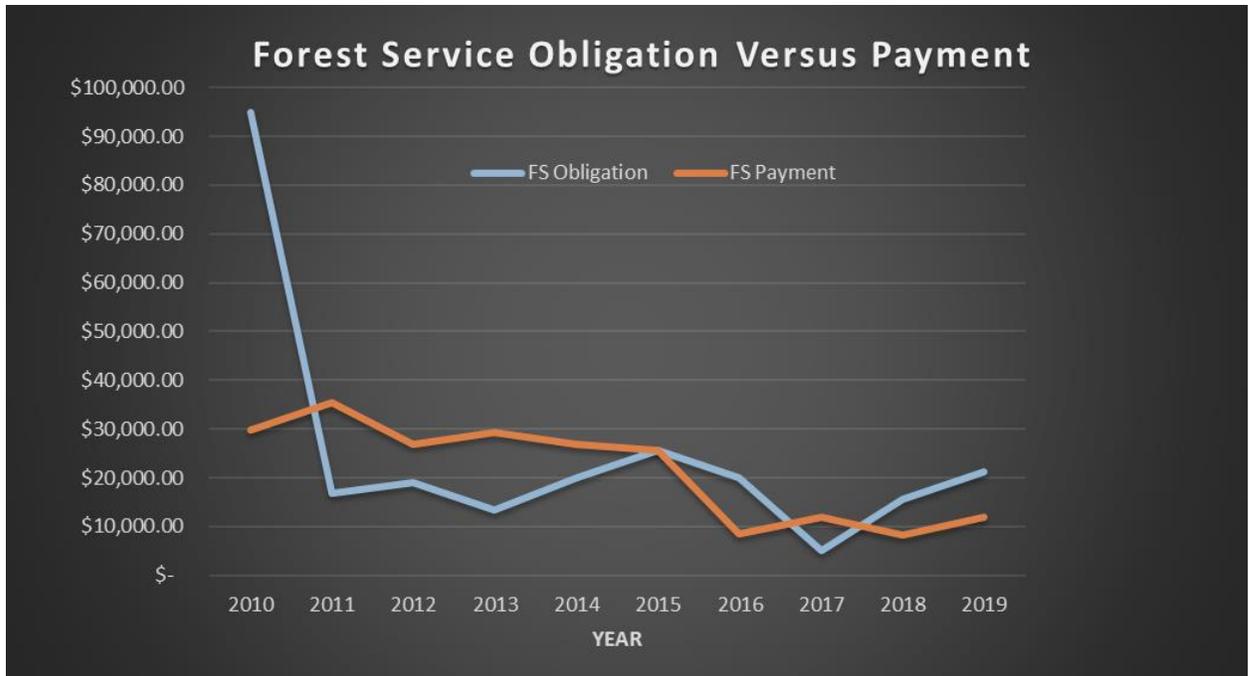


Noxious weed bouquet at Allyn Days 2019.

## RECOMMENDATIONS

### Future Direction of the Project

After the 2019 billing, the balance in the Participating Agreement between the USDA Forest Service, Olympic National Forest and the Mason County Noxious Weed Control Board is \$18,034.00



In Mason County, and other Olympic Peninsula counties, significant progress has been made during the past nine years in the reduction of noxious weeds on ONF lands. It will be imperative for the National Forest to secure future funding to sustain the progress this cooperative project has achieved.

The successful adoption of the 2008 EIS, which authorized herbicide use throughout the ONF, allows efficient and more effective treatment of larger infestations. We will continue to consider all control methods, but the most effective treatments for a small MCNWCB crew will likely utilize herbicides on a regular basis.

The MCNWCB coordinator has extensive knowledge of the project area, infestation locations, plant identification and continues to gain expertise in best treatment methods. The expertise of the Weed Board staff is most efficiently utilized to respond to, and treat new infestations, follow up application to contractor applications during the same treatment year and treat those moderately sized projects which can be efficiently accomplished with backpack spray methods. The MCNWCB program is not equipped to carry out large-scale treatment operations over a large area or many miles of extensively infested roadsides or those requiring specialized all terrain application devices. As the “closest forces” entity, staff can respond quickly to high priority projects, treat new infestations and can work within the constraints of other activities taking place on National Forest lands.

In 2019, MCNWCB staff continued their efforts to revegetate herb Robert treatment sites. Blue wildrye (*Elymus glaucus*) seed, an ONF native grass, was supplied by the Forest Service and utilized as part of an Integrated Vegetation Plan. Select sites will be reseeded with piggyback plant (*Tolmiea menziesii*) and western yarrow (*Achillea millefolium*), provided by the Forest Service. This seeding provides competition for germinants of herb Robert, a prolific winter annual and other invasives. Observations suggest that herb Robert expends additional energy growing taller to produce flowers above the competing vegetation. The sites seeded this year will continue to be monitored in the 2020 field season and treated as necessary.

Tolerate species, such as oxeye daisy and purple foxglove, typically receive only partial treatment unless very few priority 1 or 2 species are present. Dealing with tolerate species in this way leads to increased infested area and higher percent cover in treatment sites. When Mason County personnel arrived on site at the Hamma Hamma rock pit a large portion of treatment time was spent on tolerate species that have historically been receiving only partial treatment. In high priority areas, such as rock pits and areas used to stage equipment, tolerate species should receive full treatment to avoid challenges faced during Hamma Hamma rock pit 2019 treatment.

During site preparation for the Mountain Goat Capture and Translocation MCNWCB had to utilize both the ONF and the ONP invasive species list, to ensure site was prepared to both agencies standards. It would be beneficial if collaborating agencies had greater standardization of invasive plant species lists. Consensus between interest groups would be beneficial for projects such as the Olympic Mountain Goat Capture and Translocation.

Since lemon balm was documented for the first time this year at the Hamma Hamma campground, it is recommended that lemon balm be added to the Forest Service invasive species list for 2020. Wild savory basil was on the Forest Service invasive list in 2018, but was not listed on the 2019 invasive species list. It was documented and treated at several site within the ONF this year and it is recommended that it is included in the 2020 Forest Service invasive species list.

Several sites listed on the Mason County 2019 work plan were located within timber sale areas. Mason County personnel were asked to stay out of these areas until harvest was completed. Conflicting information regarding harvest dates made planning of survey and treatment difficult. With clear communication treatment of these sites could have been completed.

Efficient treatments and long term control of herb Robert in the Lake Cushman area, and perhaps elsewhere, could benefit from an agreement between the ONF and the Olympic National Park for the control of invasive species.



MCNWCB returned to treat everlasting peavine growing at Brown Creek Rock Pit to find rock being moved from pile that had everlasting peavine.

While inspecting and treating the Brown Creek pit, Mason County staff found large debris piles on the south side of the site. During our visit we observed clean crushed rock being piled downwind of debris piles that contained blooming herb Robert, bull thistle, ox eye daisy, reed canary grass and several other invasives. It is recommended that clean rock is not stored near contaminated material. It was also noted that these debris piles were located at the perimeter of the site near old growth forest. This creates an opportunity for these species to spread to areas where they are currently undocumented. When new material, which potentially

contains noxious and invasive weeds, is moved into a pit or quarry it recommended that this is documented and monitored regularly to determine what invasive species are present, and treated when found.

Early detection is the key to preventing large and costly noxious weed infestations from developing on the forest. All Forest Service staff, including natural resource specialists and timber, recreation, and engineering staff will continue to be instrumental in recognizing and reporting early invaders. Concise location information can often result in same year treatments.

Upper Big Creek Loop Trail was reported as an EDRR site by a hiker during the summer of 2019. Mason County personnel started herbicide treatment at this site on August 29, 2019 and manual treatment November 20, 2019. During the 2020 season, MCNWCB staff would like to plan and organize a volunteer opportunity to manually control herb Robert in this area. This event would be a great way to educate park users about noxious weeds while enhancing the beauty of this frequently visited trail.

This year, all monitoring was accomplished by USDA ONF personnel. Monitoring functions to provide feedback to facilitate and prioritize re-treatments and locate new sites since visitation is often during a different time of the growing season. Recommendations for prioritizing areas for retreatment the following year are always noted on each FACTS form.

Stable funding provides improved year-to-year weed control continuity within the ONF and an improved weed control program on other Mason County lands that are adjacent to, or indirectly connected to, the Forest.

Active participation and collaboration of landowners and citizens is essential to achieving long term control of noxious weeds across multiple jurisdictions. In 2020, the MCNWCB plans to continue its efforts to unify Mason County, the Olympic National Forest and others for the mutual goal of stopping the spread of invasive plants in Mason County.



In 2019 MCNWCB collaborated with the Hood Canal Salmon Enhancement Group to survey and treat giant hogweed at several new sites in Mason County.

## Survey and Treatment

As prioritized by the Forest Service, our focus will continue to be treating known sites. However, many areas of the Olympic National Forest within Mason County have not been surveyed or treated within the past 3-5 years. If programmed for survey, historic survey data could be updated and potential EDRR identified. Walking roads and corridors provides a more comprehensive survey and allows surveyors to see small plants, such as herb Robert, which would be missed while driving.

Treatment of an increasing number of herb Robert sites will require multiple treatments per season for long term control. Treatments in campgrounds and at trailheads should remain a priority. A decline in “acres treated” will be noted as a result of this preferred treatment methodology.

We continue to expect the unexpected when travelling to the Olympic National Forest for planned treatments.



Yellow hawkweed treated on May 29, 2019 adjacent to ref # 348 on Green Diamond Resource land.



Assistant Heidi Steinbach treating St. Johnswort at the Mint Meadow, October 28, 2019.

## Documentation

A small change was made to the 2019 FACTS form (Appendix J), adding an area to document reseeding recommendation. Mason County chose to edit the form to list more species treated. No changes were made to pit inspection forms and monitoring forms in 2019.

Yearly visits will provide “Early Detection, Rapid Response (EDRR), especially to high priority sites such as campgrounds. Visitor use areas which have undergone extensive renovation or construction are of greater risk for introduction of new species. These areas should continue to receive high priority for survey and treatment.

## Ongoing Partnerships

In 2019, the Mason County Noxious Weed Control program continued partnerships with Green Diamond Timber Company, City of Tacoma Public Utilities and the Washington State Department of Natural Resources which facilitated control within, and adjacent, to the Olympic National Forest.

## Together WE can prevent the spread of noxious weeds!



We found oxeye daisy to be occupying much of the Hamma Hamma rock pit. MCNWCB completed two thorough treatments of the area to prepare site for goat project.



Reed canarygrass growing out of debris left at Hamma Hamma rock pit.



Mason County Coordinator braves steep hillside to treat spotted knapweed infestation at Lake Cushman.

## **2019 PROTOCOLS**

### **Team and Project Dates**

Treatment continues to be the focus of the project on ONF lands. Patricia Grover, MCNWCB coordinator, and field assistants Heidi Steinbach and Caleb Cowles performed and documented treatments. Fieldwork began in May 2019 and continued through October 2019.

### **Invasive Species Recorded**

Treatment and surveys focused on Class A and B-designate weeds on the Washington State Noxious Weed List (Appendix H), and additional species that are of concern to the Forest Service (Appendix F). In the Hamma Hamma pit (Ref # 355) treatment and survey focused on Class A and B-designate weeds on the Washington State (Appendix H), species of concern to the Forest Service (Appendix F) as well as the Olympic National Park (Appendix G). In most cases Class B non-designate, Class C, and unlisted non-native weeds were only documented when an infestation was in a site of particular concern (e.g. a botanical area), when the infestation was of notable size, or when a new species was found. Exceptions were made for especially invasive species, such as herb Robert, which can threaten undisturbed areas. Treatments were not intended to target all non-native species.

