
# Olympic Peninsula Cooperative Noxious Weed Control
# 2016 Project Report

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

Report compiled by
**Mason County Noxious Weed Control Board**
Patricia Grover, Coordinator
Kendall Carman, Field Assistant
Keith Reitz, Field Assistant

March 17, 2017

303 N. 4th St
Shelton, WA 98584
(360) 427-9670 extension 592

# Table of Contents

## Report Recipients

Susan Piper
Forest Wildlife Biologist & Botany and Invasive Plant Program Manager
Olympic National Forest
Supervisor's Office
1835 Black Lake Blvd, SW
Olympia, WA 98512

Cheryl Bartlett
Forest Botanist and Native Plant Program Coordinator
Olympic National Forest
1835 Black Lake Blvd, SW
Olympia, WA 98512

Electronic Notification to online link:

Mason County Commissioners
Terri Jeffreys
Randy Netherlin
Kevin Shutty

Mason County Noxious Weed Control Board Members
David Robbins
Myrn Stewart
Barry Fischer

**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/
**2016 Title II Report**

## Acknowledgements

We'd 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**

Kendall Carman & Keith Reitz

**WSU Mason County Extension**

Lisa DeWall
Office Manager

**Olympic National Forest**

Susan Piper
Forest Wildlife Biologist & Botany and Invasive Plant Program Manager

Cheryl Bartlett
Forest Botanist and Invasive Plant Program Manager

**Washington Conservation Corps**

Darrell Borden and WCC crew

## EXECUTIVE SUMMARY

**Project Goal:**

Noxious weeds pose an environmental and economic threat to the citizens, ecosystems and productivity of Mason County. Nearly 21% of Mason County's land base, or just over 127,000 acres, is located within the Olympic National Forest (ONF). It is the goal of this Participating Agreement to continue building a framework on which the ONF, Mason County and other community stakeholders can build a collaborative noxious weed control effort.

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

**Project Overview:**

Since 2005, Title II funding has been instrumental in the development of a noxious weed control program in Mason County. As an active participant in the protection of ONF lands from the threat of invasive plant species, program staff works to locate and treat noxious and invasive plant infestations within, and adjacent to, the Olympic National Forest. 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 Mason County Noxious Weed Control Board (MCNWCB) the opportunity to develop the capacity to undertake projects that require the availability of field going expertise, labor and equipment. In 2016 Title II funding augmented county and grant funds to further fund the part-time coordinator and provide seasonal employment for two field staff.

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

**2016 Project Goals:**

- Control invasive plants within special project areas.
- Control invasive plants on roads scheduled for decommissioning.
- Control invasive plants in areas planned for future forest management activities.
- Survey for and treat invasive species in rock sources within the Olympic National Forest.
- Control invasive plants in campgrounds, at trailheads and other frequently visited sites.
- Revisit previously controlled sites and perform necessary follow-up control work.
- Identify and treat new populations utilizing Early Detection and Rapid Response (EDRR).
- Conduct surveys of and provide technical expertise to privately owned rock sources in Mason County.
- Build new relationships with other agencies, citizens, businesses and non-profits in Mason County.

**2016 Resources:**

- Mason County Noxious Weed Control Board Coordinator (15 hours/week, 3.0 months)
- MCNWCB Field Assistants (2 @ 15 hours/week for 3 months)
- Washington Conservation Corp crew - 1 week

**2016 Accomplishments:**

- Treated, either manually or with herbicide, approximately **78** weed-infested acres within the ONF.
- Completed and submitted **63** paper accomplishment forms for the Forest Activity Tracking System (FACTS) database and **13** monitoring reports. In addition, site specific notes and recommendations were included for many locations.
- Participated in **9** public events or meetings, resulting in over **894** contacts with Mason County residents or visitors.
- Current agreements with the Washington State Department of Natural Resources and Green Diamond Resource Company provided for opportunities to survey for, and implement control measures for, invasive species on lands adjacent to National Forest land. In September 2017, the City of Tacoma, Department of Public Utilities and the MCNWCB finalized a **Permission to Enter Private Land and Waiver of Liability**. This document, in effect until December 31, 2019, provides permission to treat noxious weeds and will provide an opportunity to control Scotch broom, herb Robert and other invasive species along primary access corridors to the Olympic National Forest and Park.
- Completed annual project report.

## PROJECT SUMMARY

### Project Goal

Noxious weeds pose an environmental and economic threat to the citizens, ecosystems and productivity of Mason County's terrestrial and aquatic natural resources. Invasive species, including noxious weeds, can outcompete native plants and animals, interfere with commercial harvest and result in millions of dollars in costs to control and undo damages. Nationally, invasive species cost more than $137 billion annually through crop damage, fisheries reduction, forest health impacts and management.

Nearly 21% of Mason County's land base, or just over 127,000 acres, is located within the Olympic National Forest (ONF). It is the goal of this Participating Agreement to build a framework on which the ONF, Mason County and other community stakeholders can build a collaborative noxious weed control effort which functions throughout Mason County.

The Mason County Noxious Weed Control program will continue to leverage participation at community events to provide noxious weed education to the public as a key component of the program. This emphasis on education and prevention, integrated with "Early Detection, Rapid Response" (EDRR), works to further create a coordinated and efficient approach to the protection of Mason County's resources from the adverse effects of invasive plants.

### 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 a Washington

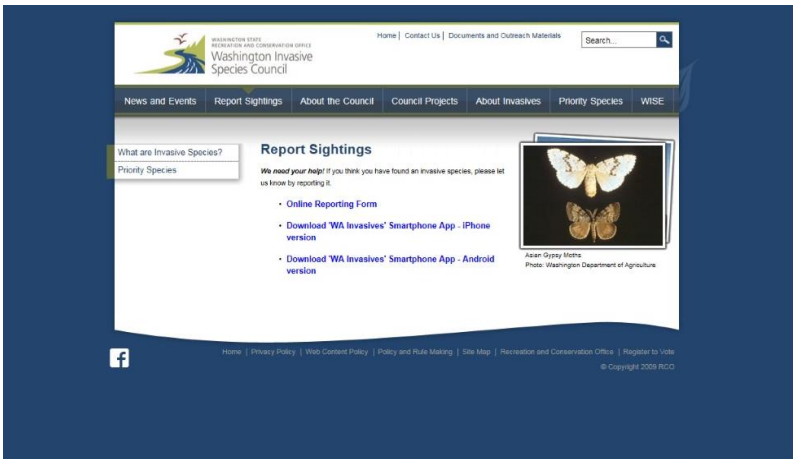
Conservation Corps (WCC) crew are now actively involved with implementation of components for control of invasive plants identified in the FEIS.

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

Treatments continue to emphasize control of high priority noxious weeds (Appendix E) in areas with high potential for spread, such as rock sources or campgrounds. Ecologically unique environments, such as Botanical Areas, are also a high priority.

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.



The Washington Invasive Species Council's reporting App for invasive species.

The Washington Invasive Species Council (WISC) has released an App for smartphone or computer that encourages citizens to report unusual sightings. Within a few minutes of sighting and reporting a suspected invasive species, an automated alert containing a photograph, geographic coordinates and sighting information is sent to a network of experts.

According to Justin Bush, WISC Executive Coordinator, "This streamlined process will enable invasive species managers in Washington State to more quickly respond to new invasive species sightings. When it comes to successfully eradicating invasive species, early detection and a rapid response is key."

Developments such as WISC's citizen-based App provide local entities tasked with noxious weed control an early warning of new invaders. 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.

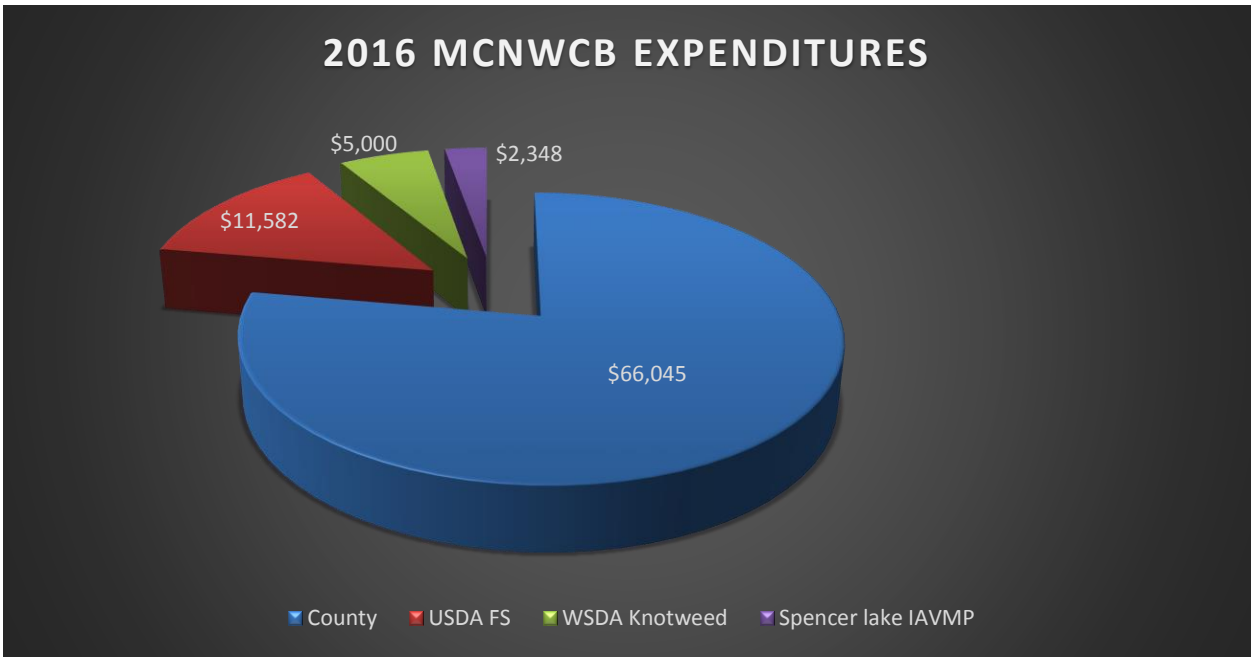
In Mason County, several individuals and crews accomplish control efforts within the ONF. During the 2016 season, the MCNWCB coordinator and two assistants received funding through this agreement. In addition, a WCC crew under the direction of MCNWCB personnel, and a Forest Service crew contributed to program goals.

| **Mason County Noxious Weed Control program**<br><br>**2016 Snapshot** | |
|---|---|
| Number of weed species known to occur in Mason County (2016 Weed List) | 59 |
| Number of regulated species | 22 |
| Most common regulated weeds | giant hogweed, knapweeds, hawkweeds, |
| Least common regulated weeds | common reed, Spanish broom, yellow nutsedge |
| Most common treated weeds | tansy ragwort, giant hogweed, bohemian knotweed, scotch broom |
| Educational Events – Events, Presentations, etc. | 9 |
| Public contacts at educational events | 894 |
| County funding for Noxious Weed Control program (General fund) | $66,045 |

**2016 Project Description**

A preseason work session was held at the Hood Canal Ranger District office in Quilcene, WA on May 12, 2016 with Forest Service personnel, Mason County and Clallam County Noxious Weed Control Board coordinators. A project work plan was developed by the Forest Service that established priority sites and species for the season (Appendix A). The planned work involved treating and monitoring previously identified weed infestations on Forest Service land. The Forest Activity Tracking Sheet (FACTS) form, which was unchanged from the 2015 format, was used to document manual or chemical treatments. Treatment reporting was based on a unique "Reference Number", assigned within Project Areas. Monitoring to determine treatment efficacy was completed by MCNWCB personnel on approximately 30% of MCNWCB treated acres (Appendix I, example of Monitoring form).

Increased support and funding from the Mason County General Fund has supported additional coordinator and field staff time. Expertise and equipment utilized to support the Title II work has been leveraged to secure funding from other grant sources.




In 2016, treatments on Forest Service lands continue to be prioritized as follows:

- Control weeds in quarries and other rock sources on National Forest land.
- Control weeds in special project areas such as wildlife forage enhancement areas or timber sales.
- 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.

## 2016 Project Resources and Performance

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

- **Supervisor (MCNWCB coordinator): 60 hours/month, for 3.0 months, licensed applicator**
  - Supervised and administered the project
  - Provided crew training, technical information and support; and planned and supervised most field treatments
  - Participated in an end-of the year meeting for 2015's field season and in a beginning of the year planning meeting with Forest Service staff
  - Completed end-of-season reporting and planning for 2017 field season

- **Program Assistants: 2 at 60 hours/month, for approximately 3.0 months**
  - Responsible for daily preparation for field activities
  - Reviewed, finalized and submitted 63 FACTS forms for all treated sites
  - Provided crew training, technical information and support

## 2016 Project Accomplishments

| 2016 Accomplishments | |
|---|---|
| **Acres Treated** | **78** |
| **Acres Examined for Weeds** | **90** |
| **New sites (EDRR)** | **0** |

County staff completed the majority of the treatments with support from 4 days of a Forest Service funded 3-5 person WCC crew. Appendix B summarizes types of treatment and specific weed species treated.

Where infestation levels are too 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.

## 2016 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 | | | | | 6/22/2016 |
| Lake Cushman Quarry | 364 | | | | | 8/4/2016 |
| Brown Creek Quarry | 369 | | 6/29/2016 | | | 6/13/2016<br>6/29/2016 |
| Hamma Hamma Pit | 355 | | | 7/6/2016 | | 7/6/2016 |
| 23 RD Deep Patch Borrow Site | 610 | | | | | 6/21/2016 |
| V1043 Quarry | 394 | | 8/22/2016 | | | 8/22/2016 |