## **Road Survey and Treatment (see Appendix B for summary)**

The project focus was on treatment of known infestations in specific project areas identified by the Forest Service, often including sites that had received treatment in the past. Detection and treatment of new infestations was also a priority, especially if new sites were found enroute to known sites.

- a. Most known sites are roadside. Typically, at least 10 feet on both sides of the road was treated or surveyed. The distance treated/surveyed was recorded in the field and the area treated/surveyed was calculated using the following formula:

$$\frac{\text{miles surveyed} \times 5280 \text{ ft/mi} \times 10 \text{ ft/roadside} \times 2 \text{ roadsides/survey}}{43560 \text{ ft}^2/\text{acre}} = \text{acres surveyed/treated}$$

- b. Trailheads, campgrounds, parking areas and gravel pits were surveyed on foot and area surveyed or treated was estimated.
- c. Herbicide treatments were applied based on guidelines established in the 2008 EIS.
  - i. Foliar herbicide applications were generally made using 0.13% Milestone (aminopyralid) and 0.5% Competitor (surfactant). Milestone was also used in those areas adjacent to water which required a 5' buffer when utilizing triclopyr.
  - ii. A legal notice listing all sites under consideration for herbicide treatment by MCNWCB staff or ONF personnel was published in the Shelton-Mason County Journal on April 25, 2019 (Appendix I). Herbicide applications were carried out between May 2, 2019 and October 29, 2019.
  - iii. On-site notices (Appendix I) were posted prior to treatments and left in place for at least 24 hours after treatment. Treatments in high-use areas such as campgrounds were avoided during busy times (near weekends or holidays).

This year, a request was forwarded to discontinue the use of human installed permanent structures such as campground signs and road signs for posting. It is acceptable to post on the legs of campground signs.

## **Equipment**

MCNWCB backpack sprayers were calibrated at the beginning of the field season. The protocol utilized and results are found in Appendix K.

## Data Collection

A unique “Reference Number” identifies each treatment area and the corresponding data.

### Forest Activity Tracking Sheet (FACTS)

FACT sheets are used to record treatments in each Reference Number. A completed form is in Appendix J.

### Invasive Plant Inventory for Rock Sources, Olympic National Forest

The Rock Source Survey is used to track the suitability of quarry materials from both public and private sources to meet the Forest Service “Weed Free” standard for construction materials.

### Olympic National Forest Invasive Plant Treatment Monitoring

Monitoring treatment forms were used to record the efficacy of a treatment on a site. Comment for future treatments were also written on the forms. Mason County Noxious Weed Control completed no Monitoring forms this year.

### NRIS

No data was collected for new sites for inclusion in the NRIS database. New sites that were found and treated were recorded on FACTS forms as EDRR (Early Detection Rapid Response) sites.



Herb Robert EDRR site at Upper Big Creek loop trail.

## Data Reporting

Office staff reviewed FACTS forms and Rock Source Survey forms and submitted copies to the Forest Service regularly during the field season. The originals are retained in the Mason County Noxious Weed Control Board office for seven years. More detailed data is included in the Appendices to this report, as described below.

- **Appendix A** is the Project Area list supplied by the Forest Service.
- **Appendix B** is a master list of reference numbers treated during the 2019 field season. It lists the area of treatment, by road, or other project area, method of treatment, weed species treated, acres treated, and quantity of herbicide used.
- **Appendix C** is a summary of rock source treatments.
- **Appendix D** GIS maps depicting 2019 Mason County treatment areas.
- **Appendix E** showcases the MCNWCB participation in various Mason County events.
- **Appendix F** contains the 2019 Forest Service Treatment Priority List.
- **Appendix G** contains the 2019 Olympic National Park Treatment Priority List.
- **Appendix H** contains the 2019 Washington State Noxious Weed List, which is updated annually according to WAC Chapter 16-750. Under RCW Chapter 17.10 all non-federal landowners in the state are responsible for controlling or eradicating any listed noxious weeds on their property. This same law provides for the formation of the County Noxious Weed Control Boards, and thus the weed control program in Mason County that is supplemented under this project. Federal agencies are required to work with local agencies to meet or match local weed control standards under the Federal Noxious Weed Act amended in 1994.
- **Appendix I** contains the public notice published in the Shelton-Mason County Journal and an on-site posting notice.
- **Appendix J** contains an example of a completed FACTS form
- **Appendix K** contains the Backpack Sprayer Calibration protocols

**Appendix A**  
**Forest Service 2019**  
**Mason County Project List**  
(ordered by Ref #)

Ref #	2019 Job Code	2019 Work Crew	2019 Priority	6th Field Watershed Name	Watershed County	Site Name	Road #	BMP	EMP	Total Miles	Hawkweed	Knapweed - treat late summer	Knotweed	Big X: GERO >0.1 acres & CC>2. P = smaller amounts of GERO	Other weeds of concern	Comments
348	Title II	County	1A	Lower South Fork Skokomish River	Mason		2300000	0	9.5	9.5	x	x		p		Skok TS units adjacent to road. Yellow hawkweed at MP 3.0 - 3.5 (just before FS boundary), MP 6.8 - 7.2 (jxn w/ 200 spur), MP 8.8 - 9.0 (just before Oxbow CG entrance). GERO seen Feb 2011 on western rd shoulder just past 2350 jxn; approx MP 4.4. CEDES reported as being treated somewhere along this road in 2011. Many other weeds, including CIVU, HYPE, SEJA, DACA, PHAR, TAVU, CYSC, CIAR. Some parts of this road go through non-FS land - please notify landowners of weed treatments if you plan on treating non-FS segments.
610	Title II	County	1A	Lower South Fork Skokomish River	Mason	23 Road deep patch borrow site	2300000	7.5	7.5	0	x					2300000, MP 7.5. Very important to monitor and treat in 2012. Disposal site for Fir Creek AOP, which was a yellow archangel site. Unclear if contractors on that project followed mitigation measures to prevent spread LAGA. Also, yellow hawkweed reported as being treated here in 2012 - 2014.
341	Title II	County	1A	Lower South Fork Skokomish River	Mason	Old Oxbow CG	2300220	0	0	0		x			x	Decommissioned Oxbow CG. Skok TS units adjacent to road. This Ref# includes the entire footprint of the campground. Treated 2011, 2013 - 2015. SEJA, CYSC, CIAR4, GERO, CEJA also reported here in past, but hasn't been seen in several years.
419	Title II	County	1A	Lower South Fork Skokomish River	Mason		2300221	0	0.4	0.4						Skok TS units adjacent to road. Oxbow CG road. Decommed in 2010, runs along river. Was used for the Skok LWD project in 2010; monitor and treat as time allows. Treated in 2011, 2013, 2015.
399	Title II	County	1A	Upper South Fork Skokomish	Mason	Oh No KV Project	2340000	9.1	12.9	3.8					Burdock	SF Skok TS. Haul route. Road closest to Brown Creek CG is highest priority - burdock becoming a problem, as well as other weeds. Other parts of road segment lower priority, but treat as time allows.
599	Title II	County	1A	Lower South Fork Skokomish River	Mason		2340110	0	2.65	2.65				p		AH Over TS. This Ref# includes all associated spurs (112,116,121,122,124,126,128,130,132) and surrounding unit, so total miles/acres is higher than what is represented here. Herb Robert found at MP 0.5 of 110 spur and English holly found at various locations - treat other spurs as time allows.
382	Title II	County	1A	Upper South Fork Skokomish	Mason		2340400	0	6.3	6.3				x		Decomm completed in FY11. GERO at jxn with 450 needs monitoring, and treatment as necessary. The rest of this road is a lower priority - only treat if there is time. Some parts of this road go through non-FS land - please notify landowners of weed treatments if you plan on treating non-FS segments.
370	Title II	County	1A	Upper South Fork Skokomish	Mason		2340430	0	1.2	1.2						Treated in 2013, needs follow up. CYSC biggest problem; also CIAR, RUDI, CIVU, LALA, SEJA.
464	Title II	County	1A	Upper South Fork Skokomish	Mason		2354000	0	1.6	1.8				x		SF Skok TS. Haul route, and unit adjacent to road at ~MP 1.3. This segment of road is from the Skok bridge to the Brown Creek quarry (at 300 spur fork). Large infestation of herb Robert at MP 0 - 0.1; extends down slope towards road into Brown Creek CG, just past jxn. Other weeds as well, high priority for 2016 - If treated, GERO needs multiple treatments through the season.
369	Title II	County	1A	Upper South Fork Skokomish	Mason	Brown Creek Quarry	2354000			0	x			x		SF Skok TS. At junction of 2354 and 2354300 road. Treated 2011 - 2015: Hawkweed, LALA, CIVU, SEJA, GERO, CYSC.
406	Title II	County	1A	Upper South Fork Skokomish	Mason		2360100	0	0.2	0.2						V1043 Quarry at end of road.
394	Title II	County	1A	Upper South Fork Skokomish	Mason	V1043 Quarry	2360100	0.3	0.3	0						Skok TS rock source. Located at 2360100 spur, MP 0.3 - road currently ends at quarry. Very few weeds here, but common tansy was found here in 2009 (pulled at that time). 2016: Inspect and treat
361	Title II	County	1A	Middle North Fork Skokomish River	Mason		2400000	8.8	14.5	5.7		x		x		Skok TS units adjacent to road. GERO becoming a problem; knapweed also. CIAR, CIVU, CYSC, HYPE, SEJA, PHAR, TAVU. Also treat Mt Rose TH and Bear Gulch Picnic Area as part of this project area. Tacoma Power will be re-building these sites in very near future. Some parts of this road go through non-FS land - please notify landowners of weed treatments if you plan on treating non-FS segments.
360	Title II	County	1A	Middle North Fork Skokomish River	Mason	Cushman Riprap	2400000	12.3	12.3	0						Located at MP 12.3 of the 24 road. Monitor and treat as necessary.