Cushman Pit

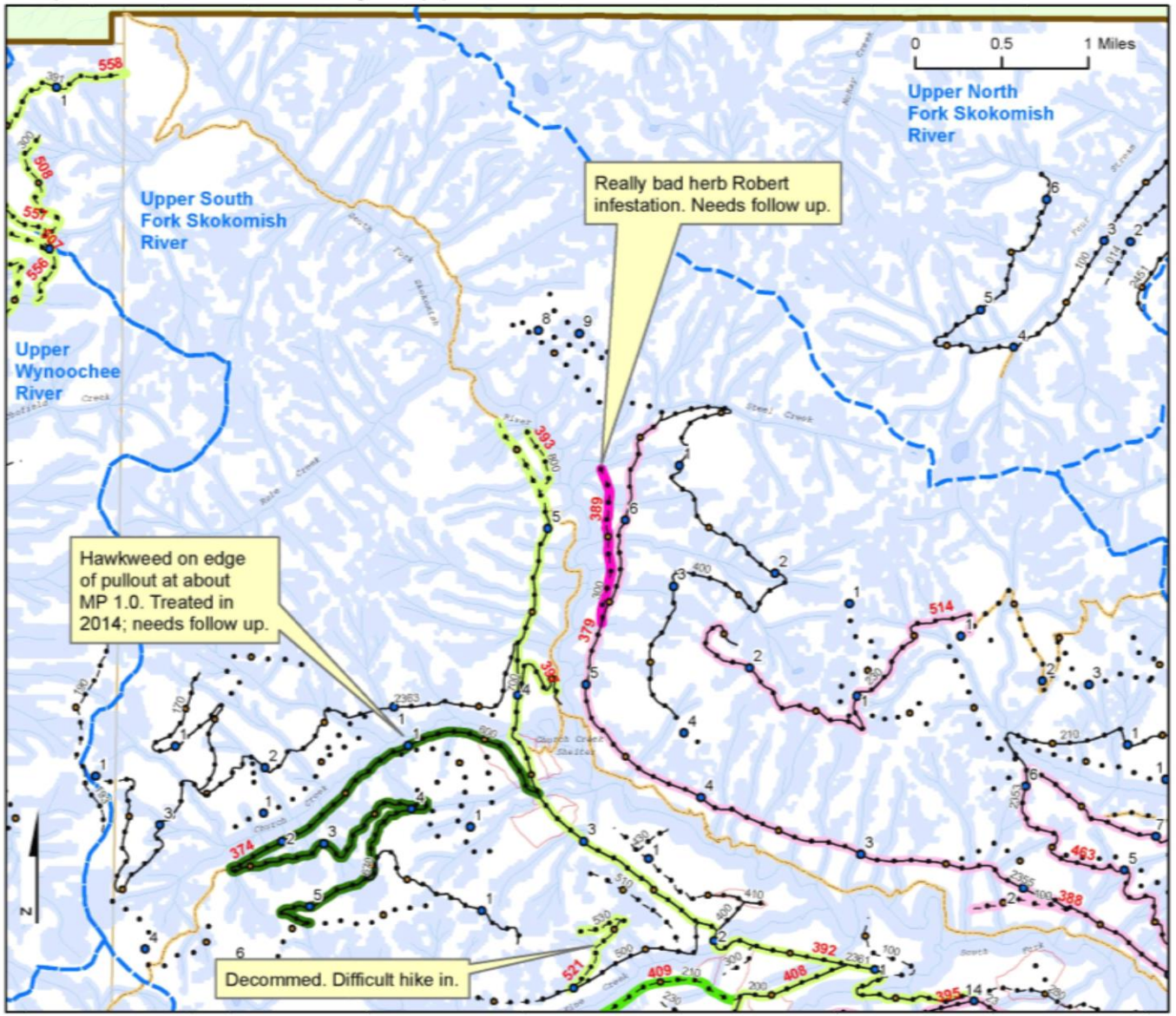
Brown Creek Quarry

Hamma Hamma Pit

**WORK PLAN MAPS**

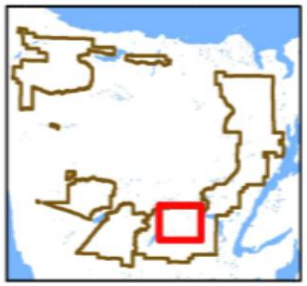
The following eight maps were created by Forest Service personnel and depict the various areas of National Forest land within Mason County where noxious weed control activities were prescribed in 2016. Callout boxes provide valuable information pertaining to species, degree of infestation, road closures, etc.

# Olympic National Forest FY 2016 Invasive Plant Program
## Map 30. Mason County: Upper South Fork Skokomish River

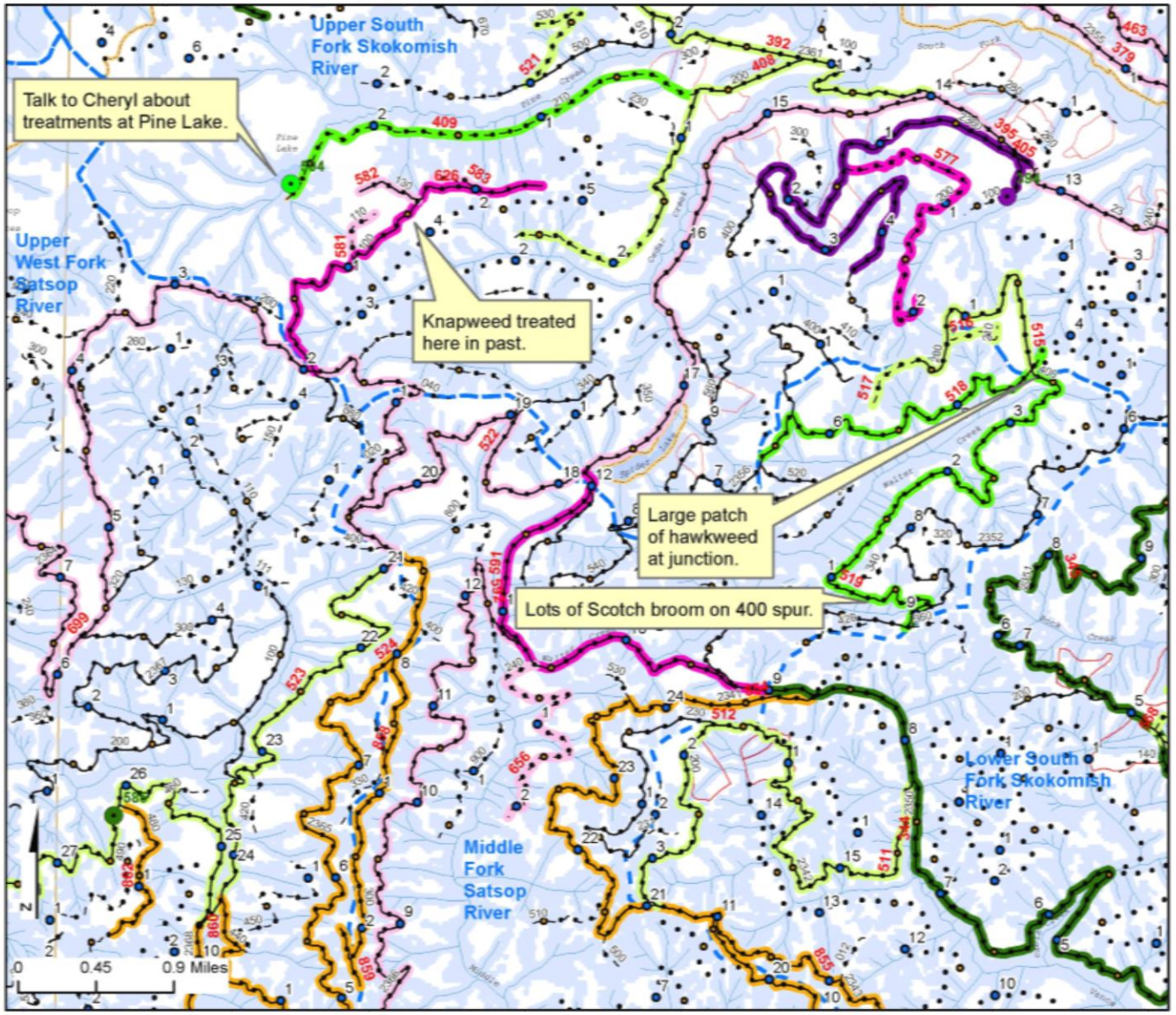



- County, Priority 1A
- County, Priority 1
- County, Priority 2
- FS, Priority 1A
- FS, Priority 1
- FS, Priority 2
- Survey Only
- Open Road, primary
- Open Road, secondary
- Closed Road
- 0.1 Milepost
- 0.5 Milepost
- 1.0 Milepost
- Trail - Forest Service
- Timber Sale Units
- Watershed Boundary
- Olympic NF Boundary
- Riparian Reserve

Red numbers
Ref # for roads
Green numbers
Ref # for non-roads
Black single digit numbers
Road mileposts
Black 4 and 3 digit numbers
Road and spur numbers
Blue text
6th field watershed name

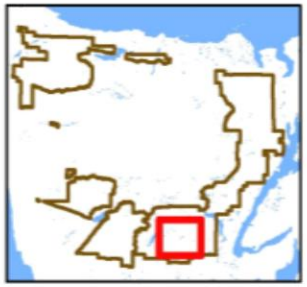


# Olympic National Forest FY 2016 Invasive Plant Program
## Map 31. Mason County: Satsop and South Fork Skokomish River

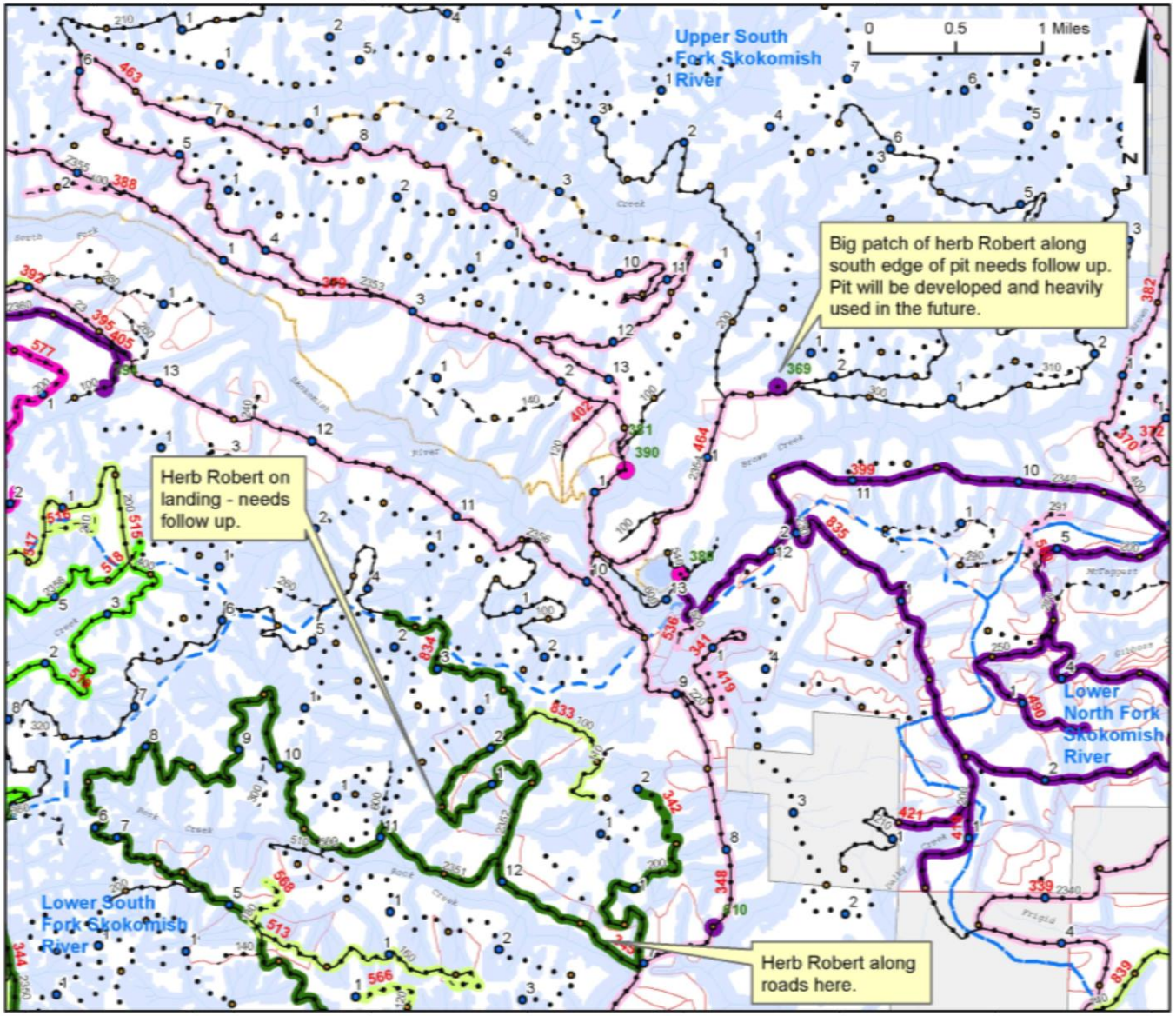



- County, Priority 1A
- County, Priority 1
- County, Priority 2
- FS, Priority 1A
- FS, Priority 1
- FS, Priority 2
- Survey Only
- Open Road, primary
- Open Road, secondary
- Closed Road
- 0.1 Milepost
- 0.5 Milepost
- 1.0 Milepost
- Trail - Forest Service
- Timber Sale Units
- Watershed Boundary
- Olympic NF Boundary
- Riparian Reserve

Red numbers
Ref # for roads
Green numbers
Ref # for non-roads
Black single digit numbers
Road mileposts
Black 4 and 3 digit numbers
Road and spur numbers
Blue text
6th field watershed name

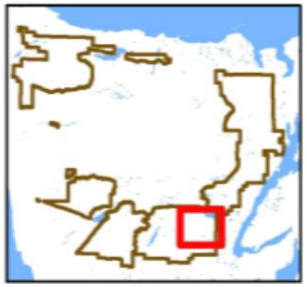


# Olympic National Forest FY 2016 Invasive Plant Program
## Map 33. Mason County: Upper South Fork Skokomish River East

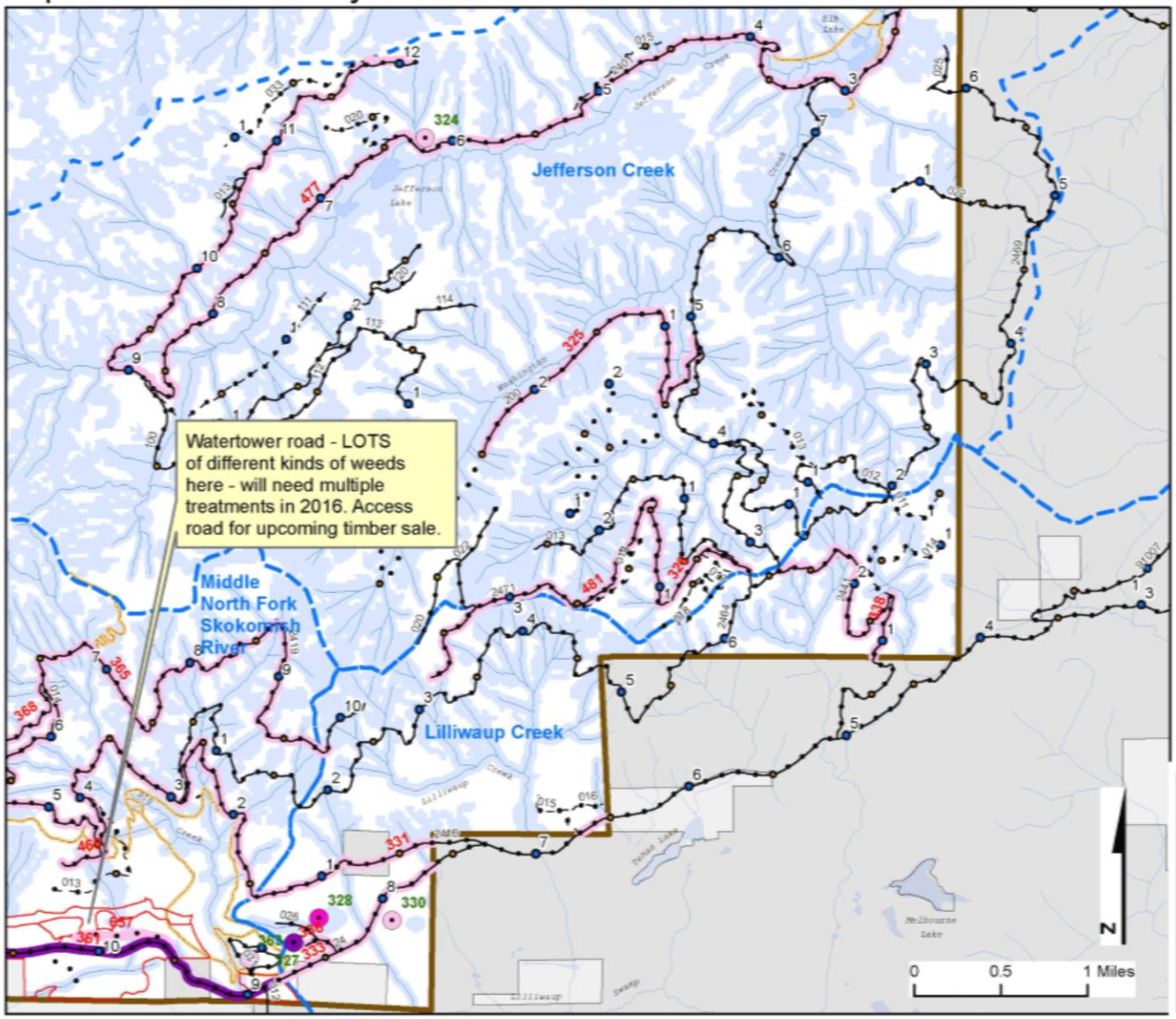



- County, Priority 1A
- County, Priority 1
- County, Priority 2
- FS, Priority 1A
- FS, Priority 1
- FS, Priority 2
- Survey Only
- Open Road, primary
- Open Road, secondary
- Closed Road
- 0.1 Milepost
- 0.5 Milepost
- 1.0 Milepost
- Trail - Forest Service
- Timber Sale Units
- Watershed Boundary
- Olympic NF Boundary
- Riparian Reserve

Red numbers
Ref # for roads
Green numbers
Ref # for non-roads
Black single digit numbers
Road mileposts
Black 4 and 3 digit numbers
Road and spur numbers
Blue text
6th field watershed name



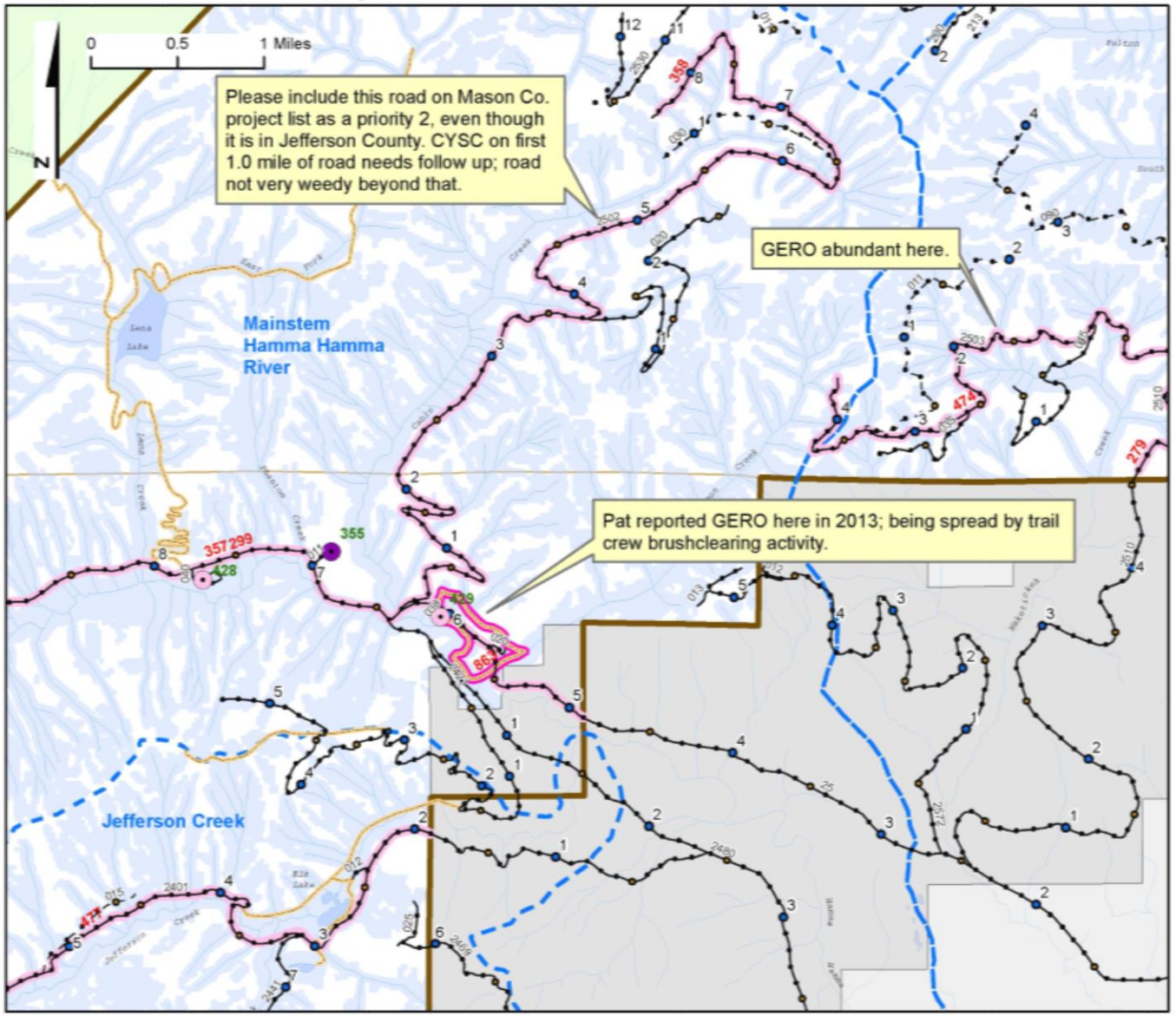
# Olympic National Forest FY 2016 Invasive Plant Program
## Map 37. Mason County: Jefferson Creek




- County, Priority 1A
- County, Priority 1
- County, Priority 2
- FS, Priority 1A
- FS, Priority 1
- FS, Priority 2
- Survey Only
- Open Road, primary
- Open Road, secondary
- Closed Road
- 0.1 Milepost
- 0.5 Milepost
- 1.0 Milepost
- Trail - Forest Service
- Timber Sale Units
- Watershed Boundary
- Olympic NF Boundary
- Riparian Reserve

Red numbers
Ref # for roads
Green numbers
Ref # for non-roads
Black single digit numbers
Road mileposts
Black 4 and 3 digit numbers
Road and spur numbers
Blue text
6th field watershed name

# Olympic National Forest FY 2016 Invasive Plant Program
## Map 39. Mason County: Hamma Hamma East




- County, Priority 1A
- County, Priority 1
- County, Priority 2
- FS, Priority 1A
- FS, Priority 1
- FS, Priority 2
- Survey Only
- Open Road, primary
- Open Road, secondary
- Closed Road
- 0.1 Milepost
- 0.5 Milepost
- 1.0 Milepost
- Trail - Forest Service
- Timber Sale Units
- Watershed Boundary
- Olympic NF Boundary
- Riparian Reserve

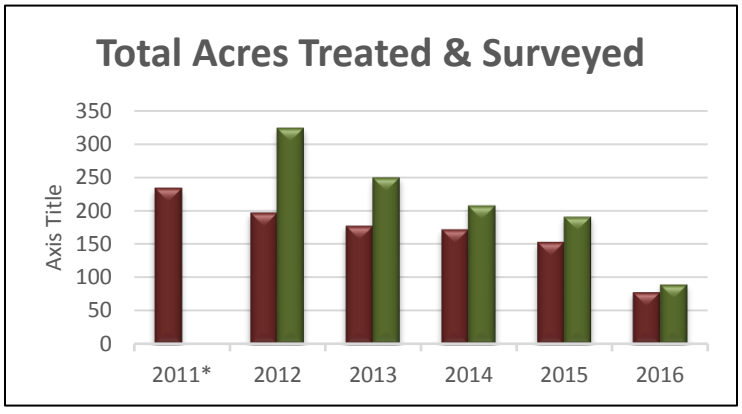
Red numbers
Ref # for roads
Green numbers
Ref # for non-roads
Black single digit numbers
Road mileposts
Black 4 and 3 digit numbers
Road and spur numbers
Blue text
6th field watershed name

## POST-SEASON OBSERVATIONS

### Nature of the Problem

Invasive species are likely better documented on USDA Olympic National Forest (ONF) lands and waterways within Mason County than on most other jurisdictions. Extensive surveys in the mid 1990's and subsequent documentation in the *Olympic National Forest Final Environmental Impact Statement and Record of Decision Beyond Prevention: Site Specific Invasive Plant Tretment Project* (March 17, 2008) mapped and recorded the occurrence, distribution and abundance of invasive species across the Olympic National Forest. As capacity for survey and documentation of invasive species increases for the Mason County Noxious Weed Control Board (MCNWCB), it is clear that the occurrence of invasive species is as problematic on other jurisdictions, yet not as extensively documented. For land conservancy organizations within Mason County which oversee hundreds of acres of land, non native plants pose a significant threat to the ecosystems they work to protect. In our experience working with organizations such as the Capitol Land Trust, Forterra and the Great Peninsula Conservancy, these organizations are challenged by the increasing time and resources that control and management of introduced species requires. As organizations and entities deploy resources to control invasives, the potential for reinvasion from surrounding lands will threaten these efforts. Collaboration across all jurisdictions is necessary to ensure long term successful invasive species control.

Each year, non-native species may be added to the Forest Service priority list as their presence and potential impacts are recognized. In 2016, there were 44 **Treatment Priority 1 or 2** species on the Olympic National Forest Invasive Species List (Appendix E). Without treatment, any new species and existing invaders will likely persist and continue to expand.




Since 2009, Mason County personnel, Forest Service employees, WCC crews and contract weed control personnel have been actively treating noxious weeds on most of the 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. As a result of decreased funding and smaller, more labor intensive invasive plant infestations, "total acres treated" has shown a decline over time. 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

- Distribution and population densities of targeted weed species continue to be reduced on many sites with multi-year treatments.
- The most commonly recorded invasive species on ONF lands within Mason County continue to be Scotch broom, tansy ragwort, herb Robert, Canada thistle, bull thistle or everlasting peavine.
- St. Johnswort appears to be increasing in abundance and distribution. Those areas considered more at risk, due to proximity to trailheads, areas of special significance, etc. will need continued monitoring and perhaps the development of a decision matrix to determine when to treat this Washington state Class C Noxious Weed. Although this species is currently a priority 2 species on the ONF, MCNWCB staff has initiated treatment in most of the rock source areas.
- An infestation of sulfur cinquefoil was discovered along FS Rd 2300 as an EDRR site in July 2011. Sulfur cinquefoil is a Washington State Class B Noxious Weed, "designated" for control in Mason County. The site is checked annually and treated as necessary. In 2016, 5-10 plants were found, with one in bloom. The species has not been found elsewhere on National Forest land within Mason County.

The sulfur cinquefoil (*Potentilla recta*) along FS Rd 2300 is monitored each year for reoccurrence.

- Spotted knapweed, located on the rock bluff above Lake Cushman, remains a control challenge. Accessibility, timing and buffer restrictions have limited control success at this site. This infestation will require continued follow up and creative use of control practices in the future. The approval for use of aminopyralid on Olympic National Forest lands in 2016 should provide a viable option for this site in the future.

Spotted knapweed blooming at Lake Cushman, August 04, 2016

- The infestation of Scotch broom along Forest Service road 2500 has recovered from the late 2012 roadside mowing and is in full seed production. This infestation is too large for MCNWCB personnel to adequately treat with backpack sprayers and is better suited for a contractual boom spray application. Personnel continue to utilize the top down approach to control Scotch broom on this road system and have slowed its advancement up the road.

- The majority of the herb Robert sites were treated multiple times during the 2016 field season. Many of the treated areas were re-vegetated with blue wildrye (*Elymus glaucus*) in October and November.

- 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. The full extent of the infestation within the Park has not been identified. Herb Robert was located within the Cushman pit, likely the result of materials from offsite projects being disposed of at that location.

**Survey and Treatment**

- The required legal notice appeared in the May 12, 2016 edition of the Mason County Journal (Appendix G).

- This year, there were 14 priority 1A projects, the majority of which received at least one treatment. Of the 8 priority 1 projects, treatments were accomplished on 3.

- The first treatment utilizing herbicide this year was performed on June 07$^{th}$ and the last was on October 11$^{th}$.

- Always watchful, informal surveys were performed while driving to assigned treatment project areas. No new Class A, or Class B "designate" species were located during the 2016 season on the ONF.

- The MCNWCB continues to utilize Integrated Vegetation Management (IVM) to develop site specific treatments.

- Triclopyr is the herbicide most widely utilized for treatment by the MCNWCB personnel on ONF land. In 2016, 89% of the 6.2 gallons of herbicide utilized as part of this project were a triclopyr formulation. Additional products utilized included glyphosate (2%), imazapyr (8%), clopyralid (1.5%) and aminopyralid (0.3%). Imazapyr was utilized primarily in pit treatments at the recommendation of the Forest Service.

- Pits continue to be a high priority for inspection and treatment. Six pits were identified as priority 1A sites on the 2016 project list.

- Treatment of campgrounds and trailheads remains a high priority due to the risk of introduction of new species and their potential for spread. Campgrounds were visited early in the season and level of infestations assessed. In many cases, initial treatments were made in mid-May, with follow-up treatments implemented later in the season. This strategy minimized interactions with campground users.

June 15, 2016 Bags of herb Robert at Brown Creek campground. Unseasonably wet weather in June and October hampered control efforts.

- Cool wet weather experienced in June, with 13 rain days and a record 19.46" of rain for the month of October provided challenges for the program.

- The Mint Meadow was a priority 1 treatment area in 2016. Treatment took place on July 20, 2016.

- During 2016, multiple treatments were made at several of the known herb Robert sites. In addition, manual removal was undertaken when there were a small number of plants or the weather was not suitable for herbicide use. These practices greatly diminished the plants ability to produce seed and ultimately the long term viability of the population.

- The extent of invasive plant populations in less accessible areas (i.e. wilderness areas, decommissioned roads or roads inaccessible due to storm damage) continues to be minimally documented. The work plan does not allocate time to accomplish this facet of the noxious weed control program by MCNWCB personnel.

- MCNWCB personnel completed the majority of the monitoring component in late September and October, often in conjunction with seeding. Monitoring documents how the project design features are applied and non-target resources are protected as per the *Olympic National Forest Site Specific Invasive Plant Treatment EIS.*

Tansy ragwort infestation on a closed spur, FS Rd 2360. Dead headed and treated approx.0.1 miles.

## Data Collection/Mapping

- 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 13-17 of this report.

- New personnel were tasked with completion of FACTS forms in 2016. One crewmember was assigned the responsibility for completion of paperwork.

- The field going office, aka the green bag, consists 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). The overall project map hangs on the office wall and daily priorities are established based on available field time and weather.

- Field personnel reviewed FACTS forms daily, entered accomplishments into an excel spreadsheet and submitted copies to the Forest Service electronically on a regular basis.