364	Title II	County	1A	Middle North Fork Skokomish River	Mason	Lake Cushman Quarry	2400000	13.6	13.6	0					Located at MP 13.6 of 24 road. Not very weedy, but needs to be monitored and treated as needed.
327	Title II	County	1A	Lillwaup Creek	Mason	Cushman Pit	2400025	0.2	0.2	0					CYSC biggest problem, but peavine, bull thistle, and tansy ragwort also need to be eradicated. Much improved from a few years ago, but needs follow up.
863	Title II	County	1A	Mainstem Hamma Hamma River	Mason	Hamma Hamma CG Loop Trail	2500000						x		Pat Grover reported GERO is present along trail and was being spread by trail maintenance activities in 2013. Trail # 128.
355	Title II	County	1A	Mainstem Hamma Hamma River	Mason	Hamma Hamma Pit	2500011	0.2	0.2	0					Includes 2500011 road, a short spur road at MP 7.0 of the 25 road; this pit is located at the end of this spur. Treated 2010 - 2015: CIAR, CIVU, CYSC, LALA, PHAR, ARMI, RUAR, SEJA, HYPE, VETH, DIRU, HYPE, RULA. 2016: Continue annual treatments.
429	Title II	County	1A	Mainstem Hamma Hamma River	Mason	Hamma Hamma CG	2500030			0				x	Treated 2011, 2012, 2014, 2015: RUAR9, CIAR, ARMI, CYSC. GERO treated in sites 6, 7, 12 in 2012.
428	Title II	County	1A	Mainstem Hamma Hamma River	Mason	Lena CG	2500040			0				p	Treated 2011 - 2015: CIAR, CIVU, HYPE, ARMI, CYSC. GERO treated in sites 4, 6, 10 in 2012. Also ARM2, CIAR4, HYPE, PHAR3, SEJA
395	Title II	County	2	Upper South Fork Skokomish	Mason		2300000	9.5	18	8.5	x				SP Skok YS. Units adjacent to road. SEJA, CYSC, DACM. Road to Spider Lake. Mystery hawkweed (H. umbellatum?) found in 2010 at jxn of 23 x 2356 on island in road. Not very weedy (relatively speaking...), monitor and treat as time allows.
380	Title II	County	2	Upper South Fork Skokomish	Mason	Brown Creek CG	2340000			0				x	Burdock becoming a problem at campground - it seems to be becoming more prevalent. GERO in campground, as well as at entrance. Many other weeds as well. This Ref # includes the 540, 543, and 600 spurs, which are all roads in the campground.
600	Title II	County	2	Lower South Fork Skokomish River	Mason		2340040	0	0.7	0.7					AH Over TS. This Ref # includes all associated spurs (044) and surrounding unit. Treated 2013: SEJA, GERO, CIVU, RULA
601	Title II	County	2	Lower South Fork Skokomish River	Mason		2340040	1.2	1.9	0.7					AH Over TS. This Ref # includes all associated spurs (046,048) and surrounding unit. Four ILAQ cut down in 2012 - monitor, and paint stumps if needed. Treated 2013: SEJA
598	Title II	County	2	Lower South Fork Skokomish River	Mason		2340100	0	1.4	1.4				p	AH Over TS. Ref #598, also see 596, 600, 601 AH Over YS road system (2340100) and spurs - just west of Lake West; This Ref # includes all associated spurs (150, 160) and surrounding unit, so total miles/ acres is higher than what is represented here. Just west of Lake West. Herb Robert found at -MP 0.5 of the 2340110 spur, along edges and in roadbed.
353	Title II	County	2	Lower South Fork Skokomish River	Mason		2340120	0	0.4	0.4					HYPE, CIVU, CIAR. Road borders the south edge of Boundary TS, unit 10. Few weeds seen in 2010 - survey and treat as time allows.
619	Title II	County	2	Lower South Fork Skokomish River	Mason	Boundary TS, unit 10	2340120	0.2	0.2	0	x				Boundary Prairie project site, just west of Dennie Ahl seed orchard. Approx MP 0.15 - 0.25 of 2340120 road = SW edge of unit. Small patch of hawkweed seen in unit.
418	Title II	County	2	Lower North Fork Skokomish River	Mason	Oh No KV Project	2340200	0.5	5.7	5.2	x				Skok TS units adjacent to road. Combined with old Ref 420 and 489. Treated 2014, 2015: CIVU, CIAR4, CYSC4, SEJA, TAVU, GERO, HIPR, ILAQ, RUAR9, HYPE.
421	Title II	County	2	Lower South Fork Skokomish River	Mason		2340210	0	0.5	0.5					Skok TS units adjacent to road. Treated 2014, 2015: GERO, TAVU, CIVU, ARMI, SEJA.
835	Title II	County	2	Lower South Fork Skokomish River	Mason	Oh No KV Project	2340230	0.0	2.1	2.1					Skok TS units adjacent to road. Treated 2014, 2015: GERO, TAVU, CIVU, ARMI, SEJA, CYSC, RULA.

490	Title II	County	2	Lower North Fork Skokomish River	Mason	Oh No KV Project	2340250	0	1.5	1.5					Skok TS units adjacent to road. Treated 2014: CIVU, CYSC, CIAR, TAVU, ARMI, SEJA
591	Title II	County	2	Middle Fork Satsop	Mason		2350000	9	12.1	3.1	x			p	Yellow hawkweed abundant along road edges at MP 10.5 – 11.5. Lower part of 2350 is in L. SF Skok VWS also needs to be surveyed for this weed - Ref # 344. Other weeds observed here include CYSC, SEJA, etc. These need treatment, too.
463	Title II	County	2	Upper South Fork Skokomish	Mason		2353000	0	13.2	13.2				x	SF Skok TS. Haul route, and unit adjacent to road at MP 2.5. CYSC, CIARA, CIVU, ARMI, HYPE, PHAR3, SEJA. GERO at approx MP 0.8, "on a trail to the LeBar Cr & SF Skok confluence. East end of LeBar bridge on left." From datasheet 475144, 5251590
381	Title II	County	2	Upper South Fork Skokomish	Mason	Brown Creek Flat Quarry	2353000	1.2	1.2	0				x	2353000, MP 1.2. This is NOT the same as the Brown Creek quarry, which is Ref # 369.
390	Title II	County	2	Upper South Fork Skokomish	Mason	Lebar Horse CG	2353000			0				p	GERO, CIVU, SEJA Treated 2012
379	Title II	County	2	Upper South Fork Skokomish	Mason		2355000	0	6.6	6.6				p	Treated 2011, 2013 - 2015. GERO at MP 5.6. Look for orange flagging around trunk of large elder on east side of road. Many other weed species all along this road that also need treatment.
405	Title II	County	2	Upper South Fork Skokomish	Mason		2360000	0	4.3	4.3	x				SF Skok TS, HICA Units adjacent to road. Road was weedy. Several spurs off this road have be or will be decommed, unsure what decom schedule is. Did not receive treatmen in 2014. Treated 2015: CIVU, CESTM, RULA, CYSC, SEJA. Associated TS and hawkweed.
333	Title II	County	2	Lillwaup Creek	Mason		2400000	0	8.8	8.8					Some parts of this road go through non-FS land - please notify landowners of weed treatments if you plan on treating non-FS segments.
337	Title II	County	2	Lillwaup Creek	Mason		2400026	0	0.3	0.3					walk in
328	Title II	County	2	Lillwaup Creek	Mason	Mint Meadow	2400026			0					HYPE, CIAR4, CYSC4, PHAR. Coordinate with Betsy Howell for treatments in early June, and a second follow up treatment. 360-956-2292
363	Title II	County	2	Middle North Fork Skokomish River	Mason	Big Creek CG	2400031			0				x	As of 2013, not very weedy, did see some HYPE scattered at north end of CG. Survey and treat as time allows. Big Creek Well. Access to Trail # 877. GERO seen around campground sign near entrance; rest of CG relatively clean, but needs monitoring.
331	Title II	County	2	Lillwaup Creek	Mason		2419000	0	1.4	1.4					CIVU, SEJA, CIVU, CYSC, LALA, HYPE Last treated 2011.
365	Title II	County	2	Middle North Fork Skokomish River	Mason		2419000	1.4	9.8	8.4					Lots of peavine and SEJA. Also CIAR, CIVU, CYSC, HYPE. Access to Mt Ellinor and Mt Washington THs.
465	Title II	County	2	Middle North Fork Skokomish River	Mason		2419012	0	0.3	0.3					Don't know what's here. Survey and treat as time allows.
368	Title II	County	2	Middle North Fork Skokomish River	Mason		2419014	0	1	1					CIAR, CIVU, CYSC Access to Ellinor Shortcuts TH
357	Title II	County	2	Mainstem Hamma Hamma River	Mason		2500000	2.8	13.5	10.7			?	p	GERO at Lena Lake TH, CYSC4 main problems. CIAR, DACA6, CIVU, CYSC, SEJA, LALA4, HYPE. GERO highest priority. Database also shows knotweed at MP 7.3 (between 011 spur and Lena Cr CG) but this doesn't seem right. CYSC on this road would be a good rainy day project (as well as sunny days, there's a lot of R.). Some parts of this road go through non-FS land - please notify landowners of weed treatments if you plan on treating non-FS segments.
358	Title II	County	2	Mainstem Hamma Hamma River	Mason		2502000	0	8.3	8.3					Treated 2013; monitor and treat CYSC at MP 0 - 1.0. Treat rest of road as time allows.

**Appendix B**  
**Summary of 2019 Project Accomplishments**

Ref #	2019 Priority	Date of Treatment	6th Field Watershed Name	2019 Site Name	Road #	Priority for Retest in 2020?	Acres Examined for weeds	Species Treated	Acres Treated (App'n Area on Manual App'n)	Acquisment	Acquisment %	Element 2A	Element 2B	Garion 2A	Garion %	Milestone	Mileak. 2a	Polaris	Polaris %	Roundup Custom	Roundup %	Transline	Transline %	Vegetation	Herbicide Volume (oz)	Monitoring	Comments	Priority for Reseeding?		
127	1A	3/13/2019	Middle North Fork Skokomish River	Cushman Pt	2400025	Yes	4	CIVU, TAVU, SHU, CYSCA, RUAR9, LEVU, PHAR3, HYPE and DIFU	3.28								8	1							8		Treated 3.28 acres, did not treat area with stumps or rock piles. Only few CIVU coonies found and treated.	No		
128	2	10/28/2019	Liflwap Creek	Mint Meadow	2400028	Yes	2.7	HYPE, CYSCA and CIARA	1					1.5	0.2											1.3		Treated HYPE in W and SW and CIARA in SW in site. Hand pulled CYSCA near entrance. Late season may be a good time of year to treat site when native broadleaf shrubs are dormant.	No	
131	2	8/29/2019	Liflwap Creek		2419000	Yes	4	GERD, SHU, LAAR4, CIVU, CYSCA and HYPE	4					1.02	0.13											1.02		Treated M.P. 0.0-1.1. Large Patch GERD M.P. 1.0 did not treat infestation extending down slope. Did not treat CYSCA with milestone. Large portion of 2429 within DIFU and. Thatch released large SCALE tickle by treatment or cut stump application. Not completed today.	No	
341	1A	5/10/2019	Lower South Fork Skokomish River	Old Orchard CG	2400025	Yes	3.75	CYSCA, GERD, CIVU, SHU, RULA and HYPE	3					0.75	0.13											0.75		Treated Camp ground and access road. CYSCA scattered through camp ground. GERD patches scattered distribution treated.	Yes	
348	1A	3/28/2019	Lower South Fork Skokomish River		2100000	Yes	2.1	HCA30, SHU and GERD	2.1					1.53	0.13											1.53		M.P. 1.7 HCA30-0.3 acre, M.P. 2.3 HCA30-0.1 acre along spur and along 2500 rd. HCA30 and GERD scattered along Green Diamond Spur.	Yes	
348	1A	5/10/2019	Lower South Fork Skokomish River		2100000	Yes	0.4	GERD	0.4					0.25	0.13											0.25		Partial treatment of GERD in ROW at M.P. 4.1. We'll try to return to site later in season.	Yes	
348	1A	5/13/2019	Lower South Fork Skokomish River		2100000	Yes	0.9	SHU, CIVU, CYSCA, GERD, RUAR9	0.9					1.5	0.13								2.6	1	4.1		Treated at Green Diamond Spur at M.P. 2.8 and M.P. 4.1.	Yes		
348	1A	7/9/2019	Lower South Fork Skokomish River		2100000	Yes	0.12	POR43, CYSCA, DACAB	0.12					0.08	0.13											0.08		Treated area with historic POR43 infestation. Deadheaded 3 blooming plants.	Yes	
348	1A	8/13/2019	Lower South Fork Skokomish River		2100000	Yes	1.1	CYSCA, DIFU, DACAB, SHU, RUAR9, TAVU, GERD, RULA and HYPE	1.1		14	1.5	2.04	0.13					0.5	50						18.04		I.S. Rd. 2500 M.P. 4.5-4.6 began at 257250 ICT + 0.1 miles. 0.1. Release westside of road untreated.	Yes	
348	1A	8/19/2019	Lower South Fork Skokomish River		2100000	Yes	2.1	CISTM, CIARA, CIVU, SHU, CYSCA, DACAB, DIFU, GERD, HYPE, CLVU and TAVU	2.1		5	1.5	2.04	0.13												7.04		Treated M.P. 4.5-4.6	Yes	
348	1A	8/20/2019	Lower South Fork Skokomish River		2100000	Yes	4	GERD, CIVU, TAVU, SHU, CIARA, DACAB, DIFU, HYPE, RULA and RUAR9	4					3	0.13											3		High Priority for future treatment. 0.13 miles before after ICT w/ 2333 rd. Heavy infestation of GERD and CIVU	Yes	
348	1A	10/14/2019	Lower South Fork Skokomish River		2100000	Yes	3.5	DIFU, RULA, SHU, HYPE, LEVU, CIVU, CIARA, CIVU, TAVU, RUAR9, GERD, CIVU, CYSCA and DACAB	1.6					2.5	0.13											2.5		Flagged areas with GERD. GERD extending up/down hillside in some areas. Priority treatment of GERD in timber sale areas.	Yes	
348	1A	10/15/2019	Lower South Fork Skokomish River		2100000	Yes	3.5	GERD, TAVU, RUAR9, CIVU, SHU, DACAB, DIFU, RULA, CIARA, CIVU, LEVU and CYSCA	1.6					3.5	0.13											3.5		Treated M.P. 3.5-3.6. DACAB and DIFU received partial treatment. LEVU received very partial treatment. Areas with GERD infestation were flagged. CYSCA treated when >4.5 ft. tall.	Yes	
348	1A	10/30/2019	Lower South Fork Skokomish River		2100000	Yes	1.3	RUAR9, GERD and DIFU	1.3					2.25	0.2												2.25		Treated from m. p. 4.2-4.4 starting at poleline. Lots of GERD along roadside and extending into understory. RUAR9 growing from stumps by poleline. Treated with milestone during year, was late season treatment. Very partial DIFU treatment. This area is a priority to retest early in season.	Yes
355	1A	5/19/2019	Maxstem Hanna Hanna River	Hanna Hanna Pt	2100011	Yes	1	RULA, LAAR4, PHAR3, CIARA, CIVU, CIVU, SHU, CYSCA, VETH, DIFU, LEVU, GERD	1							24	1	18	0.75							42		Treated CYSCA round edges. Will return to fresh treatment.	No	
355	1A	7/1/2019	Maxstem Hanna Hanna River	Hanna Hanna Pt	2100011	Yes	3	LAAR4, VETH, HYPE, LEVU, GERD, RUAR9, CIVU, SHU, CIARA, CYSCA and PHAR3	1.3		6	1.5														9.33		Treated priority 1 and 2 species, begin partial treatment on tolerate species.	No	
357	2	7/7/2019	Maxstem Hanna Hanna River		2100000	Yes	0.4	GERD, CYSCA and CIVU	0.4		6	1.5														6		Treated 0.1 mile in along road. Will return if possible.	No	
357	2	10/11/2019	Maxstem Hanna Hanna River		2100000	Yes	0.18	GERD, DIFU and RUAR9	0.18					0.5	0.13											0.5		Treated GERD along rd side. Infestation starting to extend up/down hillside.	No	
361	1A	5/1/2019	Middle North Fork Skokomish River		2400000	Yes	0.4	CISTM	0.4					0.46	0.13											0.46		All knapweed found treated. Deadheaded flowering plants.	Yes	

Ref #	2019 Priority	Date of Treatment	6th Field Watershed Name	2019 Site Name	Road #	Priority for Retreat by 2020	Acres Treated For W. Seed	Species Treated	Acres Treated (App'n Area of Manual App'n)	Acquiesced	Acquiesced %	Element 2A	Element 2A %	Element 2A	Element 2A %	Milestone	Milestone %	Palms	Palms %	Roundup Custom	Roundup Custom %	Trenchline	Trenchline %	Vegetation	Herbicide Used (acres)	Monitoring	Comments	Priority for Reseeding?
361	1A	8/12/2019	Middle North Fork Skokomish River		2400	Yes	0.3	GERD, CIVL, CYSGA and RUAR9	0.3						0.54	0.13									0.34		F.S. Rd. 2400 M.P. 8.8-8.9 and entrance to big creek Campground. 1 mile on each side of road.	Yes
361	1A	8/12/2019	Middle North Fork Skokomish River		2400-000	Yes	4.1	GERD, CIVL, RUAR9, CYSGA, RULA and SIA	3.6						3.5	0.13									1.3		Treated temporary with priority per John Bucher's request. GERD was treated along roadside but extends far down and up the partial treatment on tolerate species.	Yes
364	1A	8/12/2019	Middle North Fork Skokomish River	Lake Cushman Quarry	2400	Yes	0.8	SIA, HPE, RUAR9, CYSGA and CIVL	0.8			3.5	1.5												3.3		Treated SIA, RUAR9 and CYSGA. Partial treatment of HPE and CIVL.	No
369	1A	7/10/2019	Upper South Fork Skokomish	Brown Creek Quarry	2334	Yes	8	CYSGA, HPE, CIVL and GERD	8						0.85	0.13									0.85		Completed quarry inspection and began treatment on broadleaved weeds. Very weedy material in piles on southern edge of pit.	No
369	1A	7/10/2019	Upper South Fork Skokomish	Brown Creek Quarry	2334	Yes	8	PHAR9, CIVL, LALAA, CYSGA and HPE	8								4	1							4		Returned to finish treatment. Removing material from east end of pit today.	No
370	1A	8/0/2019	Upper South Fork Skokomish		2340-430	Yes	0.3	GERD, CYSGA, CIVL and CIB	0.3	6.4	50	24	1.5												30.4		0.00-1 Foller spray. 1.1-1.2 Foller Spray vertical stamp. High Cover of CYSGA.	Yes
370	1A	8/6/2019	Upper South Fork Skokomish		2340-430	Yes	1.43	CYSGA, SIA, CIVL, HPE, DACAS and LALAA	1.43	11	50	18	1.5												29		M.P. 0.1-0.3 Foller spray and CIB stamp on CYSGA.	Yes
370	1A	8/7/2019	Upper South Fork Skokomish		2340-430	Yes	2.2	CYSGA, SIA, CIVL, RUAR9 and HPE	2.2	3.5	50	12	1.5												13.5		Reference Number Completed today. Cut stamp and foller spray of CYSGA. Partial treatment of HPE.	Yes
380	1	7/18/2019	Upper South Fork Skokomish	Brown Creek Campground	2340-000	Yes	0.7	RUAR9, GERD, HPE and SIA	0.7						2	0.13									1		F.S. Rd. 2340-000 Brown Creek Campground M.P. 1.3-1.3.3	Yes
380	1	7/22/2019	Upper South Fork Skokomish	Brown Creek Campground	2340-000	Yes	1.3	GERD and ARM12	1.3						0.75	0.13									0.75		Treated on F.S. 2340 Rd. new 2nd foridge after Campground. Lots of GERD near entrance.	Yes
380	1	9/13/2019	Upper South Fork Skokomish	Brown Creek Campground	2340-000	Yes	1	GERD and SIA	1.3						1	0.13									1		Used foller application on SIA and GERD. Pulled and bagged flowering plants. Spread Blue Fire grass seed at a couple campgrounds.	Yes
382	1A	8/3/2019	Upper South Fork Skokomish		2340-400	No	1.2	CIARA, CIVL, HPE, SIA, DACAS	1.2						0.68	0.13									0.68		Treated M.P. 0.0-0.3. 400 spurs decomposed at m.p. 0.3	Yes
394	1A	7/10/2019	Upper South Fork Skokomish	V1043 Quarry	2330-100	No	1.8	TAUVU, LEVU, DIPU, HPE and HPE	1.8						0.43	0.13	8	1							8.05		Fairy Clean PE. Partial treatment of HPE, HPE and LEVU.	No
399	1A	7/22/2019	Upper South Fork Skokomish	OH No KV Project	2340-000	Yes	0.73	GERD, ARM12	0.73						0.77	0.13									0.77		Treated M.P. 1.2-1.2.9	No
399	1A	7/28/2019	Upper South Fork Skokomish	OH No KV Project	2340-000	Yes	1.2	SIA, CIVL, CIARA, CIVL, LEVU, HPE and CYSGA	1.2						1.5	0.13									1.3		Treated M.P. 9.1 to 11.3. Will return to fresh segment to the bridge.	No
399	1A	8/5/2019	Upper South Fork Skokomish	OH No KV Project	2340-000	Yes	1.21	HPE, SIA, CIARA, CIVL and CIVL	1.21						0.5	0.13									0.5		Treated M.P. 1.1.3-1.1.8 Partial treatment on HPE.	No
399	1A	8/7/2019	Upper South Fork Skokomish	OH No KV Project	2340-000	Yes	2.7	GERD, CIARA, ARM12 and SIA	2.7						0.67	0.13									0.67		Treated M.P. 9.1-12.9 by brown creek bridge. Lots of GERD near bridge extends 120' down slope.	Yes
406	1A	7/10/2019	Upper South Fork Skokomish		2330-100	No	0.3	SIA, DIPU, LEVU and HPE	0.3						0.26	0.13									0.26			No
419	1A	10/29/2019	Lower South Fork Skokomish River		2300-211	Yes	4.83	SIA, RULA, RUAR9, DIPU, HPE and CYSGA	1.94						0.375	0.25									0.375		F.S. Rd. 2300-221 blocked by fallen Alnus rubra. GERD infestation near M.P. 0.33. needs additional treatment. CIB miles surveyed 4.1.3 acres by river. Blackberries need to be retreated next season with Castor or triclopyr.	Yes
428	1A	8/12/2019	Master's Hamma Run	Lake CG	2300-040	Yes	1	GERD and ARM12	1.3																	Removed 5 bags flowering GERD	Yes	