## Education

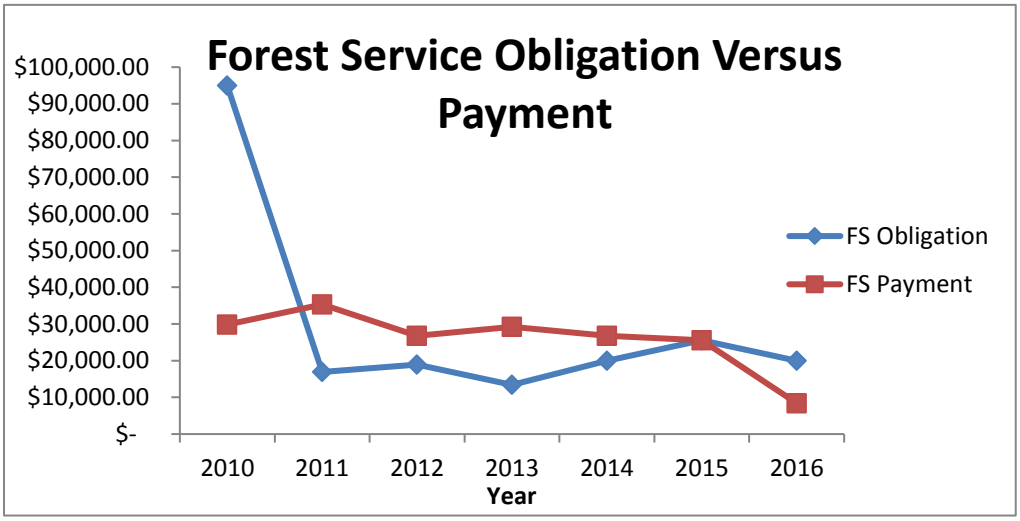
- MCNWCB personnel set up and staffed educational booths at Matlock Old Timer's Fair, Washington State University (WSU) Master Gardener's Plant Sale, Oakland Bay Day and Oyster Fest (Appendix D). Informational flyers and booklets were handed out and staff was on hand to answer questions from the public about noxious weeds.

MCNWCB booth at Oysterfest 2016

## RECOMMENDATIONS

### Future Direction of the Project

After the 2016 billing, the balance in the Participating Agreement between the USDA Forest Service, Olympic National Forest and the Mason County Noxious Weed Control Board is $8,417.75. Although the Secure Rural Schools Act was reauthorized for 2 years on April 16, 2015, additional funding availability for the 2017 season is unknown. The deadline for the Secretary of Agriculture to obligate the title II funds was extended to September 30, 2018.




Efficient use of financial resources continues to be a cornerstone of the Mason County Noxious Weed Control program. In Mason County, and other Olympic Peninsula counties, significant progress has been made during the past eight 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 which this cooperative project has accomplished.

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. Staff have provided a relatively inexpensive, locally based work force with county wide jurisdiction and long term commitment. However, 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. 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. 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 2016, 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. A majority of sites seeded in 2015 supported a relatively dense *Elymus glaucus* cover in the spring of 2016. This provided competition for the germinants of this prolific winter annual. In addition, observations suggest that herb Robert expends additional energy growing taller to produce flowers above the competing grass. The sites seeded this year will continue to be monitored in the 2017 field season and treated as necessary.

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.

Early detection is the key to preventing large and costly noxious weed infestations from developing on the forest. All Forest Service staff, including those from outside of the Botany department, will continue to be instrumental in recognizing and reporting early invaders. Concise location information can often result in same year treatments.

November 04, 2016. Cushman pit with piles of wood debris. Bringing new materials into rock pits increases the risk of introducing new invasive species. Pit inspections should continue to be a high priority to implement EDRR in response to new species.

As required, monitoring will remain an important component of the program. This requirement can function 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.

Since noxious weeds know no boundary, active participation and collaboration of landowners and citizens is essential to achieving long term control of noxious weeds. In 2017, 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.

## Survey and Treatment

As prioritized by the Forest Service, our focus will continue to be treating known sites. However, additional time should be allowed to survey areas which have not been surveyed or treated during the past 3-5 years. 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.

Manual removal of herb Robert, Lena Creek campground

Manual removal of herb Robert, Brown Creek campground

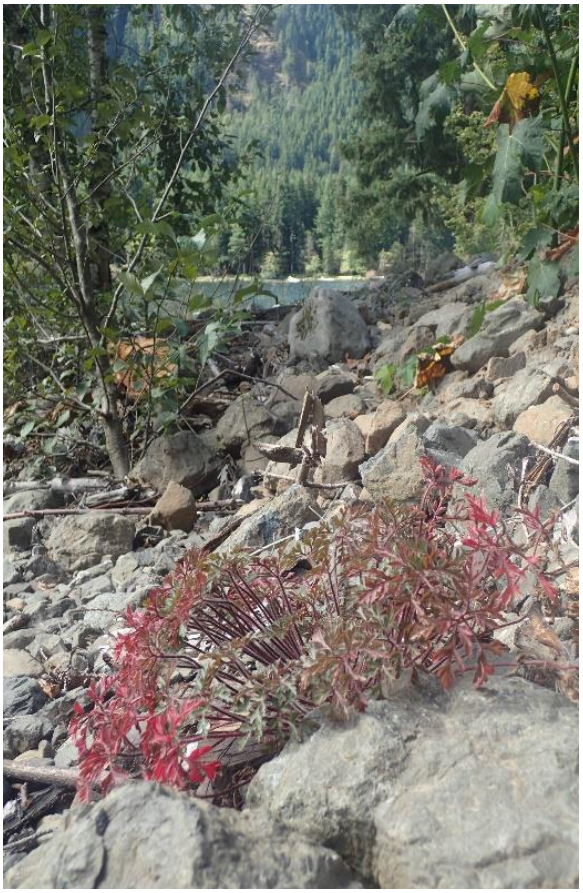
**Without treatment, herb Robert will silently overtake many more acres of National Forest.**

Herb Robert along FS Rd. 2355, a Priority 2 treatment area in 2016

**Documentation**

The FACTS form (Appendix H) and monitoring forms (Appendix I) have reached a stable, consistent format.

Pit surveys were often completed during treatment visits. Aerial photos were valuable for depicting where species are located more accurately than in a sketch format. (Appendix H)



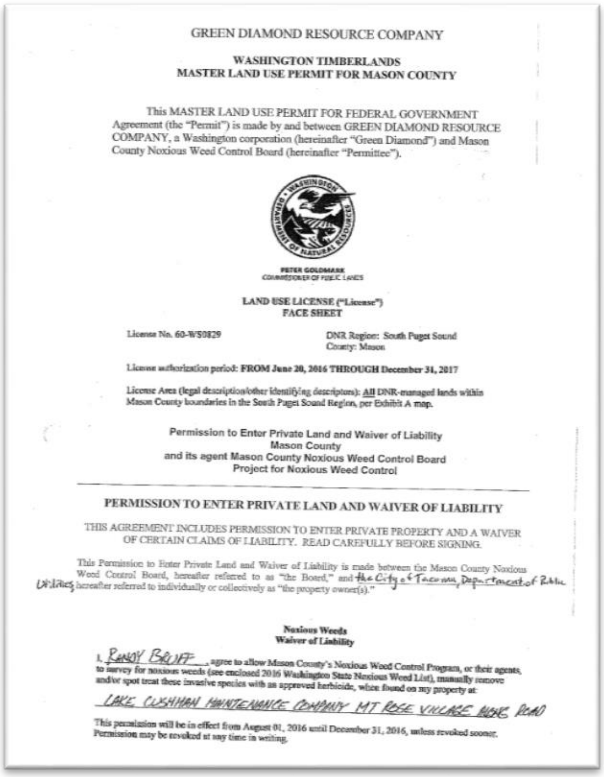
The recently completed Bear Gulch day use area has been herb Robert free until this year. Vigilance will keep this highly invasive noxious weed from extensively colonizing this site on the shoreline of Lake Cushman.

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.

Lesser burdock, a new species occurrence at Bear Gulch day use area this year. It is a treatment priority 1 species on the Olympic National Forest

# Together WE can prevent the spread of noxious weeds!

MCNWCB and WCC crew treating Scotch broom at entrance to Mt. Rose Village



GREEN DIAMOND RESOURCE COMPANY

WASHINGTON TIMBERLANDS
MASTER LAND USE PERMIT FOR MASON COUNTY

This MASTER LAND USE PERMIT FOR FEDERAL GOVERNMENT Agreement (the "Permit") is made by and between GREEN DIAMOND RESOURCE COMPANY, a Washington corporation (hereinafter "Green Diamond") and Mason County Noxious Weed Control Board (hereinafter "Permittee").

PETER GOLDMARK
COMMISSIONER OF PUBLIC LANDS

LAND USE LICENSE ("License")
FACE SHEET

License No. 60-WS0829

DNR Region: South Puget Sound
County: Mason

License authorization period: FROM June 20, 2016 THROUGH December 31, 2017

License Area (legal description/other identifying descriptors): All DNR-managed lands within Mason County boundaries in the South Puget Sound Region, per Exhibit A map.

Permission to Enter Private Land and Waiver of Liability
Mason County
and its agent Mason County Noxious Weed Control Board
Project for Noxious Weed Control

PERMISSION TO ENTER PRIVATE LAND AND WAIVER OF LIABILITY

THIS AGREEMENT INCLUDES PERMISSION TO ENTER PRIVATE PROPERTY AND A WAIVER OF CERTAIN CLAIMS OF LIABILITY. READ CAREFULLY BEFORE SIGNING.

This Permission to Enter Private Land and Waiver of Liability is made between the Mason County Noxious Weed Control Board, hereafter referred to as "the Board," and the City of Tacoma, Department of Public Utilities, hereafter referred to individually or collectively as "the property owner(s)."

Noxious Weeds
Waiver of Liability

I, RANDY BRUFF, agree to allow Mason County's Noxious Weed Control Program, or their agents, to survey for noxious weeds (see enclosed 2016 Washington State Noxious Weed List), manually remove and/or spot treat these invasive species with an approved herbicide, when found on my property at:

LAKE CUSHMAN MAINTENANCE COMPANY MT ROSE VILLAGE MORE ROAD

This permission will be in effect from August 01, 2016 until December 31, 2016, unless revoked sooner. Permission may be revoked at any time in writing.

The Mason County Noxious Weed Control Board entered into Agreements with Green Diamond Resource Company, Washington State Department of Natural Resources, City of Tacoma Public Utilities and Lake Cushman Maintenance Company to facilitate treatment of invasive species which threaten the Olympic National Forest.

MCNWCB staff and Forest Service crew after treatment of reed canarygrass at Pine Lake

And, sometimes, it's not about stopping the spread of "weeds" at all!

## 2016 PROTOCOLS
### Team and Project Dates

Treatment continues to be the focus of the project on ONF lands. Patricia Grover, MCNWCB coordinator, and field assistants Kendall Carman and Keith Reitz performed and documented treatments. Fieldwork began in June 2016 and continued through October 2016.

### Invasive Species Recorded

Treatment and surveys focused on Class A and B-designate weeds on the Mason County Noxious Weed List (Appendix F), and additional species that are of concern to the Forest Service (Appendix E). 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 1.5% Element 3A (triclopyr) and 0.5% Competitor (surfactant). Areas adjacent to water required a 5' buffer. In these areas a product containing glyphosate was utilized. Use of aminopyralid (Milestone) was initiated this year.
    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 May 12, 2016 (Appendix G). Herbicide applications were carried out between June 07, 2016 and October 11, 2016.

iii. On-site notices (Appendix G) 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) and Forest Service recreation personnel were contacted prior to commencing treatment.

## Equipment

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

## 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 H.

### *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. Forest Service protocols for completing this form are included in Appendix H.

### *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. A copy of a completed form is included in Appendix I.

## 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 only as EDRR (Early Detection Rapid Response) sites.

## Data Reporting

Office staff reviewed *FACTS* forms, Rock Source Survey forms and Olympic National Forest Invasive Plant Treatment Monitoring forms and submitted copies of them to the Forest Service regularly during the field season. The originals were retained in the Mason County Noxious Weed Control Board office. 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 2014 field season. It lists the area of treatment, by road, or other project area, method of treatment and weed species treated.

**Appendix C** is a summary of rock source inspections and treatments.

**Appendix D** showcases the MCNWCB participation in various Mason County events.

**Appendix E** contains the 2016 Forest Service Treatment Priority List.

**Appendix F** contains the 2016 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 G** contains the public notice published in the Shelton-Mason County Journal and an on-site posting notice.

**Appendix H** contains an example of a completed FACTS form and a Rock Source Survey form.

**Appendix I** contains a completed monitoring report form.

**Appendix J** contains the Backpack Sprayer Calibration protocols

# Appendix A

# Forest Service 2016

# Mason County Project List

(ordered by priority)

Olympic National Forest Invasive Plant Program
2016 Project List
Mason County

Priority 1A = Treatment Mandatory
Priority 1 = Treatment High Priority
Priority 2 = Treatment Discretionary
Priority S = Survey

| Ref # | 2016 Job Code | 2016 Work Crew | Priority | 6th Field Watershed Name | Watershed County | Site Name | Road # | BMP | EMP | Total Miles | Hawkweed | Knapweed - treat | Knotweed | Big X: GERO >0.1 acres & | Other weeds of | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **610** | CMRD09 | 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. |
| **399** | Title II | County | 1A | Upper South Fork Skokomish | Mason | | 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. |
| **418** | NFTM 09 | County | 1A | Lower North Fork Skokomish River | Mason | | 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, RUAR3, HYPE, |
| **421** | NFTM 09 | County | 1A | 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** | NFTM 09 | County | 1A | Lower South Fork Skokomish River | Mason | | 2340230 | 0.0 | 2.1 | 2.1 | | | | | | **Skok TS units adjacent to road.** Treated 2014, 2015: GERO, TAVU, CIVU, ARMI, SEJA, CYSC, RULA. |
| **490** | NFTM 09 | County | 1A | Lower North Fork Skokomish River | Mason | | 2340250 | 0 | 1.5 | 1.5 | | | | | | **Skok TS units adjacent to road.** Treated 2014: CIVU, CYSC, CIAR, TAVU, ARMI, SEJA |
| **369** | CMRD 09 | County | 1A | Upper South Fork Skokomish | Mason | **Brown Creek Quarry** | 2354000 | | | 0 | x | | | x | | **SF SkokTS.** At junction of 2354 and 2354300 road. Treated 2011 - 2015: **Hawkweed**, LALA, CIVU, SEJA, GERO, CYSC. |
| **405** | NFTM09 | County | 1A | 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 decomm schedule is. Did not receive treatmen in 2014. Treated 2015: CIVU, CESTM, RULA, CYSC, SEJA. **2016: Treatement high** |
| **406** | Title II | County | 1A | Upper South Fork Skokomish | Mason | | 2360100 | 0 | 0.2 | 0.2 | | | | | | **V1043 Quarry at end of road**. |
| **394** | CMRD 09 | 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 |
| **364** | CMRD 09 | 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** | CMRD 09 | County | 1A | Lilliwaup 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. |
| **355** | CMRD 09 | County | 1A | Mainstem Hamma Hamma River | Mason | **Hamma Hamma Pit** | 2500011 | 0.2 | 0.2 | 0 | | | | | mullein | 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, |
| **380** | Rec | County | 1 | Upper South Fork Skokomish | Mason | **Brown Creek CG** | 2340000 | | | 0 | | | | x | Burdock | Burdock becoming a problem at campground - it seems to 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, |
| **591** | Title II | County | 1 | 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 WS also needs to be surveyed for this weed - Ref # 344. Other weeds observed here include CYSC, |