Ref #	2019 Priority	Date of Treatment	6th Field Watershed Name	2019 Site Name	Road #	Priority for retreat in 2020?	Acres Estimated for trees	Species Treated	Acres Treated (App'n Area or Manual App'n)	Application Details														Monitoring	Comments	Priority for Reseeding?																						
										Aquasol	Aquasol %	Element 2A	Element 2B	Garlon 3A	Garlon 3B	Miscelene	Miscelene %	Polaris	Polaris %	RoundUp Custom	RoundUp %	Transline	Transline %				Voglin																					
428	1A	10/11/2019	Mainstem Hamma Hamma River	Lene CG	2500-040	Yes	2	GERD, CIAR4, ARM12 and RUIAR9	1.5					0.6	0.13	1.5	1.5							2.1	Large GERD infestation near bathrooms, at large Cedar and on trail down to river from CS 1.	Yes																						
429	1A	9/12/2019	Mainstem Hamma Hamma River	HAMMA HAMMA CG	2500-030	Yes	2	GERD, ARM12, CIAR4 and MIO12 (lemon balm)	2																Removed 2.5 bags of flowering GERD. Found one lemon balm plant.	Yes																						
429	1A	10/11/2019	Mainstem Hamma Hamma River	HAMMA HAMMA CG	2500-030	Yes	2	GERD, ARM12, RUIAR9 and MIO12	1.5					1	0.13										CG & S 1.1 had lots of GERD. MIO12 found near washrooms.	Yes																						
443	2	7/18/2019	Upper South Fork Skokomish River		2533-000	Yes	0.1	GERD	0.1					0.3	0.13										0.3	Treated GERD starting at bridge, working towards Lebar.	Yes																					
443	2	8/7/2019	Upper South Fork Skokomish River		2533-000	Yes	0.2	GERD	0.2					0.85	0.13										0.85	Started at bridge and worked south.	Yes																					
444	1A	7/9/2019	Upper South Fork Skokomish River		2534-000	Yes	1.2	GERD and StA	1.2					1.37	0.13										1.37	Infestation fully to 1500 rd on down hill and extends 20-70' up hill. Treated 13-20' from road edge.	Yes																					
444	1A	7/18/2019	Upper South Fork Skokomish River		2534-000	Yes	0.1	GERD	0.1					0.3	0.13										0.3	Area with 100% cover. Much of area treated was between F 3, roads 2534 and 2540. Treated 2534 M.P. 0.0-0.1.	Yes																					
444	1A	7/11/2019	Upper South Fork Skokomish River		2534-000	Yes	3	CVS4, GERD, HYPE, LEVU, StA and CIVU	3					3	0.13										3	Treated M.P. 0.0-1.8, retreatment of 0.0-0.2 and covered treatment further downhill of rd/w. Very dirty.	Yes																					
598	2	7/25/2019	Lower South Fork Skokomish River		2540-100	No	1.5	GERD, CVS4, StA, LEVU, HYPE, RUIA, TAVU, CIVU	1.5					0.5	0.13										0.5	Treated M.P. 0.0-0.3. Partial treatment on HYPE and LEVU.	No																					
599	1A	7/14/2019	Lower South Fork Skokomish River		2540-110	No	1.3	GERD, RUIA, CIVU and CVS4	1.3					0.5	0.13										0.5	Treated M.P. 0.0-0.3.	No																					
599	1A	7/24/2019	Lower South Fork Skokomish River		2540-110	No	2.7	GERD, RUIA, RUIAR9, StA, HYPE, LEVU, RABER, CVU and CIAR4	2.7					0.5	0.13										0.5	Treated M.P. 0.0-0.3.	No																					
618	1A	5/2/2019	Lower South Fork Skokomish River	2300 road deep patch borrow	2500-000	No	1.5	StA, HICAD, CIVU, TAVU, DACAB, DIPU, HYPE and LEVU	1.5							6	1.3								6	Treated many vigour leaf beetles, 2 CIVU plants and 5 TAVU plants.	No																					
843	1A	7/12/2019	Mainstem Hamma Hamma River	HAMMA HAMMA CG Loop	2500-000	Yes	0.7	GERD	0.7					0.5	0.13										0.5	Second treatment at that site.	Yes																					
EDRR	EDRR	8/29/2019	Middle North Fork Skokomish River	Big Creek Trail	2400-011	Yes	8	GERD and RUIA	8					0.3	0.13										0.3	Large infestation reported by forest visitor. See in very large and extends downhill from trail. Infestation seems to have started at bridge. Will prioritize to retreat next season.	Yes																					
										Total Aquasol Used (oz)	28,900		Total Element 2A	94.5		Total Element 2B	48,263		Total Garlon 3A	31.5		Total Garlon 3B	18.5		Total Miscelene	3.33		Total Polaris	2.6		Total RoundUp Custom	1,848,994.18		Total Transline	0.022015		Total Voglin	0.020113		Total Herbicide (gal)	0.16328							
										Total Acres Escalated	117.99		Total Acres Treated	185.51		Total Herbicide (gal)	0.16328		Total Element 2A	94.5		Total Element 2B	48,385		Total Garlon 3A	31.5		Total Garlon 3B	18.5		Total Miscelene	3.33		Total Polaris	2.6		Total RoundUp Custom	1,848,994.18		Total Transline	0.022015		Total Voglin	0.020113		Total Herbicide (gal)	0.16328	

## APPENDIX C

### ROCK SOURCE SURVEYS AND TREATMENT

2019 Forest Service Rock Pits Inspected/Treated						
Rock Source	Ref.#	Option A Rock Source Exceeds Requirements	Option B Rock Source Meets Requirements	Option C Rock Source Meets Minimum Requirement	Treatment (Manual)	Treatment (Herbicide)
Cushman Pit	327		XX		N/A	05/13/2019
Hamma Hamma Pit	355	Treatment complete, not inspected			06/19/2019	06/19/2019 07/01/2019
Lake Cushman Quarry	364		XX		N/A	06/12/2019
Brown Creek Quarry	369			XX	N/A	07/31/2019
V1043 Quarry	394		XX		N/A	07/30/2019
FS Rd. 2300- 000 Deep Patch Borrow Site	610		XX		N/A	05/02/2019

<b>2019 Private Rock Pits Inspected</b>					
<b>Rock Source</b>	<b>Option A Rock Source Exceeds Requirements</b>	<b>Option B Rock Source Meets Requirements</b>	<b>Option C Rock Source Meets Minimum Requirement</b>	<b>Treatment (Manual)</b>	<b>Treatment (Herbicide)</b>
Sheldon Pit			XX	N/A	N/A
Miles Sand and Gravel Company		XX		N/A	N/A
Kennedy Creek Quarry		XX		N/A	N/A
NW Rock – Taylor Towne		XX		N/A	N/A

## Quarry Inspection Record for Invasive Plants

**Quarry Information:**

Name of Quarry: Sheldon Pit, Upper and Lower	
Address of Quarry: Upper Pit - 22091 N HWY 101 Shelton, Wa Lower Pit – 22221 N HWY 101 Shelton, Wa	
Closest town: Hoodspport, WA	
Phone Number: (360) 490-0351	
Name and Title of Quarry Contact Person: Tim Sheldon, General Partner for Sheldon Properties	
Narrative of location of quarry: Upper Pit – 1600' west of Mile Post 334 on Highway 101. Upper Pit designated PS-X-128 by WSDOT, long -123.155559540 lat 47.381242752 Lower Pit – Facing Highway 101 at 22221 N HWY 101. <small>Include GPS coordinates, if available</small>	

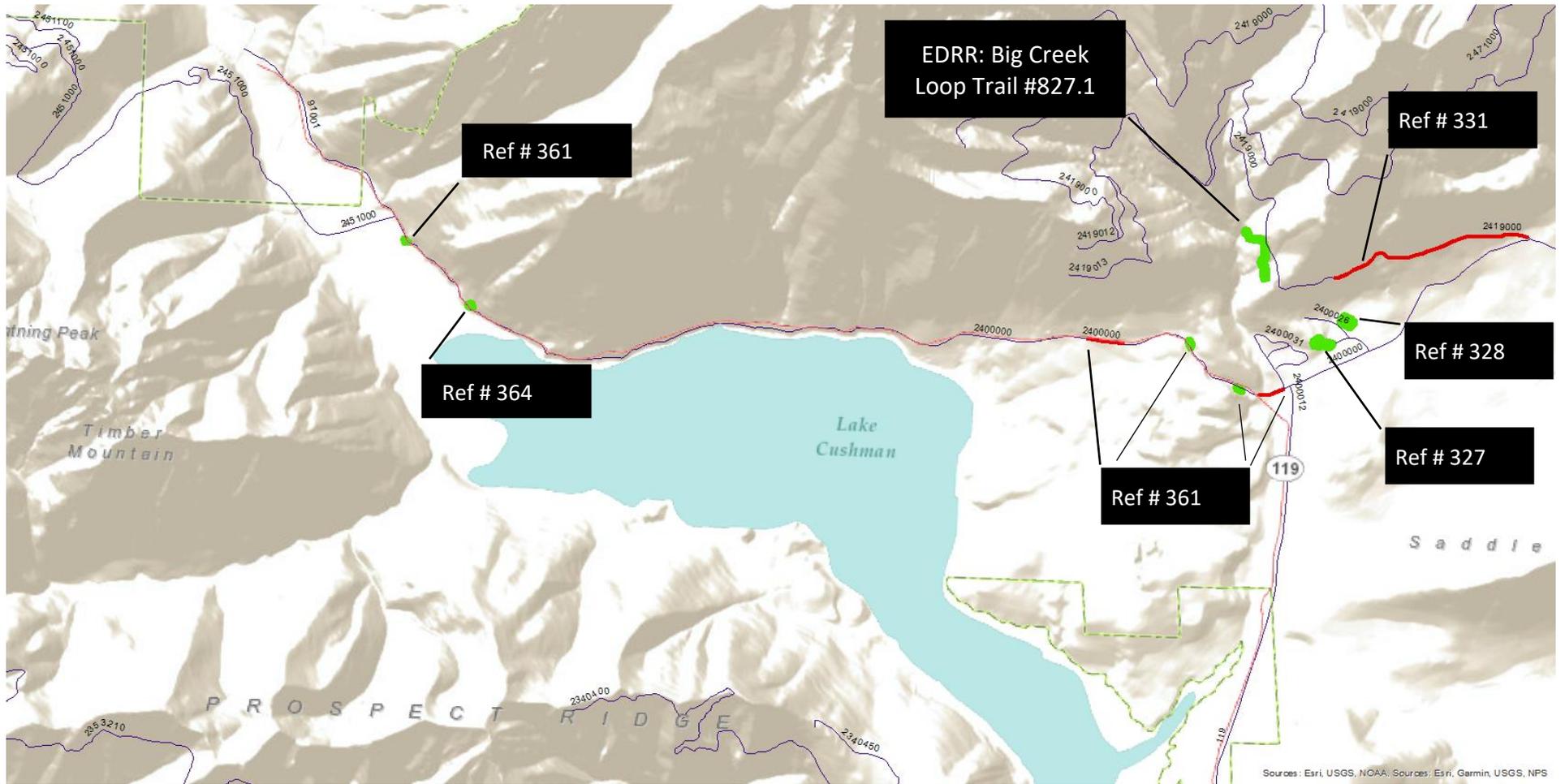
**Inspection Information:**

Agency Conducting Inspection: <b>Mason County Noxious Weed Control Board</b>	
Name and Title of Inspector: <b>Patricia Grover, Coordinator and Heidi Steinbach, Assistant</b>	
Contact Information of Inspector: <b>(360) 427-9670 Ext. 592</b>	
Signature of Inspector: <i>/s/ Patricia A. Grover</i>	Date of Inspection: <b>April 2, 2019</b>

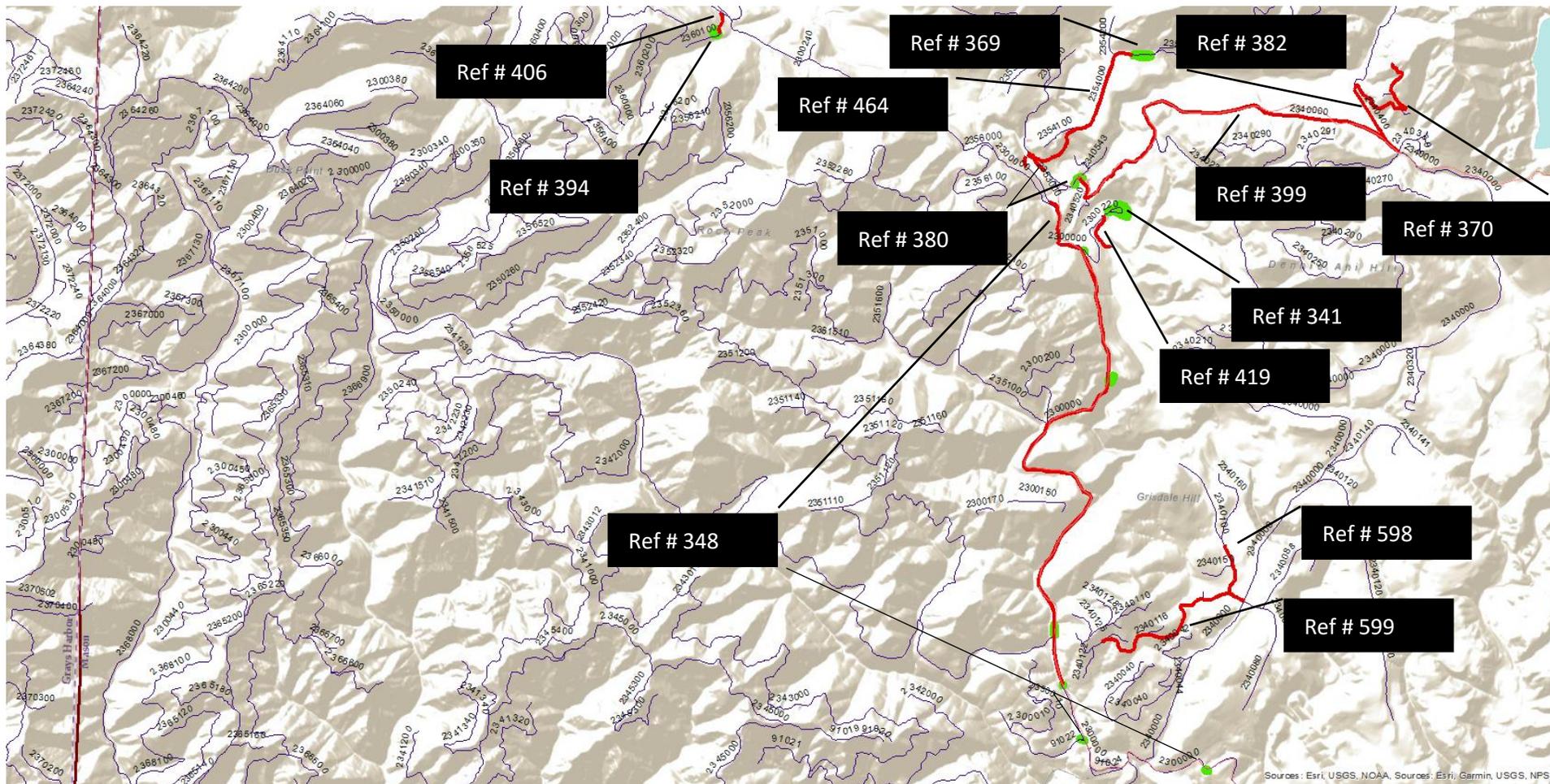
Page 1 from Sheldon Pit inspection

**Appendix D**  
**Mason County 2019 Treatment Areas**





Lake Cushman area



South Fork Skokomish area

## Appendix E

### Outreach and Education

Public education and awareness continue to be key elements for the Mason County Noxious Weed Control program. Local events that we participated in this year included:



Giant hogweed, poison hemlock and wild carrot identification and information at 2019 Matlock Old Timers' Festival.



MCNWCB education table at 2019 Allyn Days Festival.

## **Appendix F**

### **2019 Forest Service Treatment Priority List**

## 2019 Olympic National Forest Invasive Species List

Updated by CLB 5/7/2019

Code	Scientific Name	Common Name	Treatment Priority	Documented on ONF
AEPO	<i>Aegopodium podagraria</i>	Bishop's weed, goutweed	1	Y
ARMI2	<i>Arctium minus</i>	lesser burdock	1	Y
BOOF	<i>Borago officinalis</i>	common borage	1	Y
BRTE	<i>Bromus tectorum</i>	cheatgrass	1	Y
BUDA2	<i>Buddleja davidii</i>	butterfly bush	1	Y
CEDE5	<i>Centaurea debeauxii</i>	meadow knapweed	1	Y
CEDI3	<i>Centaurea diffusa</i>	diffuse knapweed	1	Y
CEJA	<i>Centaurea jacea</i>	brownray knapweed	1	Y
CESTM	<i>Centaurea stoebe</i> ssp. <i>micranthos</i>	spotted knapweed	1	Y
DALA11	<i>Daphne laureola</i>	spurge laurel	1	N
DIFU2	<i>Dipsacus fullonum</i>	Fuller's teasel	1	Y
GELU	<i>Geranium lucidum</i>	shinning geranium	1	N
GERO	<i>Geranium robertianum</i>	herb Robert, stinky Bob	1	Y
HEMA17	<i>Heracleum mantegazzianum</i>	giant hogweed	1	N
HIAU	<i>Hieracium aurantiacum</i>	orange hawkweed	1	Y
HICA10	<i>Hieracium caespitosum</i>	meadow (yellow) hawkweed	1	Y
HISA4	<i>Hieracium sabaudum</i>	European hawkweed	1	Y
LAGA2	<i>Lamiastrum galeobdolon</i>	yellow archangel	1	Y
LIVU2	<i>Linaria vulgaris</i>	yellow toadflax, butter and eggs	1	Y
LYPU2	<i>Lysimachia punctata</i>	large yellow loosestrife	1	Y
LYVU	<i>Lysimachia vulgaris</i>	garden yellow loosestrife	1	N
MEPI	<i>Mentha x piperita</i>	peppermint	1	Y
ORVU	<i>Origanum vulgare</i>	oregano	1	Y
POCU6	<i>Polygonum cuspidatum</i>	Japanese knotweed	1	Y
POPO5	<i>Polygonum polystachyum</i>	Himalayan knotweed	1	N
POSA4	<i>Polygonum sachalinense</i>	giant knotweed	1	Y
POBO10	<i>Polygonum x bohemicum</i>	Bohemian knotweed	1	Y
PORE5	<i>Potentilla recta</i>	sulphur cinquefoil	1	Y
SEJA	<i>Senecio jacobaea</i>	tansy ragwort	1	Y
SILAA3	<i>Silene latifolia</i> ssp. <i>alba</i>	bladder campion	1	N
SYOF	<i>Symphytum officinale</i>	common comfrey	1	Y
TUFA	<i>Tussilago farfara</i>	European coltsfoot	1	N
VETH	<i>Verbascum thapsus</i>	common mullein	1	Y
VIMA	<i>Vinca major</i>	bigleaf periwinkle	1	Y
VIMI2	<i>Vinca minor</i>	common periwinkle	1	Y
CIAR4	<i>Cirsium arvense</i>	Canada thistle	2	Y
CIVU	<i>Cirsium vulgare</i>	Bull thistle	2	Y
COAR4	<i>Convolvulus arvensis</i>	field bindweed	2	?
CYSC4	<i>Cytisus scoparius</i>	Scot's broom	2	Y
DACA6	<i>Daucus carota</i>	Queen Anne's lace	2	Y
HEHE	<i>Hedera helix</i>	English ivy	2	Y
HYPE	<i>Hypericum perforatum</i>	common St. Johnswort	2	Y
ILAQ80	<i>Ilex aquifolium</i>	English holly	2	Y
LALA4	<i>Lathyrus latifolius</i>	everlasting peavine	2	Y
PHAR3	<i>Phalaris arundinacea</i>	reed canarygrass (including ribbon grass)	2	Y
PRLA5	<i>Prunus laurocerasus</i>	English laurel	2	Y
RUAR9	<i>Rubus armeniacus</i>	Himalayan blackberry	2	Y
RULA	<i>Rubus laciniatus</i>	cutleaf blackberry	2	Y
TAVU	<i>Tanacetum vulgare</i>	common tansy	2	Y
DIPU	<i>Digitalis purpurea</i>	purple foxglove	Tolerate	Y
HYRA3	<i>Hypochaeris radicata</i>	hairy catsear	Tolerate	Y
LEVU	<i>Leucanthemum vulgare</i>	oxeye daisy	Tolerate	Y
LOPE80	<i>Lotus pedunculatus</i>	big trefoil	Tolerate	Y
PLLA	<i>Plantago lanceolata</i>	narrowleaf plantain	Tolerate	Y
RARER	<i>Ranunculus repens</i> var. <i>repens</i>	creeping buttercup	Tolerate	Y
TAOF	<i>Taraxacum officinale</i>	common dandelion	Tolerate	Y

## Appendix G

### 2019 Olympic National Park Treatment List

<u>Family</u>	<u>Scientific Name</u>	<u>Common Names</u>	<u>Abundance</u>
Apiaceae	<i>Conium maculatum</i>	poison hemlock	
Apiaceae	<i>Daucus carota</i>	Queen Anne's lace, wild carrot	
Apiaceae	<i>Heracleum mantegazzianum</i>	Giant hogweed	
Aquifoliaceae	<i>Ilex aquifolium</i>	English holly	Abundant
Araliaceae	<i>Hedera helix</i>	English ivy	Common
Asteraceae	<i>Anthemis tinctoria</i>	Yellow chamomile	Rare
Asteraceae	<i>Arctium minus</i>	Common burdock	Unknown
Asteraceae	<i>Centaurea biebersteinii</i>	spotted knapweed	
Asteraceae	<i>Centaurea debeauxii</i> ssp. <i>thuilieri</i>	meadow knapweed	
Asteraceae	<i>Centaurea diffusa</i>	Tumble knapweed	
Asteraceae	<i>Centaurea montana</i>	Mountain knapweed	
Asteraceae	<i>Cirsium arvense</i>	Canada thistle	Abundant
Asteraceae	<i>Cirsium vulgare</i>	bull thistle	Common
Asteraceae	<i>Hieracium aurantiacum</i>	orange hawkweed	Rare
Asteraceae	<i>Leucanthemum vulgare</i>	ox-eye daisy	Abundant
Asteraceae	<i>Senecio jacobaea</i>	Tansy ragwort	
Asteraceae	<i>Tussilago farfara</i>	colts foot, coltsfoot	Unknown
Boraginaceae	<i>Echium vulgare</i>	Blueweed	Rare
Caryophyllaceae	<i>Saponaria officinalis</i>	Bouncing Bet	Unknown
Convolvulaceae	<i>Convolvulus arvensis</i>	field bindweed	
Fabaceae	<i>Cytisus scoparius</i>	Scotch broom	Unknown
Fabaceae	<i>Lathyrus latifolius</i>	Everlasting peavine	Rare
Fabaceae	<i>Lathyrus sylvestris</i>	Small everlasting peavine	
Fabaceae	<i>Lupinus arboreus</i> var. <i>arboreus</i>	Tree lupine	
Fabaceae	<i>Ulex europaeus</i>	common gorse, furze	
Geraniaceae	<i>Geranium lucidum</i>	shining geranium	Rare
Geraniaceae	<i>Geranium robertianum</i>	Herb robert	Rare
Hypericaceae	<i>Hypericum perforatum</i>	St. John's wort, Klamathweed	Common
Iridaceae	<i>Iris pseudacorus</i>	Yellow iris	Uncommon
Lamiaceae	<i>Lamium galeobdolon</i>	Yellow archangel, policeman's helmet	
Lythraceae	<i>Lythrum salicaria</i>	purple loosestrife	
Papaveraceae	<i>Eschscholzia californica</i> ssp. <i>californica</i>	California poppy	
Plantaginaceae	<i>Digitalis purpurea</i> var. <i>purpurea</i>	Foxglove	
Plantaginaceae	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>	Dalmatian toadflax	
Plantaginaceae	<i>Linaria vulgaris</i>	butter and eggs, yellow toadflax	
Poaceae	<i>Bromus diandrus</i>	ripgrut brome	Unknown
Poaceae	<i>Bromus hordeaceus</i>	downy brome, soft brome	Rare
Poaceae	<i>Bromus tectorum</i>	cheatgrass, downy brome	Uncommon
Poaceae	<i>Holcus lanatus</i>	common velvetgrass, velvetgrass	Common
Poaceae	<i>Phalaris arundinacea</i>	reed canarygrass	Abundant
Polygonaceae	<i>Polygonum cuspidatum</i>	fleeceflower, Japanese knotweed	Uncommon
Polygonaceae	<i>Polygonum sachalinense</i>	giant knotweed	Uncommon
Polygonaceae	<i>Polygonum x bohemicum</i>		Unknown
Ranunculaceae	<i>Ranunculus repens</i>	creeping buttercup	Abundant
Rosaceae	<i>Potentilla recta</i>	sulphur cinquefoil	Rare
Rosaceae	<i>Prunus laurocerasus</i>	cherry laurel	Unknown
Rosaceae	<i>Rubus discolor</i> (armenaicus)	Himalayan blackberry	Abundant
Rosaceae	<i>Rubus laciniatus</i>	Evergreen blackberry	Common
Rosaceae	<i>Sorbus aucuparia</i>	European mountain-ash, rowan	
Scrophulariaceae	<i>Verbascum thapsus</i>	woolly mullein	
Thymelaeaceae	<i>Daphne laureola</i>	spurge laurel, spurgelaurel	

**Appendix H**  
**2019 Washington State Noxious Weed List**

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

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

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

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

Email: [noxiousweeds@agr.wa.gov](mailto:noxiousweeds@agr.wa.gov)  
Website: <http://www.nwcb.wa.gov>

Or

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

Or

**Your County Noxious Weed Control Board**

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

Cover photo by Jennifer Andreas, WSU Extension, IWCP

## 2019 Washington State Noxious Weed List



Dalmatian toadflax is designated for control in three additional counties in Washington for 2019. Check with your County Noxious Weed Control Board to find out about new Class B designation changes in your county.