Olympic National Forest Invasive Plant Program
2016 Project List
Mason County

Priority 1A = Treatment Mandatory
Priority 1 = Treatment High Priority
Priority 2 = Treatment Discretionary
Priority S = Survey

| Ref # | 2016 Job Code | 2016 Work Crew | Priority | 6th Field Watershed Name | Watershed County | Site Name | Road # | BMP | EMP | Total Miles | Hawkweed | Knapweed - treat | Knotweed | Big X: GERO >0.1 acres & | Other weeds of | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **390** | Rec | County | 1 | Upper South Fork Skokomish | Mason | **Lebar Horse CG** | 2353000 | | | 0 | | | | p | | GERO, CIVU, SEJA Treated 2012 |
| **389** | Title II | County | 1 | Upper South Fork Skokomish | Mason | | 2355300 | 0 | 0.9 | 0.9 | | | | x | | Decomm complete in 2008. Robin Stoddard says bad GERO infestation here. This site will be used as a **disposal site** in the near future, so important to start treatments now (heavy equipment will be |
| **577** | Title II | County | 1 | Upper South Fork Skokomish | Mason | | 2360200 | 0 | 2.1 | 2.1 | x | x | | p | | **WS restoration project. This road is on a list of road scheduled for decomm in the future - decomm may have already happened.** If so, monitor and treat as time and access |
| **626** | Title II | County | 1 | Upper South Fork Skokomish | Mason | | 2364100 | 0 | 2.4 | 2.4 | | x | | | | **Decomm Access Route. Spotted knapweed** found between 130 and 150 spurs in 2010. Treated in 2013, but needs follow up; knapweed still there, along with other weeds. |
| **328** | Title II | County | 1 | Lilliwaup 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 |
| **863** | Rec | County | 1 | 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. |
| **348** | Title II | County | 2 | 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. **CEDE5** |
| **395** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2300000 | 9.5 | 18 | 8.5 | x | | | | | **SF Skok TS.** Units adjacent to road. SEJA, CYSC, DACA4, 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 |
| **522** | Title II | County | 2 | Middle Fork Satsop | Mason | | 2300000 | 17.9 | 21 | 3.1 | x | | | | | Starts just past Spider Lake. Wide variety of weeds; SEJA heavy in places, CIVU, CYSC4, HYPE, SEJA. **Yellow hawkweed** also reported as being treated here in 2012. |
| **341** | Title II | County | 2 | Lower South Fork Skokomish River | Mason | | 2300220 | 0 | 1.4 | 1.4 | | x | | x | | **Skok TS units adjacent to road.** Oxbow CG road. Treated 2011, 2013 - 2015: SEJA, CYSC, CIAR4, GERO; CEJA also reported here in past, but hasn't been seen in several years. **2016: followup retreat** |
| **419** | Title II | County | 2 | 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. |
| **343** | Title II | County | 2 | Lower South Fork Skokomish River | Mason | | 2340000 | 0 | 3.4 | 3.4 | | | | p | | Follow up on **GERO** just after high steel bridge. Monitor and treat other parts of road segment as time and access allows. SEJA, HYPE, **TAYU**, CYSC, CIAR, DACA, PHAR. |
| **339** | Title II | County | 2 | Lower North Fork Skokomish River | Mason | | 2340000 | 3.4 | 9.1 | 5.7 | | | | x | | **Skok TS units adjacent to road; major haul route for sale. GERO** treated here in 2012 and 2013. Also, CIAR4, CYSC4, SEJA, **TAYU**, CIVU, CYSC4, HYPE, RULA.Some parts of this road go through non-FS land - please notify landowners of weed treatments |
| **654** | Title II | County | 2 | Lower North Fork Skokomish River | Mason | **Lake West** | 2340000 | | | 0 | | | x | | Purple Loosestrife | **knotweed and purple loosestrife**. Not FS, but just a few feet over boundary - **get landowner permission before treating**. Monitor and treat as time allows. POBO10 |
| **600** | Title II | County | 2 | Lower South Fork Skokomish River | Mason | | 2340040 | 0 | 0.7 | 0.7 | | | | | | **Ahl 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 | | | | | | **Ahl 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 |

Olympic National Forest Invasive Plant Program
2016 Project List
Mason County

Priority 1A = Treatment Mandatory
Priority 1 = Treatment High Priority
Priority 2 = Treatment Discretionary
Priority S = Survey

| Ref # | 2016 Job Code | 2016 Work Crew | Priority | 6th Field Watershed Name | Watershed County | Site Name | Road # | BMP | EMP | Total Miles | Hawkweed | Knapweed - treat | Knotweed | Big X: GERO >0.1 acres & | Other weeds of | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **598** | Title II | County | 2 | Lower South Fork Skokomish River | Mason | | 2340100 | 0 | 1.4 | 1.4 | | | | **p** | | **Ahl Over TS**. Ref. #598, also see 599, 600,601 Ahl Over TS road system (2340100) and spurs – just west of Lake West; This Ref # includes all associated spurs (150, 160)and surrounding unit, so total |
| **599** | Title II | County | 2 | Lower South Fork Skokomish River | Mason | | 2340110 | 0 | 2.65 | 2.65 | | | | **p** | | **Ahl 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** |
| **560** | Title II | County | 2 | Lower North Fork Skokomish River | Mason | | 2340291 | 0 | 0.5 | 0.5 | | | | | | **SF Skok TS. Decommed Road.** Unit adjacent to road. Survey and treat as time allows. |
| **382** | Title II | County | 2 | 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 |
| **370** | Title II | County | 2 | 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. |
| **371** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2340433 | 0 | 0.15 | 0.15 | | | | | | Treated in 2013, needs follow up. |
| **372** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2340437 | 0 | 0.15 | 0.15 | | | | | | Treated in 2013, needs follow up. SEJA biggest problem, also CIVU. |
| **411** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2340450 | 0 | 1.2 | 1.2 | | | | **x** | | **Decommed in 2011**;Severe **GERO** infestation prior to decomm. Received treatment2011 - 2015. **2016: Monitor and treat.** |
| **536** | Title II | County | 2 | Lower South Fork Skokomish River | Mason | | 2340520 | 0 | 0.3 | 0.3 | | | | | | **Skok TS units adjacent to road.** |
| **656** | Title II | County | 2 | Middle Fork Satsop | Mason | | 2350240 | 0 | 2.1 | 2.1 | **x** | | | **p** | | Hawkweed and GERO found and treated here in 2012 - needs follow up. **2016: No treatment since 2012.** |
| **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, CIAR4, CIVU, ARMI2, HYPE, PHAR3, SEJA. **GERO** at approx MP 0.8, "on a trail to the LeBar Cr & SF Skok confluence. East end of |
| **381** | CMRD 09 | 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. |
| **402** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2353120 | 0 | 0.4 | 0.4 | **x** | | | | | **SF Skok TS. Associated TS and presence of hawkweed.** Units adjacent to road. CIVU, CYSC4, HYPE, SEJA **HICA.** Treated 2013, **2016: return and treat as necessary.** |
| **514** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2353230 | 0 | 2.5 | 2.5 | | | | | | **WS restoration project. This road is on a list of road scheduled for decomm in the future.** Treated 2013; SEJA biggest problem. |
| **464** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2354000 | 0 | 1.8 | 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 |
| **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 alder on east side of road. Many other weed species all along this road that also need treatment. |

Olympic National Forest Invasive Plant Program
2016 Project List
Mason County

Priority 1A = Treatment Mandatory
Priority 1 = Treatment High Priority
Priority 2 = Treatment Discretionary
Priority S = Survey

| Ref # | 2016 Job Code | 2016 Work Crew | Priority | 6th Field Watershed Name | Watershed County | Site Name | Road # | BMP | EMP | Total Miles | Hawkweed | Knapweed - treat | Knotweed | Big X: GERO >0.1 acres & | Other weeds of | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **388** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2355100 | 0 | 0.7 | 0.7 | | | | ? | | Treated 2011, 2013, 2015.Converted to trail in 2008, possible GERO introduced here during trail conversion (equipment going back and forth from 2355300 spur during decomm/conversion in 2007/2008). |
| **699** | Title II | County | 2 | Upper West Fork Satsop River | Mason | | 2364000 | 0 | 8.1 | 8.1 | x | | | | | **Hawkweed** found and treated in 2011 and 2012. MP 2.1 - 2.3. Also SEJA, other weeds along road that need treatment. Treated in 2013 and HICA not found. Treated 2015 and CESTM found. **2016: Reinspect** |
| **581** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2364110 | 0 | 0.4 | 0.4 | | | | | | **Decommed in 2011, survey and treat only as time allows**. SEJA was biggest problem, esp near end of road. Treated in 2010 and 2011; will need monitoring in the future. |
| **582** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2364130 | 0 | 0.4 | 0.4 | | | | | | **Decommed in 2011, survey and treat only as time allows.** SEJA was biggest problem, esp near end of road. Treated in 2010 and 2011; will need monitoring in the future. |
| **583** | Title II | County | 2 | Upper South Fork Skokomish | Mason | | 2364150 | 0 | 2.1 | 2.1 | | | | | | **Decommed in 2011, survey and treat only as time allows.** SEJA was biggest problem, but not as bad as the 110 and 130 spurs.Treated in 2010 and 2011, will need monitoring in the future. |
| **592** | Title II | County | 2 | Middle Fork Satsop | Mason | | 2366000 | 2.3 | 12.8 | 10.5 | x | | | | | **Yellow hawkweed** abundant along road edges near jxn with 2350 road (MP 12.0 – 12.8). Entire 2366 and associated spurs (open and closed) should be surveyed for this weed, but focus on treating known |
| **333** | Title II | County | 2 | Lilliwaup 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. |
| **360** | CMRD 09 | County | 2 | 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. |
| **330** | Title II | County | 2 | Lilliwaup Creek | Mason | **Lilly TS, Unit 3** | 2400000 | | | 0 | | | | x | | Major infestation of **GERO** in this unit. Due south of MP 8.0 of the 24 road (east of Big Creek CG). |
| **336** | Title II | County | 2 | Lilliwaup Creek | Mason | | 2400025 | 0 | 0.3 | 0.3 | | | x | | | Few canes of knotweed found here in past, none reported in 2011 - 2012; monitor site and follow up as needed. Old road to Mint meadow. |
| **363** | Rec | County | 2 | Middle North Fork Skokomish River | Mason | **Big Creek CG** | 2400031 | | | 0 | | | | | | 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. **Tacoma Power will be doing major work here in** |
| **657** | Title II | County | 2 | Middle North Fork Skokomish River | Mason | | 2400035 | 0 | 0.5 | 0.5 | | | | | | **Unsure what's here - Pat has it as an EDRR site(2015) to re-treat. No treatment files have been found.** |
| **477** | Title II | County | 2 | Jefferson Creek | Mason | | 2401000 | 0.8 | 12.1 | 11.3 | x | | | | | Lower part of road (below MP 7.0) treated by contractors in 2010 - needs follow up. Upper part of road needs to be looked at and treated as appropriate. Mystery **hawkweed** (HISA?) found and treated here in |
| **324** | CMRD 09 | County | 2 | Jefferson Creek | Mason | **Jefferson Creek Pit** | 2401000 | 3.2 | 3.2 | 0 | | | | | | quarry located at MP 3.2 of 2401 road. Contractor treated in 2010. They found CIVU, CYSC4, HYPE, SEJA, TAVU. Treated again in 2011 - 2015, found and treated small amounts of weeds. **2016: Reinspect and** |
| **331** | Title II | County | 2 | Lilliwaup 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 |

Olympic National Forest Invasive Plant Program
2016 Project List
Mason County

Priority 1A = Treatment Mandatory
Priority 1 = Treatment High Priority
Priority 2 = Treatment Discretionary
Priority S = Survey

| Ref # | 2016 Job Code | 2016 Work Crew | Priority | 6th Field Watershed Name | Watershed County | Site Name | Road # | BMP | EMP | Total Miles | Hawkweed | Knapweed - treat | Knotweed | Big X: GERO >0.1 acres & | Other weeds of | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **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 |
| **338** | Title II | County | 2 | Lilliwaup Creek | Mason | | 2441000 | 0 | 2.7 | 2.7 | | x | | | | Treated 2011, 2015: SEJA, **CESTM**, CIVU, CYSC4,LALA4, TAVU,CIAR, GERO, RULA. 2016: Reinspect and treat; CESTM priority. |
| **325** | Title II | County | 2 | Jefferson Creek | Mason | | 2441200 | 0 | 2.5 | 2.5 | | x | | | | **CEBI2** at MP 0 - 0.4; treated in 2008 and 2010, 2011: CEBI, SEJA. |
| **366** | Title II | County | 2 | Middle North Fork Skokomish River | Mason | | 2451000 | 0 | 4.9 | 4.9 | | x | | p | | Treated 2011, 2013 - 2015: **CESTM**, GERO, ARMI, SEJA, RULA, CIAR, CIVU. Part of this goes through ONP, get permission from them if you plan on spraying in the Park. Herb Robert reported "just over |
| **362** | Title II | County | 2 | Middle North Fork Skokomish River | Mason | | 2451100 | 0 | 1.1 | 1.1 | | x | | | | Treated 2015: **CEBI**, SEJA, CIVU. Washouts repaired on 2451 in 2012 - survey and treat as time allows. This area was treated in 2015. No CEBI was found. |
| **326** | Title II | County | 2 | Jefferson Creek | Mason | | 2471000 | 0.1 | 2 | 1.9 | | x | | | | Dense peavine on this road. **CEBI2** at MP 1.3 - 1.5. CIVU and SEJA also present. Treated 2009 - 2011, 2015. **2016: Reinspect and treaat as necessary.** |
| **481** | Title II | County | 2 | Jefferson Creek | Mason | | 2471000 | 2 | 3.86 | 1.86 | | x | | | | Dense peavine on this road. **CEBI2** at MP 1.3 - 1.5. CIVU and SEJA also present. Treated 2009 and 2010 **2016: This area hasn't been treated in awhile; inspect and treat as necessary** |
| **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) |
| **429** | Rec | County | 2 | Mainstem Hamma Hamma River | Mason | **Hamma Hamma CG** | 2500030 | | | 0 | | | | x | Burdock | Treated 2011, 2012, 2014, 2015: RUAR9, CIAR, ARMI, CYSC, **GERO** treated in sites 6, 7, 12 in 2012. |
| **428** | Rec | County | 2 | Mainstem Hamma Hamma River | Mason | **Lena CG** | 2500040 | | | 0 | | | | p | Burdock | Treated 2011 - 2015:CIAR,CIVU, HYPE, ARMI, CYSC, **GERO** treated in sites 4, 6, 10 in 2012. Also ARMI2, CIAR4, HYPE, PHAR3, SEJA |
| **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. |
| **860** | | | S | Upper West Fork Satsop River | Mason | | 2300440 | 0.0 | 1.2 | 1.2 | | | | | | |
| **862** | | | S | Upper West Fork Satsop River | Mason | | 2300480 | 0.0 | 1.1 | 1.1 | | | | | | |
| **854** | | | S | Middle Fork Satsop River | Mason | | 2341000 | 15.2 | 24.9 | 9.7 | | | | | | |
| **857** | | | S | Middle Fork Satsop River | Mason | | 2341200 | 0.7 | 2.5 | 1.8 | | | | | | |

Olympic National Forest Invasive Plant Program
2016 Project List
Mason County

Priority 1A = Treatment Mandatory
Priority 1 = Treatment High Priority
Priority 2 = Treatment Discretionary
Priority S = Survey

| Ref # | 2016 Job Code | 2016 Work Crew | Priority | 6th Field Watershed Name | Watershed County | Site Name | Road # | BMP | EMP | Total Miles | Hawkweed | Knapweed - treat | Knotweed | Big X: GERO >0.1 acres & | Other weeds of | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **855** | | | S | Lower South Fork Skokomish River | Mason | | 2343000 | 5.0 | 11.1 | 6.1 | | | | | | |
| **856** | | | S | Middle Fork Satsop River | Mason | | 2345000 | 7.1 | 11.0 | 3.9 | | | | | | |
| **524** | | | S | Middle Fork Satsop | Mason | | 2365000 | 1.6 | 8.7 | 7.1 | | | | x | | New patch of **GERO** at junction of 2365 and 2365100 spur. No surveys or treatments for several years, as of 2016. |
| **858** | | | S | Middle Fork Satsop River | Mason | | 2365300 | 0.0 | 2.5 | 2.5 | | | | | | |
| **859** | | | S | Middle Fork Satsop River | Mason | | 2365350 | 0.0 | 0.2 | 0.2 | | | | | | |
| **861** | | | S | Upper West Fork Satsop River | Mason | | 2368000 | 6.0 | 10.2 | 4.2 | | | | | | |

# Appendix B

# Summary of 2016 Project Accomplishments

Accomplishments prior to USDA Forest Service reporting date

| Ref # | 2016 Priority | Date of Treatment | 6th Field Watershed Name | 2016 Site Name | Road # | Priority for Retreat in 2017? | Acres Examined for Weeds | Species Treated | Acres Treated (App'n Area or Manual Ac) | Herbicide Used | Herbicide Amount (oz) | Monitoring | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 343 | 2 | 5/24/2016 | Lower South Fork Skokomish River | High Steel Bridge | 2340000 | y | 0.1 | GERO | 0.1 | N/A | N/A | N/A | Pulled ~20 blooming plants |
| 348 | 2 | 5/24/2016 | Lower South Fork Skokomish River | | 2300000 | Y | 0.7 | HICA10 | 0.7 | N/A | N/A | N/A | Deadheaded flowering plants. Needs to be sprayed. Includes 0.2 acres on GD Rd 91022 |
| 348 | 2 | 6/7/2016 | Lower South Fork Skokomish River | | 2300000 | Y | 0.7 | HICA10 CYSC4 SEJA DACA6 TAVU | 0.7 | Element 3 A | 4 | N/A | Because of dead headed HICA10, hard to spray. Lower part, scotch broom (0.2-0.3 south FS boundary) treated by GD |
| 369 | 1A | 6/13/2016 | Upper South Fork Skokomish River | Brown Creek Quarry | 2354000 | Y | 3.2 | GERO SEJA CIVU | 0.2 | Element 3 A | 4 | N/A | Lots of new germinated GERO. Needs seeded in the Fall |
| 380 | 1 | 6/15/2016 | Upper South Fork Skokomish River | Brown Creek Campground | 2340000 | Y | 0.4 | GERO | 0.3 | N/A | N/A | N/A | Lots of seedlings, pulled bags of flowering plants (7) |
| 380 | 1 | 6/15/2016 | Upper South Fork Skokomish River | Brown Creek Campground | 2340000 | Y | 0.4 | GERO | 0.3 | Element 3 A | 4 | N/A | Thundershowers hit unexpectedly. May have been ineffective. |
| 348 | 2 | 6/16/2016 | Lower South Fork Skokomish River | | 2300000 | Y | 0.2 | GERO | 0.2 | N/A | N/A | N/A | Pulled blooming plants. Needs to be sprayed because of seedlings |
| 395 | 2 | 6/16/2016 | Upper South Fork Skokomish River | | 2300000 | Y | 0.3 | GERO | 0.3 | N/A | N/A | N/A | Pulled blooming plants. Needs to be sprayed because of seedlings |
| 339 | 2 | 6/20/2016 | Lower South Fork Skokomish River | | 2340 | Y | 0.5 | GERO CIVU CYSC4 | 0.5 | Element 3 A | 36 | N/A | Green Diamond property, needs another treatment this year. Not many blooming plants, lots of germinates |
| 380 | 1 | 6/21/2016 | Upper South Fork Skokomish River | Brown Creek Campground | 2340 | Y | 5 | GERO SEJA CIVU CIAR4 | 4.8 | Element 3 A | 23 | N/A | GERO spreading from campsite 1-2 along back trails. Along the road was alright |

| Ref # | 2016 Priority | Date of Treatment | 6th Field Watershed Name | 2016 Site Name | Road # | Priority for Retreat in 2017? | Acres Examined for Weeds | Species Treated | Acres Treated (App'n Area or Manual Ac) | Herbicide Used | Herbicide Amount (oz) | Monitoring | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 395 | 2 | 6/21/2016 | Upper South Fork Skokomish River | | 2300 | Y | 0.1 | GERO | 0.07 | Element 3 A | 3 | N/A | End of day treatment |
| 610 | 1A | 6/21/2016 | Lower South Fork Skokomish River | Deep Patch Borrow Site | 2300 | Y | 1.5 | TAVU LEVU CIVU CYSC4 SEJA HICA10 DIPU | 0.75 | Element 3 A Aquaneat | 10 12 | N/A | Not all LEVU targeted, initiated treatment. About 8 plants of CIVU, most 2 year and getting ready to bloom. HICA 10 2 deadheaded about 7 younger plants. |
| 327 | 1A | 6/22/2016 | Lilliwaup Creek | Cushman Pit | 2400025 | Y | 4.6 | LEVU HYPE DACA6 CIVU SEJA GERO CYSC4 RUAR9 LALA4 HYRA3 | 4.6 | Element 3A Polaris | 23.6 6 | N/A | Started control on oxeye daisy, st.johns wort, and hairy cats ear. Lots of beeteles on HYPE. 3 locations of GERO. Lots of LALA4 seedlings. A lot of annual tansy on top right area. |
| 490 | 1A | 6/27/2016 | Lower North Fork Skokomish River | | 2340250 | N | 1.8 | SEJA CYSC4 CIVU LEVU HYPE | 1.5 | Element 3A | 12 | N/A | Started initial treatment of LEVU and HYPE |
| 348 | 2 | 6/28/2016 | Lower South Fork Skokomish River | | 2300 | Y | 1.9 | SEJA TAVU | 1.9 | N/A | N/A | N/A | Deadheaded flowering plants along the 2300 RD. Pulled all TAVU and SEJA along roadway. |
| 464 | 2 | 6/29/2016 | Upper South Fork Skokomish River | | 2354000 | Y | 0.8 | GERO | 0.8 | Polaris | 4 | N/A | End of day treatment |
| 369 | 1A | 6/29/2016 | Upper South Fork Skokomish River | Brown Creek Quarry | 2350 | Y | 8 | HICA10 CIVU CYSC4 DACA6 CIAR4 LEVU HYPE SEJA DIPU HYRA3 PHAR3 | 8 | Polaris Element 3A | 16.5 3 | N/A | Many introduced species, intermittent control. Sprayed entire pit, looks good on a weed standpoint. |
| 348 | 2 | 6/30/2016 | Lower South Fork Skokomish River | | 2300 | Y | 0.1 | PORE CYSC4 SEJA CIAR4 | 0.1 | Element 3A | 1 | N/A | 1 blooming PORE, dime sized plants coming up 5-10 |

| Ref # | 2016 Priority | Date of Treatment | 6th Field Watershed Name | 2016 Site Name | Road # | Priority for Retreat in 2017? | Acres Examined for Weeds | Species Treated | Acres Treated (App'n Area or Manual Ac) | Herbicide Used | Herbicide Amount (oz) | Monitoring | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 380 | 1A | 6/30/2016 | Upper South Fork Skokomish River | Brown Creek Campground | 2340 | Y | 1.5 | GERO ARMI2 SEJA CIAR4 | 1.5 | Element 3A | 53 | N/A | GERO may be outside of campground area reference #. Needs multiple treatments and seedings. Blooming age burdock, not all treated ran out of herbicide. About 2 plants of SEJA. 1 spot with CIAR4. |
| 366 | 2 | 7/5/2016 | Middle North Fork Skokomish River | | 2451 | Y | 0.7 | SEJA | 0.7 | N/A | N/A | N/A | Manual removal of SEJA cut and bagged flowering plants. ~50 plants. |
| 355 | 1A | 7/6/2016 | Mainstem Hamma Hamma River | Hamma Hamma Pit | 2500011 | Y | 3.6 | SILAA3 SEJA CIVU CYSC4 CIAR4 LALA4 VETH GERO LEVU HYPE DACA6 | 3.6 | Element 3A Polaris | 44 16 | N/A | Debris brought in is full of weeds, includin SILAA3 |
| 343 | 2 | 7/13/2016 | Lower South Fork Skokomish River | | 2340 | Y | 0.1 | GERO SEJA | 0.1 | Element 3A | 9 | N/A | |
| 418 | 1A | 7/13/2016 | Lower North Fork Skokomish River | | 2340-200 | N | 1.6 | CIVU LEVU CYSC4 TAVU DIPU | 1.6 | Element 3A | 27 | N/A | |
| 363 | 2 | 7/20/2016 | Middle North Fork Skokomish River | Big Creek Campground | 2400031 | Y | 0.02 | GERO | 0.02 | Element 3A | 6 | N/A | just outside of campground near entrance sign |
| 328 | 1 | 7/20/2016 | Lilliwaup Creek | Mint Meadow | 2400026 | Y | 1.5 | HYPE | 1.5 | Element 3A | 12 | N/A | |
| 361 | 1A | 7/20/2016 | Middle North Fork Skokomish River | | 2400-000 | Y | 0.4 | GERO | 0.4 | Element 3A | 6 | N/A | Treated adjacent to Big Creek before/after bridge. Treatment with permission from WSDOT |
| 327 | 1A | 7/20/2016 | Lilliwaup Creek | Cushman Pit | 240025 | Y | 0.5 | HYPE CYSC4 LALA4 ARMI2 RUAR9 | 0.5 | Polaris | 10.4 | N/A | Treated topmost N part of pit |

| Ref # | 2016 Priority | Date of Treatment | 6th Field Watershed Name | 2016 Site Name | Road # | Priority for Retreat in 2017? | Acres Examined for Weeds | Species Treated | Acres Treated (App'n Area or Manual Ac) | Herbicide Used | Herbicide Amount (oz) | Monitoring | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 418 | 1A | 7/15/2016 | Lower North Fork Skokomish River | | 2340-200 | Y | 2.7 | SEJA HYPE CIVU | 2.7 | Element 3A | 40 | N/A | Clean until MP ~2, a lot of SEJA |
| 418 | 1A | 7/27/2016 | Lower North Fork Skokomish River | | 2340-200 | y | 2.1 | HICA10 SEJA CIAR4 CYSC4 GERO | 2.1 | Element 3A | 32 | N/A | small patch of HICA10 at mp 4.2 |
| 330 | 2 | 8/1/2016 | Lilliwaup Creek | Lilly TS Unit 3 | 2400 | y | 0.05 | GERO | 0.05 | element 3A | 6 | N/A | End of day sprayout. Needs to be seeded |
| 379 | 2 | 7/25/2016 | Upper South Fork Skokomish River | | 2355000 | y | 0.4 | GERO CYSC4 LALA4 | 0.4 | Element 3A / Aquaneat | 24/ 6 | N/A | Carpet of GERO needs reseeded and more work. Between mp 5.6 and 5.8 |
| 657 | 2 | 8/2/2016 | Middle North Fork Skokomish River | | 2435 | y | 1.7 | GERO | 1.7 | Element 3A | 18 | N/A | Trail going from FS RD 2400 to Brown Creek CG. Needs to be fall seeded. |
| 331 | 2 | 8/1/2016 | Lilliwaup Creek | | 2419 | y | 1.1 | LALA4 CYSC4 SEJA HYPE CIVU | 1.1 | Element 3A | 12 | N/A | Hand pulled and removed large scotch broom along the rd. |
| 365 | 2 | 8/1/2016 | Middle North Fork Skokomish River | | 2419000 | y | 0.2 | SEJA LALA4 CIVU CYSC4 HYPE | 0.2 | Element 3A | 12 | N/A | WCC Crew work 1.4-1.6 rd segment |
| 331 | 2 | 8/1/2016 | Lilliwaup Creek | | 2419000 | y | 0.6 | SEJA GERO LALA4 CIVU CYSC4 HYPE | 0.6 | Garlon 3A | 30 | N/A | WCC Crew work, 0.9-1.4 segment of RD. |
| 361 | 1A | 8/4/2016 | Middle North Fork Skokomish River | | 2400 | y | 0.08 | CESTM | 0.08 | Element 3A | 1.44 | N/A | Spotted Knapweed on 2400 rd pull out. Over steep bank over water. Hard to get to. Not all sprayed because of this |
| 364 | 1A | 8/4/2016 | Middle North Fork Skokomish River | Lake Cushman Quarry | 2400 | n | 0.6 | HYPE SEJA RUAR9 | 0.6 | Element 3A | 2 | N/A | Pretty clean pit |

| Ref # | 2016 Priority | Date of Treatment | 6th Field Watershed Name | 2016 Site Name | Road # | Priority for Retreat in 2017? | Acres Examined for Weeds | Species Treated | Acres Treated (App'n Area or Manual Ac) | Herbicide Used | Herbicide Amount (oz) | Monitoring | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 361 | 1A | 8/4/2016 | Middle North Fork Skokomish River | | 2400 | y | 0.02 | SEJA | 0.02 | N/A | N/A | N/A | Hand pulled SEJA and deadheaded flowers. Lots of new rosetts. Along the narrow rd way with ecology barriers. |
| 361 | 1A | 8/4/2016 | Middle North Fork Skokomish River | | 2400 | y | 0.2 | SEJA CYSC4 | 0.2 | N/A | N/A | N/A | WCC crew pulled CYSC4 and pulled and deadheaded SEJA |
| 657 | 2 | 8/2/2016 | Middle North Fork Skokomish River | | 2435 | y | 2.7 | SEJA GERO CIVU | 2.7 | Element 3A/ Garlon 3A | 48/6 | N/A | Sprayed water tower and decomp rd. lots of GERO and SEJA on rd. This day a hole was left in the middle. Returned 8/4 to finish. |
| 657 | 2 | 8/4/2016 | Middle North Fork Skokomish River | | 2435 | y | 0.5 | SEJA GERO CIVU CYSC4 | 0.5 | Element 3A/ Garlon 3A | 12//16 | N/A | Sprayed water tower decomp rd. filled in hole from 8/2. Worked with WCC crew. |
| 326 | 2 | 8/3/2016 | Jefferson Creek | | 2471 | y | 3.4 | LALA4 CESTM SEJA | 3 | Transline/ Element 3A | 10//13 | N/A | Element at 2%. Tansy rosettes abundant throughout with few blooming plants. LALA4 in large patches and scattered throughout |
| 481 | 2 | 8/3/2016 | Jefferson Creek | | 2471 | y | 2.4 | LALA4 CESTM SEJA | 0.7 | Transline | 1.8 | N/A | Surveyed by vehicle mp 2.3-3.0 good cover of sitka alder along rd. treated 2 large patches of LALA4 @ mp 2.4 and 2.7 |
| 394 | 1A | 8/22/2016 | Upper South Fork Skokomish River | V1043 Quarry | 2360100 | y | 1.8 | HYPE LEVU DIPU HYRA3 | 0.9 | Element 3A | 18 | N/A | Pretty clean pit. Not much here |
| 348 | 2 | 8/22/2016 | Lower South Fork Skokomish River | | 2300 | n | 0.5 | CYSC4 TAVU SEJA | 0.5 | Element 3A | 6 | N/A | GD pull off about at the 3 mile post |
| 405 | 1A | 8/22/2016 | Upper South Fork Skokomish River | | 2360 | y | 3.5 | SEJA HYPE CIVU LEVU DACA6 RULA | 3.5 | Element 3A | 27 | N/A | |
| 406 | 1A | 8/22/2016 | Upper South Fork Skokomish River | | 2360100 | y | 0.5 | SEJA CIVU HYPE LEVU DIPU | 0.5 | Element 3A | 3 | N/A | |