List arranged alphabetically by:  
**COMMON NAME**



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

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

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

**Class A Weeds  
Eradication is required**

common crupina	<i>Crupina vulgaris</i>
cordgrass, common	<i>Spartina anglica</i>
cordgrass, dense-flowered	<i>Spartina densiflora</i>
cordgrass, saltmeadow	<i>Spartina patens</i>
cordgrass, smooth	<i>Spartina alterniflora</i>
dyer's woad	<i>Isatis tinctoria</i>
eggleaf spurge	<i>Euphorbia oblongata</i>
false brome	<i>Brachypodium sylvaticum</i>
floating primrose-willow	<i>Ludwigia peploides</i>
flowering rush	<i>Butomus umbellatus</i>
French broom	<i>Genista monspessulana</i>
garlic mustard	<i>Alliaria petiolata</i>
giant hogweed	<i>Heracleum mantegazzianum</i>
goatsrue	<i>Galega officinalis</i>
hydrilla	<i>Hydrilla verticillata</i>
Johnsongrass	<i>Sorghum halepense</i>
knapweed, bighead	<i>Centaurea macrocephala</i>
knapweed, Vochin	<i>Centaurea nigrescens</i>
kudzu	<i>Pueraria montana</i> var. <i>lobata</i>
meadow clary	<i>Salvia pratensis</i>
oriental clematis	<i>Clematis orientalis</i>

purple starthistle	<i>Centaurea calcitrapa</i>
reed sweetgrass	<i>Glyceria maxima</i>
ricefield bulrush	<i>Schoenoplectus mucronatus</i>
sage, clary	<i>Salvia sclarea</i>
sage, Mediterranean	<i>Salvia aethiops</i>
silverleaf nightshade	<i>Solanum elaeagnifolium</i>
small-flowered jewelweed	<i>Impatiens parviflora</i>
Spanish broom	<i>Spartium junceum</i>
Syrian beancaper	<i>Zygophyllum fabago</i>
Texas blueweed	<i>Helianthus ciliaris</i>
thistle, Italian	<i>Carduus pycnocephalus</i>
thistle, milk	<i>Silybum marianum</i>
thistle, slenderflower	<i>Carduus tenuiflorus</i>
variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>
wild four-o'clock	<i>Mirabilis nyctaginea</i>

**Class B Weeds**

blueweed	<i>Echium vulgare</i>
Brazilian elodea	<i>Egeria densa</i>
bugloss, annual	<i>Anchusa arvensis</i>
bugloss, common	<i>Anchusa officinalis</i>
butterfly bush	<i>Buddleja davidii</i>
camelthorn	<i>Alhagi maurorum</i>
common fennel, (except bulbing fennel)	<i>Foeniculum vulgare</i> except <i>F. vulgare</i> var. <i>azoricum</i> )
common reed (nonnative genotypes only)	<i>Phragmites australis</i>
Dalmatian toadflax	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
European coltsfoot	<i>Tussilago farfara</i>
fanwort	<i>Cabomba caroliniana</i>
gorse	<i>Ulex europaeus</i>
grass-leaved arrowhead	<i>Sagittaria graminea</i>
hairy willowherb	<i>Epilobium hirsutum</i>
hawkweed oxtongue	<i>Picris hieracioides</i>
hawkweed, orange	<i>Hieracium aurantiacum</i>
hawkweeds: All nonnative species and hybrids of the meadow subgenus	<i>Hieracium</i> , subgenus <i>Pilosella</i>
hawkweeds: All nonnative species and hybrids of the wall subgenus	<i>Hieracium</i> , subgenus <i>Hieracium</i>
herb-Robert	<i>Geranium robertianum</i>

hoary alyssum	<i>Berteroa incana</i>
houndstongue	<i>Cynoglossum officinale</i>
indigobush	<i>Amorpha fruticosa</i>
knapweed, black	<i>Centaurea nigra</i>
knapweed, brown	<i>Centaurea jacea</i>
knapweed, diffuse	<i>Centaurea diffusa</i>
knapweed, meadow	<i>Centaurea x moncktonii</i>
knapweed, Russian	<i>Rhaphiticum repens</i>
knapweed, spotted	<i>Centaurea stoebe</i>
knotweed, Bohemian	<i>Polygonum x bohemicum</i>
knotweed, giant	<i>Polygonum sachalinense</i>
knotweed, Himalayan	<i>Persicaria wallichii</i>
knotweed, Japanese	<i>Polygonum cuspidatum</i>
kochia	<i>Bassia scoparia</i>
lesser celandine	<i>Ficaria verna</i>
loosestrife, garden	<i>Lysimachia vulgaris</i>
loosestrife, purple	<i>Lythrum salicaria</i>
loosestrife, wand	<i>Lythrum virgatum</i>
Malta starthistle	<i>Centaurea melitensis</i>
parrotfeather	<i>Myriophyllum aquaticum</i>
perennial pepperweed	<i>Lepidium latifolium</i>
poison hemlock	<i>Conium maculatum</i>
policeman's helmet	<i>Impatiens glandulifera</i>
puncturevine	<i>Tribulus terrestris</i>
Ravenna grass	<i>Saccharum ravennae</i>
rush skeletonweed	<i>Chondrilla juncea</i>
saltcedar	<i>Tamarix ramosissima</i>
Scotch broom	<i>Cytisus scoparius</i>
shiny geranium	<i>Geranium lucidum</i>
spurge flax	<i>Thymelaea passerina</i>
spurge laurel	<i>Daphne laureola</i>
spurge, leafy	<i>Euphorbia virgata</i>
spurge, myrtle	<i>Euphorbia myrsinites</i>
sulfur cinquefoil	<i>Potentilla recta</i>
tansy ragwort	<i>Jacobaea vulgaris</i>
thistle, musk	<i>Carduus nutans</i>
thistle, plumeless	<i>Carduus acanthoides</i>
thistle, Scotch	<i>Onopordum acanthium</i>
velvetleaf	<i>Abutilon theophrasti</i>
water primrose	<i>Ludwigia hexapetala</i>
white bryony	<i>Bryonia alba</i>
wild chervil	<i>Anthriscus sylvestris</i>
yellow archangel	<i>Lamium galeobdolon</i>
yellow floatingheart	<i>Nymphoides peltata</i>
yellow nutsedge	<i>Cyperus esculentus</i>
yellow starthistle	<i>Centaurea solstitialis</i>

**Appendix I**  
**Public Notice**

## PUBLIC NOTICES

### **PUBLIC NOTICE**

The Hood Canal Ranger District, Olympic National Forest, may be applying the herbicides glyphosate, clopyralid, triclopyr, aminopyralid, sulfometuron methyl, or imazapyr to noxious weeds or other invasive plant species at the following Forest Service sites Mason County on April 22 – November 1, 2019. Applications will be conducted as planned in the Final EIS-Olympic National Forest Site Specific Invasive Plant Treatment Project, which was finalized in 2008. Notices indicating that formulations containing glyphosate, clopyralid, triclopyr, aminopyralid, sulfometuron methyl, or imazapyr will be applied will be posted at entrances to the target road systems and/or individuals sites. For questions about applications or to receive a complete list of individual sites contact Pat Grover, Coordinator for the Mason County Noxious Weed Control Board at (360)427-9670 ext. 592, or Cheryl Bartlett, Forest Botanist for the Olympic National Forest at (360) 956-2283.

Jefferson Creek Watershed 2401 and 2421 Rds and spurs; Jefferson Creek Pit; Lilliwaup Creek Watershed 24 and 2419 Rds and spurs; Cushman Pit, Mint Meadow; Lower North Fork Skokomish Watershed 2340 Rds and spurs; Dennie Ahl seed orchard; Lower South Fork Skokomish River Watershed 23, 2340, 2350, 2351, 2352 Rds and spurs, Old Oxbow CG; Mainstem Hamma Hamma River Watershed 25 and 2502 Rds and spurs; Hamma Hamma

## PUBLIC NOTICES

Pit; Hamma Hamma CG Loop Trail, Hamma Hamma and Lena CGs; Middle Fork Satsop Watershed 23, 2350, 2352, 2356 Rds and spurs; Middle North Fork Skokomish River Watershed 24 and 2419 Rds and spurs; Big Creek Campground; Lake Cushman Pit; Upper South Fork Skokomish Watershed 23, 2340, 2352, 2353, 2354, 2355, 2360, 2361 Rds and spurs; Pine Lake; V1043, Brown Creek, and Brown Creek Flat Pits; Brown Creek and LeBar Horse campgrounds; Upper West Fork Satsop River Watershed 23, 2352 Rds and spurs.

1911 April 25 1t

# **NOTICE**

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

\_\_\_\_\_, 2019  
to control weeds, which threaten native vegetation and habitat in this area:

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

Targeted Weed Species include, but are not limited to:

*Scotch broom, herb Robert, bull thistle, Canada thistle, tansy ragwort, common tansy, meadow hawkweed*

**NO USE RESTRICTIONS ARE IN PLACE**

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

**FOR MORE INFORMATION CONTACT:**

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Forest Botanist and Invasive Plant Program Coordinator  
Olympic National Forest  
1835 Black Lake Blvd., SW Suite A  
Olympia, WA 98512  
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360-956-2283

This sign may be removed no sooner than one month after listed treatment dates.

# **Appendix J**

## **Project Forms**

2019 FACTS Invasive Plant Treatment Data Form  
General Activity Fields

Ref #: 3418

Reviewed  
Scanned  
Entered

HS  
HS  
HS

Admin Use Only  
Activity Unit FACTS ID#: \_\_\_\_\_ Name: \_\_\_\_\_  
Activity Subunit #: \_\_\_\_\_ Name: \_\_\_\_\_

Region	Forest	District (circle one)*	6 <sup>th</sup> Field Watershed Name	Owner	Workforce** (and Number of People in Crew)
06	09	PAC-N (05) PAC-S (03)	Lower S.F. Skokomish	FS	MCNWCB (2) # people
HC-N (02) HC-S (01)					
Method Code	Equipment Code:	Job Code:	Treatment Location and Comments:	Comments:	
700 Herbicide	(circle one) 711 hand sprayer 712 backpack sprayer 713 hack & squirt 716 injector	Title II	If you are treating a road, record Road number w/ BMP & EMP If you are not treating a road (ex: a campground, rock pit, etc.) record Site Name -Record this information as it appears on the spreadsheet. FS Rd. 2300 BMP 5.45 - 7.1	1.65 miles	
100 Manual	721 mobile ground sprayer 000 other	Was entire area represented by the Ref# treated for weeds? Yes / <input checked="" type="radio"/> No → If no, describe what part was treated above.			