| Ref # | 2016 Priority | Date of Treatment | 6th Field Watershed Name | 2016 Site Name | Road # | Priority for Retreat in 2017? | Acres Examined for Weeds | Species Treated | Acres Treated (App'n Area or Manual Ac) | Herbicide Used | Herbicide Amount (oz) | Monitoring | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 348 | 2 | 8/31/2016 | Lower South Fork Skokomish River | | 2300 | Y | 4.1 | SEJA CYSC4 | 3.7 | N/A | N/A | N/A | Hand removed scotchbroom and tansy along the 2300 rd. |
| 361 | 1A | 9/8/2016 | Middle North Fork Skokomish River | Bear Gulch Picnic Area | 2400 | Y | 1.3 | ARMI2 FULA GERO | 0.8 | Milestone | 1 | N/A | 10 ARMI2 plants. |
| 380 | 1 | 9/7/2016 | Upper South Fork Skokomish River | Brown Creek Campground | 2340 | Y | 0.7 | GERO | 0.7 | Element 3A | 11.5 | N/A | End of day sprayout. GERO found mainly along edges of campsites |
| 361 | 1A | 9/8/2016 | Middle North Fork Skokomish River | | 2400 | Y | 1.4 | RUAR9 CYSC4 GERO SEJA RULA CIVU | 1.4 | Element 3A/Milestone | 24/1 | N/A | |
| 405 | 1A | 9/7/2016 | Upper South Fork Skokomish River | | 2360 | Y | 3.1 | PHAR3 SEJA HYPE | 3.1 | Element 3A/Polaris | 14/4 | N/A | Did not see any noticable HICA10 patches. |
| 490 | 1A | 9/15/2016 | Lower North Fork Skokomish River | | 2340-250 | N | 0.7 | SEJA | 0.7 | Element 3A | 4 | N/A | |
| 399 | 1A | 9/15/2016 | Upper South Fork Skokomish River | | 2340 | N | 1.8 | SEJA CYSC4 | 1.8 | Element 3A | 12 | N/A | Intermitant control of HYPE |
| 418 | 1A | 9/15/2016 | Lower North Fork Skokomish River | | 2340-200 | Y | 0.6 | SEJA CYSC4 HEHE | 0.6 | Element 3A | 5 | N/A | HEHE needs follow up treatment other then just herbicide. |
| 339 | 2 | 9/15/2016 | Lower North Fork Skokomish River | | 2340 | Y | 1 | SEJA GERO TAVU | 1 | Element 3A | 3 | N/A | |

| Ref # | 2016 Priority | Date of Treatment | 6th Field Watershed Name | 2016 Site Name | Road # | Priority for Retreat in 2017? | Acres Examined for Weeds | Species Treated | Acres Treated (App'n Area or Manual Ac) | Herbicide Used | Herbicide Amount (oz) | Monitoring | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 421 | 1A | 9/16/2016 | Lower South Fork Skokomish River | | 2340-210 | n | 1 | SEJA | 0.4 | Element 3A | 1 | N/A | |
| 399 | 1A | 9/16/2016 | Upper South Fork Skokomish River | | 2340 | N | 1.6 | SEJA CIAR4 | 1.3 | Element 3A | 3 | N/A | |
| 835 | 1A | 9/16/2016 | Lower South Fork Skokomish River | | 2340-230 | Y | 4.1 | SEJA CIAR4 ARMI2 CYSC4 GERO DACA10 RULA TAVU | 4.1 | Element 3A | 9 | N/A | GERO around culvert and spreading downhil at the 0.8mp |
| 343 | 2 | 9/16/2016 | Lower South Fork Skokomish River | | 2340 | N | 0.2 | CYSC4 | 0.2 | Element 3A | 2 | N/A | end of day sprayout. |
| 428 | 2 | 10/11/2016 | Mainstem Hamma Hamma River | Lena Creek CG | 2500040 | Y | 1 | GERO | 0.1 | | | N/A | Hand pulled GERO |
| 429 | 2 | 10/11/2016 | Mainstem Hamma Hamma River | Hamma Hamma CG | 2500030 | Y | 1 | GERO | 0.2 | Element 3A | 7.7 | N/A | Found mostly around campsites 7 and 8 |
| 863 | 1 | 10/11/2016 | Mainstem Hamma Hamma River | Hamma Hamma CG Loop Trail | 2500 | Y | 1.2 | GERO | 0.02 | Element 3A | 3.8 | N/A | Found along the trail where it crosses over the road. |

# Appendix C

# Rock Source Surveys and Treatment

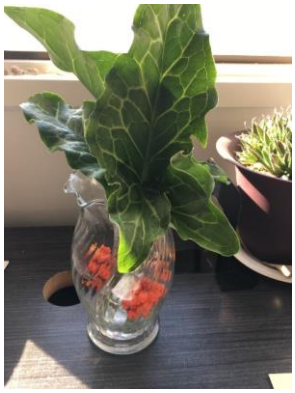
| 2016 Rock Pits Inspected/Treated | | | | | |
|---|---|---|---|---|---|
| Rock Source | Option A Rock Source Exceeds Requirements | Option B Rock Source Meets Requirements | Option C Rock Source Meets Minimum Requirement | Treatment (Manual) | Treatment (Herbicide) |
| Cushman Pit | | | | | 6/22/2016 |
| Lake Cushman Quarry | | | | | 8/4/2016 |
| Brown Creek Quarry | | 6/29/2016 | | | 6/13/2016<br>6/29/2016 |
| Hamma Hamma Pit | | | 7/6/2016 | | 7/6/2016 |
| 23 RD Deep Patch Borrow Site | | | | | 6/21/2016 |
| V1042 Quarry | | 8/22/2016 | | | 8/22/2016 |

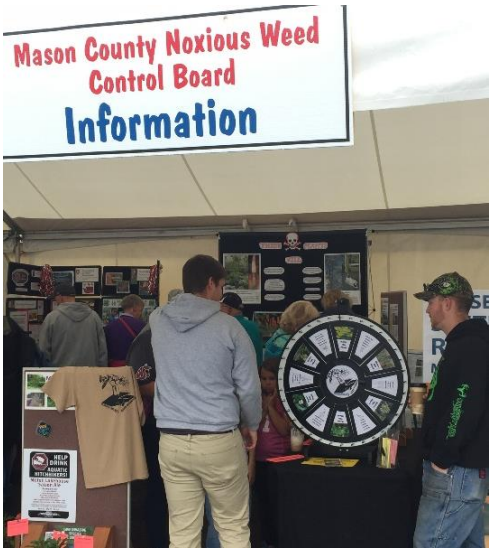
# Appendix D

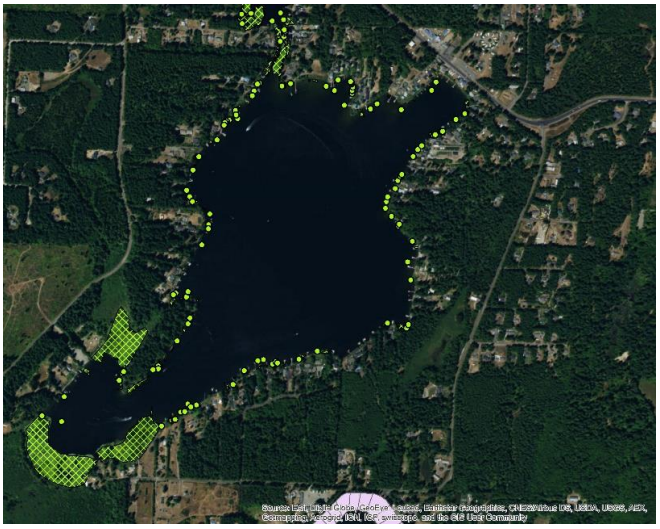
# Outreach and Education

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

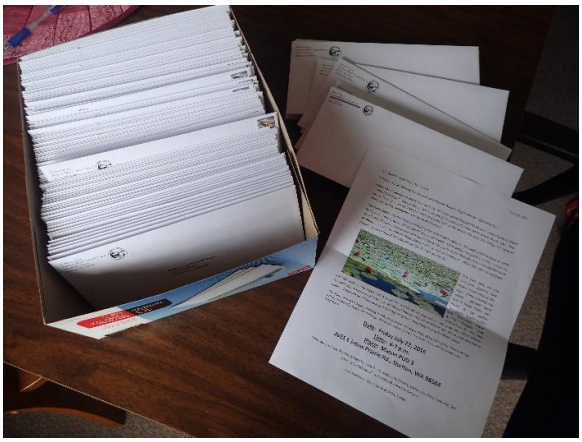

Oyster Fest 2016 Booth. The main feature was the poisonous plant display. A wheel was also borrowed from MCFPD #4, and used to ask questions about noxious weeds. The featured plant was Italian arum, a poisonous plant collected in Shelton.



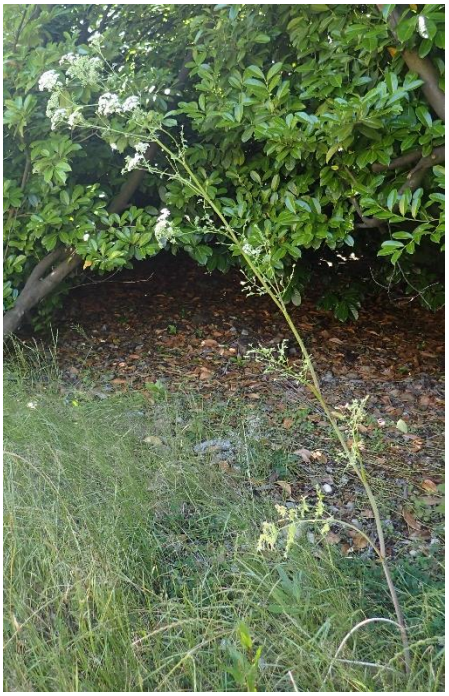




Activities associated with the development of the Spencer Lake Integrated Aquatic Vegetation Management Plan (IAVMP) got underway with completion of a noxious weed survey of the lake, a mailing and a public meeting, attended by nearly 50 property owners.



MCNWCB staff provided a noxious weed presentation as part of the 2016 Mason County Master Gardener training. Live plants provided a real world introduction to many of Mason County's noxious weeds. In addition, a recently located poison hemlock plant, which is relatively rare in Mason County, was available for the training.



# Appendix E

# 2016 Forest Service Treatment Priority List

## 2016 Olympic National Forest Invasive Species List

Updated 04/05/2016

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

# Appendix F

# 2016 Washington State Noxious Weed List

| | |
|---|---|
| common barberry | *Berberis vulgaris* |
| common catsear | *Hypochaeris radicata* |
| common groundsel | *Senecio vulgaris* |
| common St. Johnswort | *Hypericum perforatum* |
| common tansy | *Tanacetum vulgare* |
| common teasel | *Dipsacus fullonum* |
| curlyleaf pondweed | *Potamogeton crispus* |
| English hawthorn | *Crataegus monogyna* |
| English ivy - four cultivars only | *Hedera helix* |
| evergreen blackberry | *Rubus laciniatus* |
| field bindweed | *Convolvulus arvensis* |
| fragrant waterlily | *Nymphaea odorata* |
| hairy whitetop | *Lepidium appelianum* |
| Himalayan blackberry | *Rubus armeniacus* |
| hoary cress | *Lepidium draba* |
| Italian arum | *Arum italicum* |
| Japanese eelgrass | *Zostera japonica* |
| jubata grass | *Cortaderia jubata* |
| jointed goatgrass | *Aegilops cylindrica* |
| lawnweed | *Soliva sessilis* |
| longspine sandbur | *Cenchrus longispinus* |
| medusahead | *Taeniatherum caput-medusae* |
| nonnative cattail species and hybrids | *Typha* spp. |
| old man's beard | *Clematis vitalba* |
| oxeye daisy | *Leucanthemum vulgare* |
| Pampas grass | *Cortaderia selloana* |
| perennial sowthistle | *Sonchus arvensis* |
| reed canarygrass | *Phalaris arundinacea* |
| Russian olive | *Elaeagnus angustifolia* |
| scentless mayweed | *Matricaria perforata* |
| smoothseed alfalfa dodder | *Cuscuta approximata* |
| spikeweed | *Centromadia pungens* |
| spiny cocklebur | *Xanthium spinosum* |
| Swainsonpea | *Sphaerophysa salsula* |
| thistle, bull | *Cirsium vulgare* |
| thistle, Canada | *Cirsium arvense* |
| tree-of-heaven | *Ailanthus altissima* |
| ventenata | *Ventenata dubia* |
| white cockle | *Silene latifolia* ssp. *alba* |
| wild carrot (except where commercially grown) | *Daucus carota* |
| yellowflag iris | *Iris pseudacorus* |
| yellow toadflax | *Linaria vulgaris* |

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

---


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

Email: noxiousweeds@agr.wa.gov

Website: http://www.nwcb.wa.gov

Or

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

Or


---

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

# 2016
# Washington State Noxious Weed List

USDA-NRCS PLANTS Database / Hitchcock, A.S. (rev. A. Chase). 1950. Manual of the grasses of the United States. USDA Miscellaneous Publication No. 200. Washington, DC.

Medusahead (*Taeniatherum caput-medusae*), a new Class C noxious weed for 2016

**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 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 Weed District Coordinator to learn which species are designated 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 counties to require control if locally desired. Other counties may choose to provide education or technical consultation.

## Class A Weeds
### Eradication is required

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

## Class B Weeds

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

## Class C Weeds

| | |
|---|---|
| absinth wormwood | *Artemisia absinthium* |
| Austrian fieldcress | *Rorippa austriaca* |
| babysbreath | *Gypsophila paniculata* |
| black henbane | *Hyoscyamus niger* |
| blackgrass | *Alopecurus myosuroides* |
| buffalobur | *Solanum rostratum* |
| cereal rye | *Secale cereale* |

# Appendix G
# Public Postings

# NOTICE

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

**_____, 2016 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:**


**Patricia Grover**
**Mason County Noxious Weed Control Board Coordinator**
**303 N. 4th Street**
**Shelton, WA 98584**
**(360) 427-9670x592**

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

## PUBLIC NOTICE

The Hood Canal Ranger District, Olympic National Forest, may be applying the herbicides glyphosate, clopyralid, triclopyr, aminopyralid, or imazapyr to noxious weeds or other invasive plant species at the following Forest Service sites Mason County on May 1 – November 1, 2016. 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, 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, 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 2401,2441,2471 Rds and associated spurs; Jefferson Creek Pit; Lilliwaup Creek Watershed 24,2419,2441 Rds and spurs; Cushman Pit, Mint Meadow; Lower North Fork Skokomish Watershed 2340 Rd and spurs; Dennie Ahl seed orchard; Lower South Fork Skokomish River Watershed 23,2340,2342,2350,2351,2352 Rds and spurs; Boundary TS unit 10; Mainstem Hamma Hamma River Watershed 25,2502 Rds and spurs; Hamma Hamma Pit; Hamma Hamma and Lena campgrounds; Middle Fork Satsop Watershed 23,2350,2352,2356,2366 Rds and spurs; Middle North Fork Skokomish River Watershed 24,2419,2451 Rds and spurs; Big Creek Campground; Lake Cushman Pit; Upper South Fork Skokomish Watershed 23,2340,2353,2354,2355,2356,2360,2361,2363,2364 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, 2364 Rds and spurs.