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

Should this area be a high priority for follow-up treatments next year?  Yes /  No (circle one)  
Is this area a good candidate for post-treatment seeding?  Yes /  No (circle one)

Site/Inventory Fields

Date of Treatment	Acres examined	Application Site (circle one)	Licensed Applicator: Name and License #
8/20/2019	4	Road edge/ROW Riparian Campground Forest Rock source Trailhead Admin Site Other:	Grover 74021 Steinbach # 98213
Total Manual Infested Area Treated: Do not lump plants together:			0 acres
Weeds Treated (Use PLANTS code; include common name too if uncommon weed)	Infested Area Treated (IAT)	% cover in IAT (Use cover classes 1 - 9 listed below)	Comments
GERD	4 acres	1	ALL
CLVU	4 acres	1	ALL
TAVU	2 acres	1	
SEJA	4 acres	1	
CIAR4	2 acres	1	
DAAL6	4 acres	1	ALL - BEGIN TREATMENT
DIPU	4 acres	1	ALL - BEGIN TREATMENT
HYPE	4 acres	1	Partial treatment

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

RULA 2 1  
RUAR9 2 1

Daily Log

Tank Mix 1

Application Date	Time Start	Time Stop	Temp (F)	Wind Speed (MPH)	Wind Direction	Cloud Cover	Comments:				
8/20/2019	1228	1600	80	2	N	40%					
Total Volume of Mix Applied	UOM	Mix (ounces herbicide per 1 gallon water)		Dilutant	Applicators Names						
18	Gallons	1.	0.17 oz/ gal	Water	Grover, Steinbach						
		2.	oz/ gal								
Herbicide Product Name	Amount of this herbicide product that was applied		Percent Solution	Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution	Total Application Area (Acres):				
1. Milestone	3.0 oz		0.13%	Competitor	12.0 oz	0.5%	4.0				
2.	oz		%	Blazon Blue	2.4 oz	0.1%	Area treated in Riparian Reserves: 2.5				
	oz		%		oz	%	Area Treated within 5 feet of Standing Water: Ø				

Tank Mix 2 (For use when more than one tank mix is used to treat the infestation).

Total Volume of Mix Applied	UOM	Mix (ounces herbicide per 1 gallon water)		Dilutant	Applicators Names					
N/A	Gallons	1.	N/A oz/ gal	Water	N/A					
		2.	oz/ gal							
Herbicide Product Name	Amount of this herbicide product that was applied		Percent Solution	Adjuvant Product Name	Amount of this adjuvant that was applied	Percent Solution	Total Application Area (Acres):			
1.	oz		%		oz	%	N/A			
2.	oz		%		oz	%	Area treated in Riparian Reserves:			
	oz		%		oz	%	Area Treated within 5 feet of Standing Water:			

(From front page) Ref #: 348  
 2019 FACTS Invasive Plant Treatment Data Form  
 Page 2 of 2 modified by clb 04/25/2019

Notes: High priority for future treatment should be 0.15 miles before/after jct. w 2351 rd. Heavy infestation of

EPA #s for commonly used herbicides: Milestone: 62719-519  
 Aquaneat: 228-365 Aquamaster: 534-343 Polaris: 228-534  
 Vastlan: 62719-687 Stinger: 62719-73 Transline: 62719-259

GERO & CIVL  
 2019-08-20  
 10:05 AM

## **Appendix K**

### **Calibration Protocol and Results**

# Calibration Protocol and Results



## Backpack and Spot Treatment Calibration Guidelines

### How do I make the most of my herbicide spot treatments?

Accurate timing, careful measurements of herbicide and uniform spray motions are essential to proper, economical application. Consistent spray motions can help obtain good coverage of troublesome weeds. Soaking scattered weeds rather than using regular spray motions may result in excessive rates that could injure desirable species.

### How much herbicide do I put in my tank?

The mix amount is dependent on your spray volume and your application rate. Therefore, this question cannot be answered until we know the volume that is being applied with your particular spraying style in gallons per acre (GPA). The following step-by-step procedure will allow you to calibrate your spray volume (see answer at end).

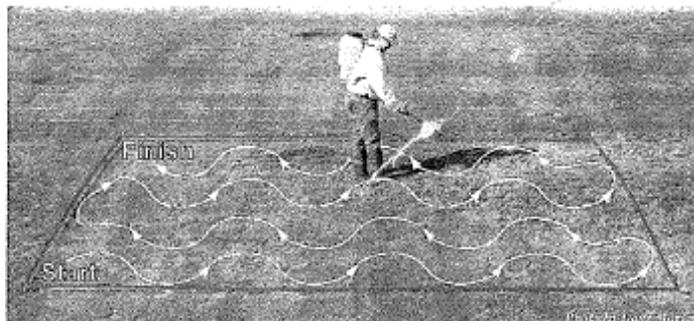
### Sprayer Calibration

## Six Simple Steps

The following step-by-step method of calibrating a backpack or hand-gun sprayer involves very little math or formulas. It is based on the following principal:

*One gallon = 128 fluid ounces and your calibration area to be sprayed is 1/128th of an acre, thus fluid ounces collected = gallons per acre.*

**1.** Clean sprayer and nozzle thoroughly. Then, fill the spray tank with clean water. Spray with water only to check to see that the nozzle forms a uniform spray pattern. If the pattern is uneven, check to make sure the nozzle is clean and replace it



if needed. Adjustable nozzles should be set and marked to permit repeated use of the selected spray pattern. If necessary, add a marker dye to the water to more easily see your spray pattern.

**2** Measure an area 18.5 feet by 18.5 feet, which is equal to 1/128th of an acre. If possible, this should be done in the field on which you will be spraying.

**3.** Time the number of seconds it takes to spray the measured area uniformly with water using gentle side-to-side sweeping motion with the spray wand similar to spray painting a home or automobile. Record the number of seconds required to spray the area. During application be sure to maintain a constant sprayer pressure and cover the entire area uniformly one time.

**You should repeat step 3 at least twice and use the average of the two times.**

**4.** Spray into a container for the average time calculated in step 3. Be sure to maintain constant sprayer pressure while you spray into the container.

**5.** Measure the number of fluid ounces of water in the bucket. The number of fluid ounces collected from the bucket is equal to the number of gallons of water per acre the sprayer is delivering. Volume sprayed in fluid ounces = gallons of water per acre (GPA).

**6.** Add the proper amount of herbicide to the tank. For backpack sprayers, use Table 1 to determine how much liquid herbicide to add to each gallon of water. For large sprayer, use Table 2 to determine the amount of liquid herbicide to add to your spray tank.

**Find your spray volume in gallons per acre (GPA - calculated above) and read across the tables to determine the amount of herbicide to add to each gallon of water based on the recommended herbicide application rate.**

**Tip** Use a syringe to measure herbicide if you are applying a low-rate product like Milestone (e.g., 5 to 7 fl oz/ac).

1 tsp=5cc  
1/2 tsp=2.5 cc  
1/4 tsp=1.3 cc



\*Trademark of Dow AgroSciences LLC. Some states require an individual be licensed if involved in the recommendation, handling or application of any pesticide. Consult your local extension office for information regarding licensing requirements. Always read and follow label directions. State restrictions on the sale and use of Transline apply. Consult the label before purchase or use the full details.

**Table 1: Backpack or Other Small-volume Sprayers**

The amount of herbicide you need to add to each gallon of water based on the recommended rate for the weed you are treating.

Gallons/Ac (from step 5)	Recommended Herbicide Rate/Acre				
	5 fl oz/ac	7 fl oz/ac	1 pint/ac	1 quart/ac	2 quarts/ac
20	7.5 cc/gal	10.5 cc/gal	5 tsp/gal	10 tsp/gal	3 1/4 fl oz/gal
30	5 cc/gal	7.0 cc/gal	3 tsp/gal	6 tsp/gal	2 fl oz/gal
40	3.8 cc/gal	5.3 cc/gal	2 1/3 tsp/gal	4 3/4 tsp/gal	1 1/2 fl oz/gal
50	3.0 cc/gal	4.2 cc/gal	2 tsp/gal	3 3/4 tsp/gal	1 1/4 fl oz/gal
60	2.5 cc/gal	3.5 cc/gal	1 1/2 tsp/gal	3 1/4 tsp/gal	6 1/3 tsp/gal
70	2.1 cc/gal	3.0 cc/gal	1 1/3 tsp/gal	2 3/4 tsp/gal	5 1/2 tsp/gal
80	1.9 cc/gal	2.6 cc/gal	1 1/4 tsp/gal	2 1/2 tsp/gal	4 1/2 tsp/gal
90	1.7 cc/gal	2.3 cc/gal	1 tsp/gal	2 tsp/gal	4 1/4 tsp/gal
100	1.5 cc/gal	2.1 cc/gal	1 tsp/gal	2 tsp/gal	3 3/4 tsp/gal

Liquid conversions: tsp = teaspoons; TBS = tablespoons; fl oz = fluid ounces; 1 cc = 1 ml; 3 teaspoons = 1 tablespoon; 8 fluid ounces = 1 cup; 2 tablespoons = 1 fluid ounce; 1 cup = 16 tablespoons

**Example for Backpack Sprayers:** You have completed the calibration procedure and applied 30 fluid ounces in the measured area. Therefore, your spray volume is 30 GPA. Look at Table 1 above for the amount to mix in 1 gallon of water. Assume you want to apply 5 fluid ounces of Milestone® per acre; the amount listed for your volume (GPA) and this application rate is 5 cc in each gallon of water. If you are filling a 3-gallon backpack sprayer take this amount times 3 and you would need to measure 15 cc (with a syringe) or 3 tsp of Milestone® for your 3 gallon mix. It doesn't take much.

**Table 2: Larger Hand-gun Sprayers**

The amount of herbicide you need to mix in 100 gallons of water based on the recommended rate for the weed you are treating.

Gallons/Ac (from step 5)	Recommended Herbicide Rate/Acre				
	5 fl oz/ac	7 fl oz/ac	1 pint/ac	1 quart/ac	2 quarts/ac
20	25.0 fl oz	35.0 fl oz	5 pints	5 quarts	10 quarts
30	16.7 fl oz	23.3 fl oz	3.3 pints	3.3 quarts	6.6 quarts
40	12.5 fl oz	17.5 fl oz	2.5 pints	2.5 quarts	5 quarts
50	10.0 fl oz	14.0 fl oz	2 pints	2 quarts	4 quarts
60	8.3 fl oz	11.7 fl oz	1.6 pints	1.6 quarts	3.2 quarts
70	7.1 fl oz	10.0 fl oz	1.4 pints	1.4 quarts	2.8 quarts
80	6.3 fl oz	8.8 fl oz	1.25 pints	1.25 quarts	2.5 quarts
90	5.6 fl oz	7.8 fl oz	1.1 pints	1.1 quarts	2.2 quarts
100	5.0 fl oz	7.0 fl oz	1 pints	1 quarts	2 quarts

Conversions: 16 fluid ounces = 1 pint; 32 fluid ounces = 1 quart; 64 fluid ounces = 2 quarts

**Example for Larger Sprayers:** You calibrate your sprayer and the output is 50 GPA, and your sprayer holds 100 gallons. The amount of area you can treat is 2 acres with your full spray tank. The label requires an herbicide application rate of 5 fl oz/acre for the target weed. You would add 10 fl oz of herbicide to your tank since you are treating 2 acres with each full tank mix.

## Calibration Verification

Agency/Organization: MCNWCB Date: April 30, 2019

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

Signature: Heidi Stimmelach Position: Control Assistant

Equipment ID	Equipment Type	Calibrated GPA	Working Condition?	Comments	Examiner Initials
SPO#1	Backpack sprayer	56	good	Light breeze, 2-5 mph	HS
		100		2 min 30 sec	
Sprayer Plus #1	Backpack sprayer	58	GOOD	1 min 59 sec	
		60		2 min 02 sec	HS
Hudson #1	Backpack sprayer	93		2 min 27 sec	
		62		1 min 51 sec	HS
Solo #2	Backpack sprayer	45		2 min 23 sec	