8667 May 12 1t

# Appendix H

# Project Forms

# 2016 FACTS Invasive Plant Treatment Data Form

*General Activity Fields*

Ref #: 361

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

| Region | Forest | District (circle one)* | 6th Field Watershed Name | Owner | Workforce** (and Number of People in Crew) |
|---|---|---|---|---|---|
| 06 | 09 | PAC-N (05) HC-N (02) PAC-S (03) HC-S (01) | Middle North Fork Skokomish River | FS | MCNWCB ( 1 ) # people |

| Method Code | Equipment Code (circle one) | Job Code: | Treatment Location and Comments: | |
|---|---|---|---|---|
| 700 Herbicide | 711 hand sprayer<br>712 backpack sprayer<br>713 hack & squirt<br>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.- Bear Gulch Picnic Area FSRd 24100 | Comments: Sprayed around picnic Area for GERO and ARMI2 |
| 100 Manual | 721 mobile ground sprayer<br>000 other | | Was entire area represented by the Ref# treated for weeds? Yes / 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

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

*Site/Inventory Fields*

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

| Start Date | Stop Date | Acres examined for weeds | Application Site (circle one) | Licensed Applicator: Name and License # |
|---|---|---|---|---|
| 09/08/16 | 09/08/16 | 1.3 | Road edge/ROW, Gravel/rock source, Forest, Admin Site, (Campground), Trailhead, Riparian, Other | CARMAN/92309<br>Grover/74021 |

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

| Weeds Treated (Use PLANTS code; include common or scientific name as well if it is an uncommon weed on the ONF) | Infested Area Treated (DO NOT lump plants together) | % cover of species in Infested Area Treated (lump plants together – use cover classes 1 - 9 listed below) | Comments |
|---|---|---|---|
| ARMI2 | 0.1 acres | 1 | 10 plants in larger rocks |
| RULA | 0.001 acres | 1 | 1 plant |
| GERO | 0.7 acres | 2 | Along bathroom and culvert |
| | acres | | |
| | acres | | |
| | acres | | |
| | acres | | |

Cover Classes: 1 = Trace, 2 = 1–3%, 3 = 3–5% 4 = 5–10%, 5 = 10–25%, 6 = 25–50%, 7 = 50–75%, 8 = 75–95%, 9 = 95–100%

Note: Cover classes are meant to be *approximations only*. DO NOT spend more than a few moments determining cover class.

**Admin Use Only**

*Activity Unit FACTS ID#:* _____ Name: _____

*Activity Subunit #* _____ Name: _____

*Daily Log Day 1*

| Application Date | Time Start | Time Stop | Temp (F) | Wind Speed (MPH) | Wind Direction | Cloud Cover | Comments: |
|---|---|---|---|---|---|---|---|
| 09-08-16 | 1245 | 1330 | 67° | 2 | SW | 70 | |

| Total Volume of Mix Applied | UOM | Mix (oz herbicide /1 gallon water) | Dilutant | Applicators Names |
|---|---|---|---|---|
| 15 | Gallons | 0.64 oz/ gallon | Water | Kendall Carmany |

| Herbicide Product Name / EPA # | 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): |
|---|---|---|---|---|---|---|
| Milestone / 62719-519 | 1 oz | 05 % | Agridex | 1 oz | 0.5 % | 0.8 |
| | oz | % | Blaz On | 0.2 oz | 0.1 % | Area treated in Riparian Reserves: 0.5 |
| | oz | % | | oz | % | Area Treated within 5 feet of Standing Water: 0.1 |

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

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

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

| Herbicide Product Name / EPA # | Amount of this herbicide product that was applied | Percent Solution | Adjuvant Product Name | Amount of this adjuvant that was applied | Percent Solution | Total Application Area (Acres): |
|---|---|---|---|---|---|---|
| | oz | % | | oz | % | |
| | oz | % | | oz | % | Area treated in Riparian Reserves: |
| | oz | % | | oz | % | Area Treated within 5 feet of Standing Water: |

(From front page) Ref #: 361 Start Date: 9/8/16

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

**Notes:** 10 Burdock, 1 Rilla, 1 Gero pulled! @ Bearcreek CG

3 gallons Milestone @ 05% / 1.5 used

Quarry Survey Example

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

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

**CHECK ONE:**

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

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

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

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

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

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

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

Patricia A Grover — Signature

June 29, 2016 — Date

**Name of Rock Source:** Brown Creek Pit

**Narrative of Pit Location** (include, at minimum, road number and milepost ):
2354, MP

**Ref # (from project spreadsheet):** 369

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

**Name and Title of Inspector:** Patricia A Grover Coordinator **Date of Inspection:** 6-29-16

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

MCN WCB

Fill material on SE portion of pit continues to be the source of introductions to pit. Continue to work to treat this area.

**Name of Rock Source:** Brown Creek **Date inspected:** 6-29-16

**Species present:**

| Species Code | Common Name | Infested Area (acres) | Cover Class | Comments |
|---|---|---|---|---|
| GERO | Herb Robert | 0.25 | 2 | Infestation appears to be contained to SW perimeter of pit. |
| HICA10 | Yellowhawkweed | 0.10 | 1 | |
| SEJA | tansy ragwort | 0.10 | 1 | |
| CIAR4 | Canada thistle | 0.10 | 1 | |
| CIVU | Bull thistle | 0.10 | 1 | |
| CYSC4 | Scot's broom | 1.0 | 1 | 1 Blooming plant. Plants contained to northern portion of pit. Did not treat high up on slope. |
| HYPE | Common St. Johnswort | 3.0 | 2 | |
| LALA4 | Everlasting Pea | 0.10 | 1 | |
| PHAR3 | Reed Canarygrass | 0.10 | 1 | |

**Do not record tolerate species in this table.**

**DON'T FORGET TO FILL OUT THIS SECTION!**

**Estimated size of pit:** 8 **acres**
(1 acre = 43560 ft², or approximately 209 ft x 209 feet. 1/10 acre = 4356 ft², or 66 ft x 66 ft, or approximately 435 ft x 10 ft)

**Percent of pit occupied by invasive plants** 35 **%**
This percent should indicate the percent of the pit that is NOT usable as a rock source as you find it on the day of the inspection. This includes area occupied by weeds AND the area potentially contaminated with seeds or other propagules.

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

**Has this pit been treated for weeds before?** (Yes) / No / Don't know **If yes, what year?** 2015

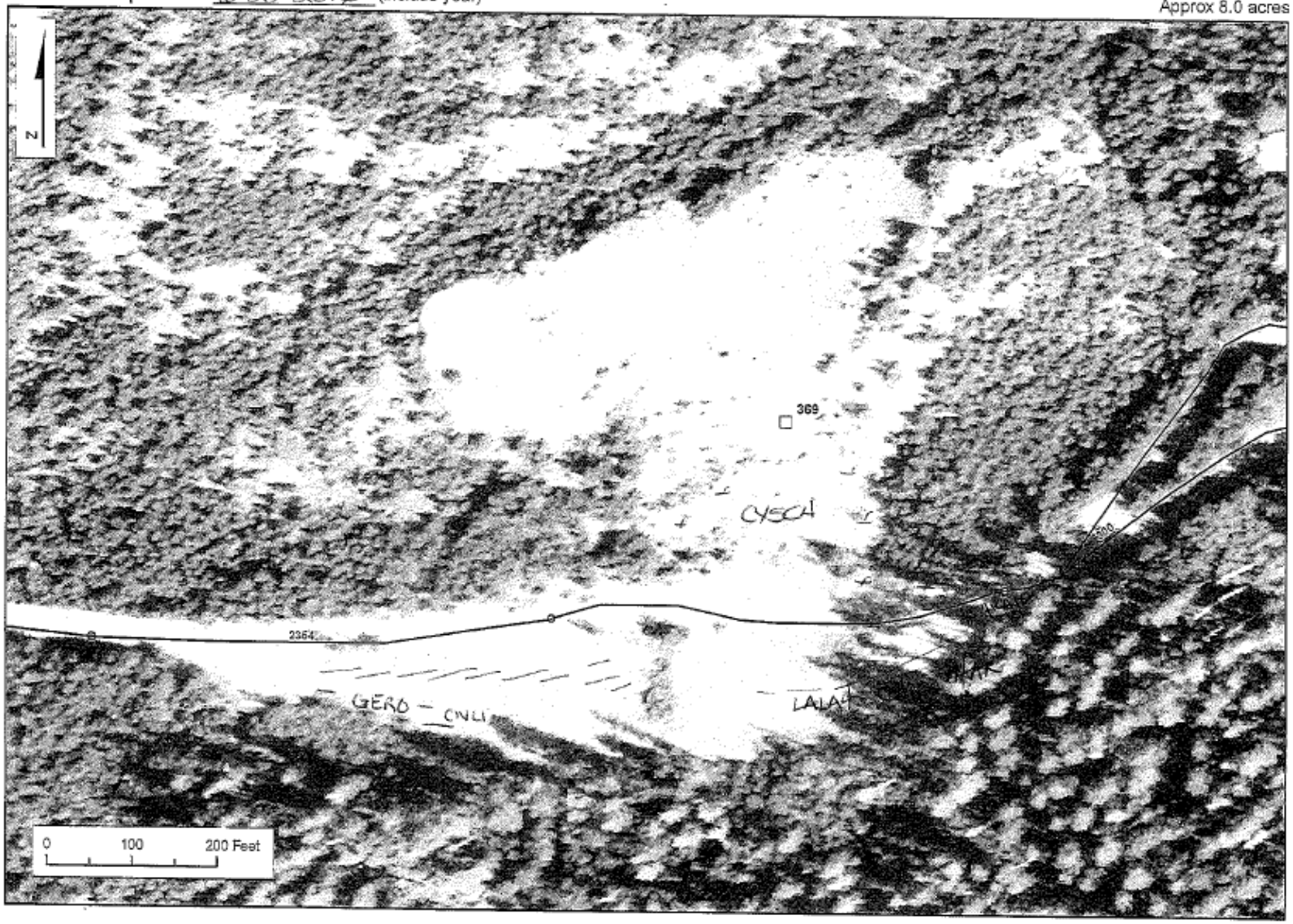
**Cover Class** and **Infested Area (acres)** columns are filled out exactly the same way as on the FACTS form.

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

# Rock Pit Inspection: Brown Creek Pit

Date of Inspection: 6-29-2016 (include year)

Mason County
2354 road, MP 1.6
Approx 8.0 acres



# Appendix I

# Example of Completed Monitoring Form

# Olympic National Forest
# Invasive Plant Treatment Monitoring

**Examiner name:** Kendall Carmen & Keith Reitz

**Evaluation Date:** 9/29/16

| | |
|---|---|
| **Ref #** | 418 |
| **Project # and Name** | |
| **From "Comments":** **Road number with BMP & EMP** **-OR-** **Project Area Descriptor** | RSD 234D-200 MP 3.4-5.1 |
| **Date(s) of treatment** | 7/27/16 |
| **Herbicide or Manual treatment (circle one)** | |

| Weeds Treated (Scientific name or code) | Infested Area Treated (acres) | Cover class from "% area examined for weeds infested with this species" | Percent efficacy of treatment (use codes on next page) |
|---|---|---|---|
| HIGA lo | 0.01 | 2 | 65 |
| SESA | 2 | 3 | 65 |
| CIAR4 | 0.01 | 1 | 65 |
| CYSC4 | 0.1 | 1 | 15 |
| GERO | 0.01 | 1 | 35 |
| | | | |
| | | | |
| | | | |

**Do you think this treatment area is a high priority for re-treatment next year?**
**Yes / No**

Please provide comments on the next page, if you have any.

**All information on page 1 of this datasheet comes from the "Herbicide/Manual Treatment Data Form", except for:**

- **Examiner name**
- **Evaluation Date**
- **Percent efficacy of treatment**

**For Percent efficacy of treatment, enter the code that best approximates the percent of the population that was eradicated:**

| Code | % Efficacy | Rating | Description |
|---|---|---|---|
| **0** | 0 | No effect | No effect can be detected on the target species population |
| **03** | 1 – 5 | Failure | Little to no effect can be detected on the target species population. |
| **15** | 6 – 25 | Poor | Treatment killed less than a quarter of the target species population. |
| **35** | 26 – 50 | Marginal | Less than half of the target species population was controlled. |
| **65** | 51 – 75 | Fair | Over half of the target species population was controlled. |
| **85** | 76 – 90 | Good | Treatment was successful in killing most of the target species population |
| **95** | 91 – 99 | Excellent | Over 95% of the target species population has been killed with the treatment. |
| **100** | 100 | Complete | Not a single individual of the target species population was found after a complete survey of the site. The infestation was eradicated. |
| **UN** | UNK | Unknown | Treatment efficacy/success can not be determined. |

**Comments:**

Did not see any noticable HICA10 plants during evaluation. Would recommend checking MP 4.2 next year to observe if any came back.

SEJA treatment started to decline in efficacy. Some larger rosetts were present mixed in with roadside grasses. Small rosetts also were present, most likely regrew after treatment.

CYSCH was sprayed, but not enough to completly kill.

# Appendix J

# Calibration Protocol and Results

TechNotes PRAIRIE
resources for prairie and grassland managers

# 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).

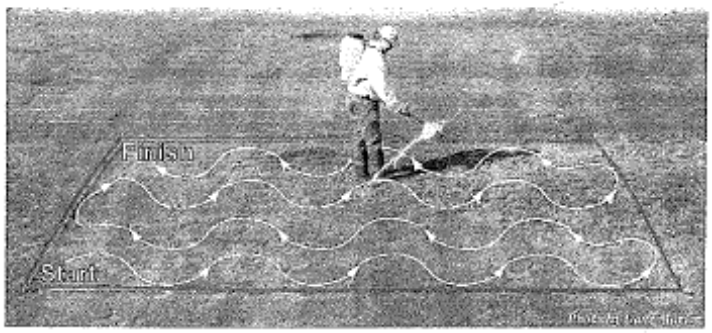
*Sprayer Calibration*

## Six Simple Steps

The following step-by-step method of calibrating a backpack or handgun 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 1/128 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 for 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 3/4 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 2/3 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 2/3 tsp/gal | 3 3/4 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 1/3 tsp/gal | 4 3/4 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 tablespoon = 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: May 25, 2016

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: Patricia A. Grover Position: Coordinator, MCNWCB

| Equipment ID | Equipment Type | Calibrated GPA | Working Condition? | Comments | Examiner Initials |
|---|---|---|---|---|---|
| SPO #1 | Backpack sprayer | 52 | Yes | 1 min 38 sec / 40 oz.<br>2 min 18 sec / 64 oz. | PAG |
| SPO #3 | " | 77 | Yes | 2 min 08 sec / 68 oz.<br>3 min 10 sec / 86 oz. | PAG |
| SPO #4 | " | 59 | Yes | 2 min 02 sec / 64 oz.<br>1 min 50 sec / 54 oz. | PAG |
| Solo #1 | " | 64 | Yes | 2 min 00 sec / 64 oz.<br>2 min 08 sec / 64 oz. | PAG |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |