



Checking Canada thistle treatment at Camp Handy meadow, Buckhorn Wilderness

## **Olympic Peninsula Cooperative Noxious Weed Control 2012 Project Report**

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



Backcountry Horsemen and NWCB crew treat thistle at Camp Handy

Report compiled by:

**Clallam County Noxious Weed Control Board**

Cathy Lucero, Coordinator

Laurel Moulton, Weed Control Specialist

November 2012

223 E. Fourth Street, Suite 15

Port Angeles, WA98362-3015

(360) 417-2442

## Report Recipients

### Report Recipients

#### Unabridged Version:

Olympic National Forest  
Cheryl Bartlett  
Susan Piper

#### Abridged Version (no appendices):

Olympic National Forest  
Reta Laford  
Shawna Bautista  
Kathy O'Halloran  
Dean Yoshina  
Dean Millet

Washington State Noxious Weed Control Board  
Alison Halpern

Clallam County Commissioners  
Mike Chapman  
Mike Doherty  
Jim McEntire

Clallam County Noxious Weed Control Board  
Fred Grant  
Dean Hurn  
Sheila Miller  
Jane Vanderhoof  
Clea Rome

Jefferson County Commissioners  
John Austin  
Phil Johnson  
David Sullivan

Jefferson County Noxious Weed Control Board  
Jill Silver  
Patricia Robinson  
Laura Lewis

WA State Legislators  
Senator Jim Hargrove  
Representative Steve Tharinger  
Representative Kevin Van De Wege

United States Legislators  
Senator Maria Cantwell  
Senator Patty Murray  
Representative Derek Kilmer

City of Port Townsend Public Works  
Ian Jablonski

City of Sequim Public Works  
Paul Haines

### Email notification to online link

Kitsap County Noxious Weed Control Board  
Dana Coggon, Coordinator

Mason County Noxious Weed Control Board  
Pat Grover, Coordinator

Grays Harbor Noxious Weed Control Board  
Nancy Ness, Coordinator

Quinalt Nation, Jim Plampin,

Hoh Tribe, Steve Allison

Makah Tribe, Rob McCoy

Quileute Tribe, Frank Geyer

Lower Elwha Tribe, Mike McHenry

Jamestown S'Klallam Tribe, Hilton Turnbull

Olympic National Park, Dan Campbell

**An unabridged copy of this report will be posted to our  
website at**

**[http://www.clallam.net/weedcontrol/html/forest\\_service.htm](http://www.clallam.net/weedcontrol/html/forest_service.htm)**

**-see 2012 Report.**

## **Acknowledgements**

**We'd like to acknowledge the support and cooperation from the following people and organizations.  
Thanks for all your hard work!**

### Clallam County Noxious Weed Control Board Field Technicians

Guyer Bogen  
Jon Clevenger  
Laurel Moulton  
Ian Vermeeran  
(390) 417-2442

### Olympic National Forest

Cheryl Bartlett  
Botanist and Invasive Plant Program Coordinator  
(360) 765-2223

Irene Matsuoka  
Mary McCallum  
Project Monitors  
(360) 956-2309

Kurt Aluzas  
Wildlife Biologist  
(360) 765-2230

Don Svetich  
Acting AFMO and his Fire Crew  
(360)-765-2200

Joan Ziegltrum  
Forest Ecologist and Botanist  
(360) 956-2320

Susan Piper  
Wildlife, Botany, and Invasive Plant Program Manager  
(360) 956-2435

### Washington Conservation Corps (WCC), Department of Ecology

Darrell Borden and WCC crew  
Owen French and WCC crew

### Back Country Horsemen of Washington, Peninsula Chapter

Sally Coates  
Rod Farley  
Pam Hardin  
Tom Mix  
Bill Searles

### Additional Volunteers-

Gwen Carter  
Denis Western

# Table of Contents

<b>Executive Summary</b>	<b>1</b>
<b>Project Summary</b>	<b>2</b>
<b>Maps</b>	<b>5</b>
<b>Project Spotlight: The Great Canada Thistle Hunt, Buckhorn Wilderness</b>	<b>10</b>
<b>Post-Season Observations</b>	<b>14</b>
<b>Recommendations</b>	<b>17</b>
<b>2012 Protocols</b>	<b>20</b>
<b>Appendix A: 2012 Project Accomplishments</b>	<b>23</b>
<b>Appendix B: Rock Source Surveys and Treatment</b>	<b>44</b>
<b>Appendix C: Roads Surveyed/Treated</b>	<b>46</b>
<b>Appendix D: Potential Survey and Treatment Sites</b>	<b>76</b>
<b>Appendix E: County Accomplishments</b>	<b>78</b>
<b>Appendix F: Control Recommendations by Species</b>	<b>79</b>
<b>Appendix G: Weed Species Reported, 2002-2012</b>	<b>81</b>
<b>Appendix H: Washington State Noxious Weed List</b>	<b>82</b>
<b>Appendix I: Sample Herbicide Notification—Legal Ad and On-Site Posting</b>	<b>84</b>
<b>Appendix J: Project Forms</b>	<b>86</b>
<b>Appendix K: NPDES Calibration</b>	<b>92</b>

\*Appendices are noted but omitted from the abridged version of this report

## EXECUTIVE SUMMARY

### Project Goal:

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

### Project Overview:

This project has been a comprehensive program for noxious weed control on the North Olympic Peninsula. On Forest Service lands it includes surveying, identifying, and controlling noxious weeds through a work plan coordinated between the Forest Service and local Weed Control Boards. On non-federal lands, this project supported Jefferson County Noxious Weed Control Board's program which includes public education, survey and monitoring of noxious weed infestations, and seeking landowner compliance with RCW 17.10. Work has been accomplished with funding under Title II of the Secure Rural Schools Act (SRS), which was designed in part to promote cooperation and collaboration between federal and local governments. Additional dollars from specific FS funds have sometimes augmented additional tasks added to the work plan. Depending on funding levels in any given year, work has been accomplished by local crews of varying size and expertise. Some seasons, crew was limited to a small field crew and a weed specialist hired by the Clallam County Noxious Weed Control Board (CCNWCB), sometimes crew was expanded to include a Washington Conservation Corps (WCC) crew, and/or an Olympic Correction Center (OCC) inmate crew. In some years, the Forest Service hired contractors for specific large scale projects.

### 2012 Project Goals:

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

### 2012 Resources: (Clallam/Jefferson Noxious Weed Control Board's Staff)

- Supervisor (14 hours/week, 6 months)
- 4 Project Specialists (40 hours/week, up to 4 months)
- Program Assistant (40 hours/week, 2 month).
- Clallam County Sheriff's Chain Gang (2 weeks)
- WCC crew (3 weeks)

### 2012 Accomplishments: (Clallam/Jefferson Noxious Weed Control Board)

- Examined **634** acres for invasive species, treated or re-treated **370** weed-infested acres
- Treated **8** wilderness/botanical/critical areas encompassing **41** acres
- Inspected **5** private rock sources for FS certification
- Completed and submitted FACTS treatment forms to USFS for upload to their database.
- Completed annual Project Report

### Observations and Recommendations:

Weed infestations continue to threaten the health and diversity of native plant communities both within the Olympic National Forest and on adjacent lands. However, weed infestation size, density, and diversity have been reduced overall; only one new weed, an ornamental variety, was discovered in 2012.

The Secure Rural Schools Act funding was extended through 2013. Clallam and Jefferson County Weed Boards have sufficient funding for a small field crew in 2013 and possibly into 2014. In many cases, we have made remarkable advances both in controlling invasives and in creating significant relationships with a wide array of entities.

Weed Board staff has extensive knowledge ranging from project history and infestation locations to weed identification and best treatment practices. The County weed boards have provided a relatively inexpensive, locally based work force with county wide jurisdiction and long term focus. The expertise, flexibility, and locally based Weed Boards are best suited to identify and control new or small infestations. We have been increasingly called upon for special, widely-dispersed infestations or to advise while augmenting other crews that are sized or equipped for larger projects. We appreciate the opportunity to provide input on weed control strategy and to help coordinate the Forest Service's weed management plan. Intra-agency invasive species control coordination has not only become increasingly important, but also is more likely to occur. This is a direct legacy of the working relationships created on the Olympic Peninsula during the tenure of the Secure Rural School Act. We hope this spirit of partnership will endure after the Act expires.

## PROJECT SUMMARY

### Project Goal:

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

### Project Overview:

This project has been a comprehensive program for noxious weed control on the North Olympic Peninsula, including surveying, identifying, and controlling noxious weeds, coordinating action and communication between local, state and federal jurisdictions, and raising public awareness of the impacts of noxious weeds. This project has also provided funding for the Jefferson County Noxious Weed Control Board and supported their local education, survey, and treatment efforts. Work has been accomplished with funding under Title II of the Secure Rural Schools Act (SRS), which was designed in part to promote cooperation and collaboration between federal and local governments. Additional dollars from specific FS funds have sometimes augmented additional tasks added to the work plan. SRS was re-authorized in 2008, but the funding, as scheduled, diminishes each year. This program, which began in 2002, has funding for the 2013 field season, possibly into 2014.

On Forest Service lands the project seeks to work under a policy of early discovery and rapid response to prevent the establishment of new infestations wherever possible. Initial work focused on surveys to identify and update weed baselines while performing manual control. After adopting Olympic National Forests' 2006 Environmental Impact Statement titled *Beyond Prevention: Site-specific Invasive Plant Treatment*, the focus shifted to treatments, using manual and herbicide methods. Following a preventative strategy, the emphasis has been on controlling high priority noxious weeds in areas with high potential to spread, such as rock sources or campgrounds, or in particularly fragile, sensitive environments such as Biological Areas. As the awareness of invasives has increased throughout the Forest Service as an agency, additional tasks have been added such as surveying and treating prior to road decommissioning and timber management activities, along with private rock source inspections to meet contract standards.

On non-Forest Service lands, the emphasis has been on areas where uncontrolled noxious weed populations on other federal, state, county, and private land were spreading and hindering coordinated control activities. The Clallam and Jefferson County Weed Boards provided the vital link to private landowners whose weeds threatened federal lands. For that reason, the project supports implementation of the Jefferson County Noxious Weed Control Board's program. Program goals include public education, monitoring infested sites, surveying for new noxious weed infestations, seeking 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.

Work has typically been accomplished by crews of varying size and expertise to match the need on the ground with available funding. Over the years, this has included a 2-4 person crew, a weed specialist hired by the Clallam County Noxious Weed Control Board (CCNWCB), a larger Washington Conservation Corps (WCC) crew, and occasionally, an Olympic Correction Center (OCC) inmate crew, working in the west end of Jefferson and Clallam Counties. Since 2008 the Forest Service has hired contractors for certain, large scale projects. There were no outside contracted projects this year.

### 2012 Project Description:

This year's work involved a wide array of remote access sites including an infestation in the Buckhorn wilderness, several Botanical areas, and additional wildlife habitat and riparian restoration areas. (see special Camp Handy feature on pg.10). The Forest Activity Tracking Sheet (FACTS) form was used to document manual or chemical treatment. Treatment reporting was based on a unique "Reference Number", arbitrarily assigned within 6<sup>th</sup> field watersheds. A Forest Service employee monitored treatment sites and sent feedback to the counties. Counties followed up with re-treatments as time allowed.

Four seasonal crew members were hired in June. Each obtained an applicator's license. Additionally, the Clallam County coordinator went out with the crew at least one day a week, enlarging crew capacity and using the coordinators' greater expertise to find a wider variety of non-native plant species.

County Weed Board stability protects Forest Service lands from noxious weed encroachment from surrounding lands. Because funding for weed control in Jefferson County is severely underfunded, past support from Title II under the Secure Rural Schools Act has enabled the Jefferson County Noxious Weed Control Board program to remain viable.

In 2012, treatments on Forest Service lands were prioritized as follows:

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

### **2012 Project Resources and Roles:**

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

- **CCNWCB**

- **Supervisor: 16 hours/week, for 6 months, licensed applicator**

- Supervised and administered the project
    - Provided technical information and support, crew training, and assisted with field treatments
    - Planned and coordinated WCC crew activities
    - Participated in 2 planning meetings with Forest Service staff
    - Prepared end-of-season report and planned for 2013 field season

- **Field team: 4 project specialists, (all licensed, aquatic applicators), variable time**

- Treated 318 acres; retreated 52 acres
    - Surveyed 309 miles of roads
    - Filled out FACTS forms for all treated sites

- **Program Assistant/Weed Specialist: 40 hours/week for 2 month**

- Reviewed crew's FACTS sheets and submitted them to the Forest Service
    - Compiled data

- **WCC Crew**

- Treated a total of **28** acres

- **Clallam County Sheriff's Chain Gang**

- Treated 67,850 Scotch broom within County pits and roads.

- **Clallam County Sheriff's Chain Gang FS funded**

- Removed 12,530 Scotch broom, 11,670 tansy ragwort, 5055 herb Robert plants, 76,000 pea vine-estimated to equal **25.4** acres

### **2012 Project Accomplishments:**

Through the efforts of the Clallam County NWCB, Chain Gang (for Forest Service) and WCC, crews treated 372 acres of noxious weeds and surveyed 309 miles of roads. Weed board re-treatments are noted, but not included in the acre total, per Forest Service protocol. In addition to scheduled work, we responded to a number of Early Detection, Rapid Response (ED/RR) requests made by the Forest Service mid season, organized volunteer participation, and accommodated private rock sources by providing inspections on demand.

The table on the following page provides some perspective on 2012 accomplishments by summarizing yearly crew activities since 2002. Yearly comparisons are complex and inconsistent because of changes in focus, crew resources and FS reporting protocols from 2002-2012. From 2002 to 2006, herbicides use was limited or disallowed. Manual treatments for those 5 years have been consolidated and acres treated estimated. Although considerable resources went into identifying problem areas in the first few years, (note how focus on surveys corresponds to number of new discoveries), it is interesting to see that the CCNWCB has been able to treat with the assistance of herbicides anywhere up to triple the amount of acres in a single year, that previously took five years to treat manually. This increased capacity to cover ground has been instrumental in getting ahead of, and reducing the spread and impacts of invasive plant species. For more detail, please see the end of Appendix C for a brief history of FS policies, program focus and available resources which shaped overall program direction and accomplishments in different years. Appendix A provides detailed information about treatments at each site in the 2012 project list.

<sup>A</sup>Crew acronyms: **NWCB**=Noxious Weed Control Board, **OCC**=Olympic Correctional Crew, **WCC**=Washington Conservation Corps

2002-2012 ACCOMPLISHMENT SUMMARY TABLES										
Acres Treated by Crew										
CREW <sup>A</sup>	2002-2006 <sup>1</sup> (5 yrs manual treatments) baseline survey	2007	2008	2009	2010	2011	2011 retreats	2012	2012 retreats	Total
NWCB manual	8.61		54.6	26.44	21.01	32.96		32.77		
NWCB chemical			131.35	195.15	316.05	260.53	24.80 <sup>3</sup>	285.52	51.82 <sup>3</sup>	
<b>NWCB total</b>	8.61 <sup>1</sup>	59.95 <sup>2</sup>	185.95 <sup>2</sup>	221.59 <sup>2</sup>	337.06 <sup>2</sup>	293.49 <sup>2</sup>		318.29		1,424.95
OCC-manual	Not Funded	337 <sup>2*</sup>	74.82 <sup>2</sup>	77.5 <sup>2</sup>	Not Funded	Not Funded		Not Funded		489.37 <sup>2</sup>
WCC <sup>5</sup> manual	58.83	22.35	Not Funded	53.87	Not Funded	38.3		1.5		
WCC <sup>5</sup> chemical								26.32		
<b>WCC total</b>	58.83 <sup>1</sup>	22.35 <sup>2</sup>		53.87 <sup>2</sup>		38.3 <sup>2</sup>		28.18 <sup>2</sup>		201.53
Chain Gang	38.68 <sup>1</sup>	7.27 <sup>1</sup>	2.43 <sup>1</sup>	6.93 <sup>1</sup>	0.16 <sup>1</sup>	6 <sup>2</sup>		25.4 <sup>1</sup>		86.82
<b>TOTAL Acres Treated</b>	<b>106.12<sup>1</sup></b>	<b>426.57<sup>2*</sup></b>	<b>263.2</b>	<b>359.89</b>	<b>337.22</b>	<b>337.79</b>		<b>371.87</b>		<b>2,202.68</b>

Number of New/Existing Sites Reported Each Year by NWCB Crews												
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
<b>New Sites/Total</b>	<b>122</b>	<b>497/619</b>	<b>147/766</b>	<b>74/840</b>	<b>147/986</b>	<b>12/998</b>	<b>1/999</b>	<b>3/1,002</b>	<b>29/1,031</b>	<b>56/1,060</b>	<b>22/1082</b>	<b>1,082</b>

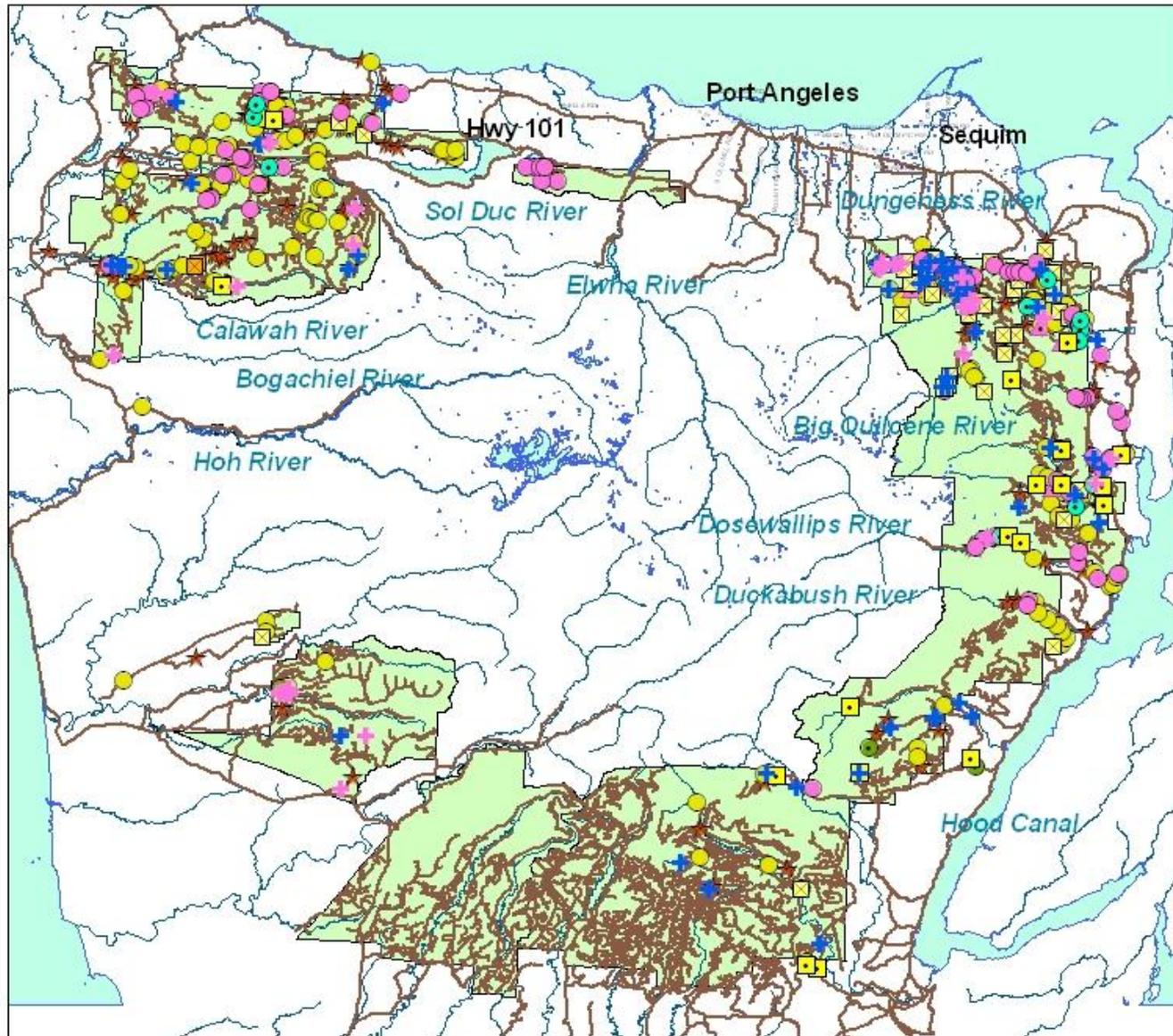
Road Miles Surveyed and/or Treated by NWCB Crews												
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
<b>Miles of Roads Surveyed/Treated</b>	192	702	265	113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,272
<b>Acres Surveyed/Treated</b>	233 <sup>4</sup>	851 <sup>4</sup>	321 <sup>4</sup>	137 <sup>4</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1,542 <sup>4</sup>
<b>Miles of Roads Surveyed</b>	N/A	N/A	N/A	N/A	391	369	423	299	222	237	309	2,250
<b>Acres Surveyed<sup>2</sup></b>	N/A	N/A	N/A	N/A	947 <sup>5</sup>	894 <sup>5</sup>	1,025 <sup>5</sup>	724 <sup>5</sup>	626 <sup>6</sup>	575 <sup>6</sup>	613 <sup>6</sup>	5,404

1. Only manual treatments were allowed during this 5 yr period. Acreage was estimated based on reported number of plants pulled; 1000=one/tenth acre. NWCB directive was to locate and document as many infestations as possible. For the Chain Gang reporting inconsistencies were difficult to reconcile with FS protocols.
2. "Acres Treated" include chemical and manual treatment and are taken from the FACTS forms filled out by crew. **\*The figure of 337 acres reported for the OCC crew in 2007 is considerably inflated, due to a change, and subsequent misunderstanding of newly instituted FS reporting protocols. However, it is shown here as reported.**
3. Re-treatments, (taken from FACT sheets), although considered a critical strategy for some species, are not counted toward acreage totals per FS protocol
4. Derived from miles surveyed/treated, but not used in the estimate of acres in the top table.
5. Derived from miles surveyed. Recorded as a separate value for 2006 to 2009. Previously combined in miles treated/surveyed and acres treated/surveyed
6. Taken from FACTS sheets—"Area Examined for Weeds"-from 2010-2102. This addition to the sheet gives perspective to infestation density and area covered.

## **Maps**

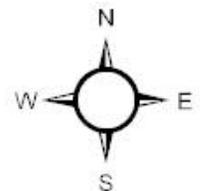
- Four maps are shown—an Overview of the Olympic National Forest, two covering activities in the Hood Canal District from north to south and one showing activities in the Pacific North district.
- The Overview Map shows baseline weed sites, documented since 2005.
- Roads that Jefferson County and Clallam County Noxious Weed Board crews worked on in 2012 are shown in yellow. The Roads Surveyed 2012 layer was created in the office, based on roads named in the FACTS sheets filled out by the crew, and GPS track logs.
- The 2012 activity maps show new weed sites documented in 2012. The new weed layers are based on points taken by the field crew, using a Garmin 78 or a Garmin 76 CX. Office staff converted the points to shape files, using the Minnesota DNR public domain software DNR Garmin version 5.14, which were then overlaid on all previous species shape files to ascertain which infestations were new. Excess points (too close together) were deleted.

# Olympic National Forest Overview, with Baseline Weed Sites

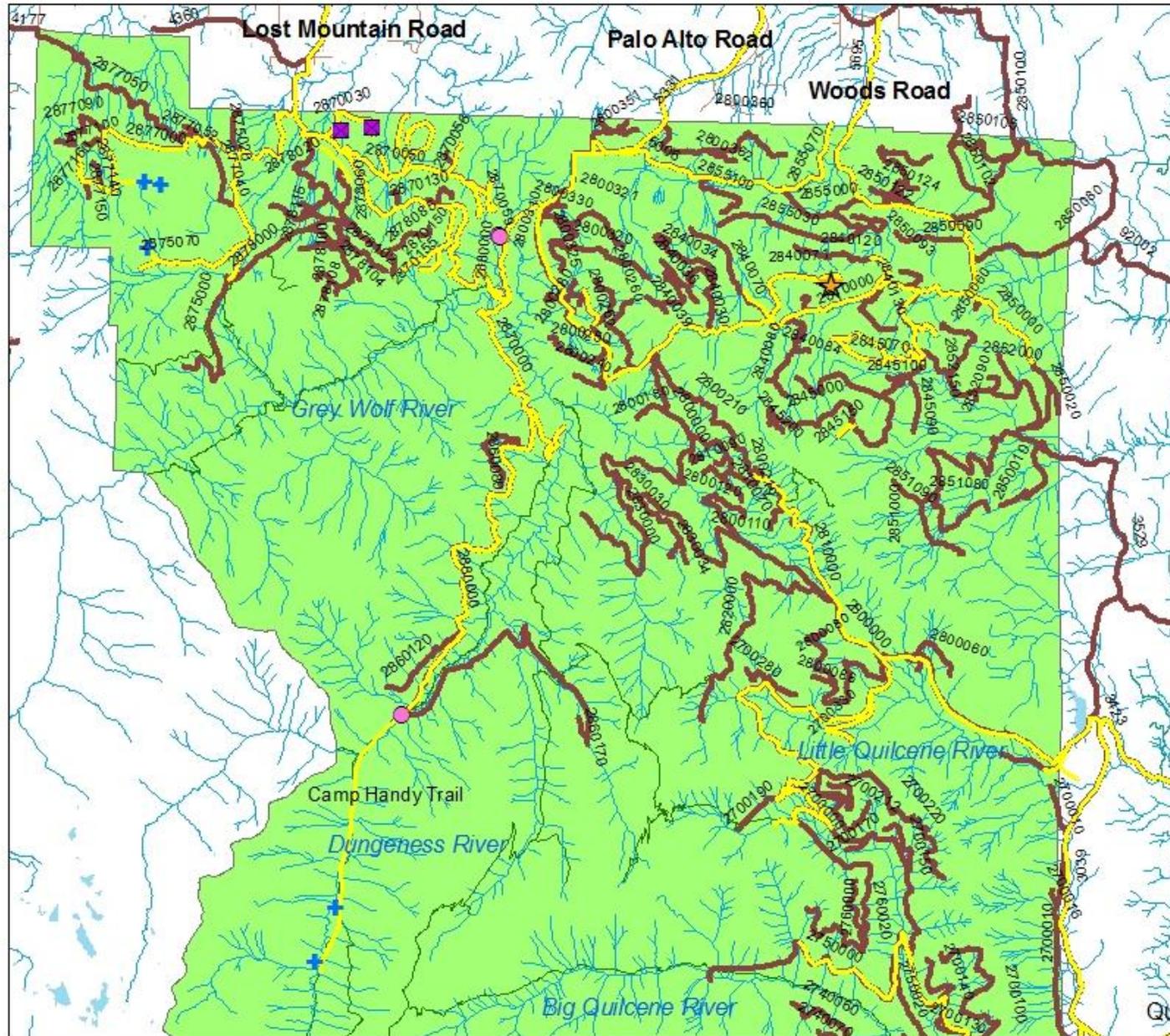


## Legend

- bull thistle
- Canada thistle
- common tansy
- evergreen blackberry
- herb Robert
- himalayan blackberry
- meadow knapweed
- orange hawkweed
- peavine
- scotch broom
- tansy ragwort
- FS Roads
- Rivers
- Water
- FS Districts



# Hood Canal North--Roads Surveyed and New Weed Sites, 2012

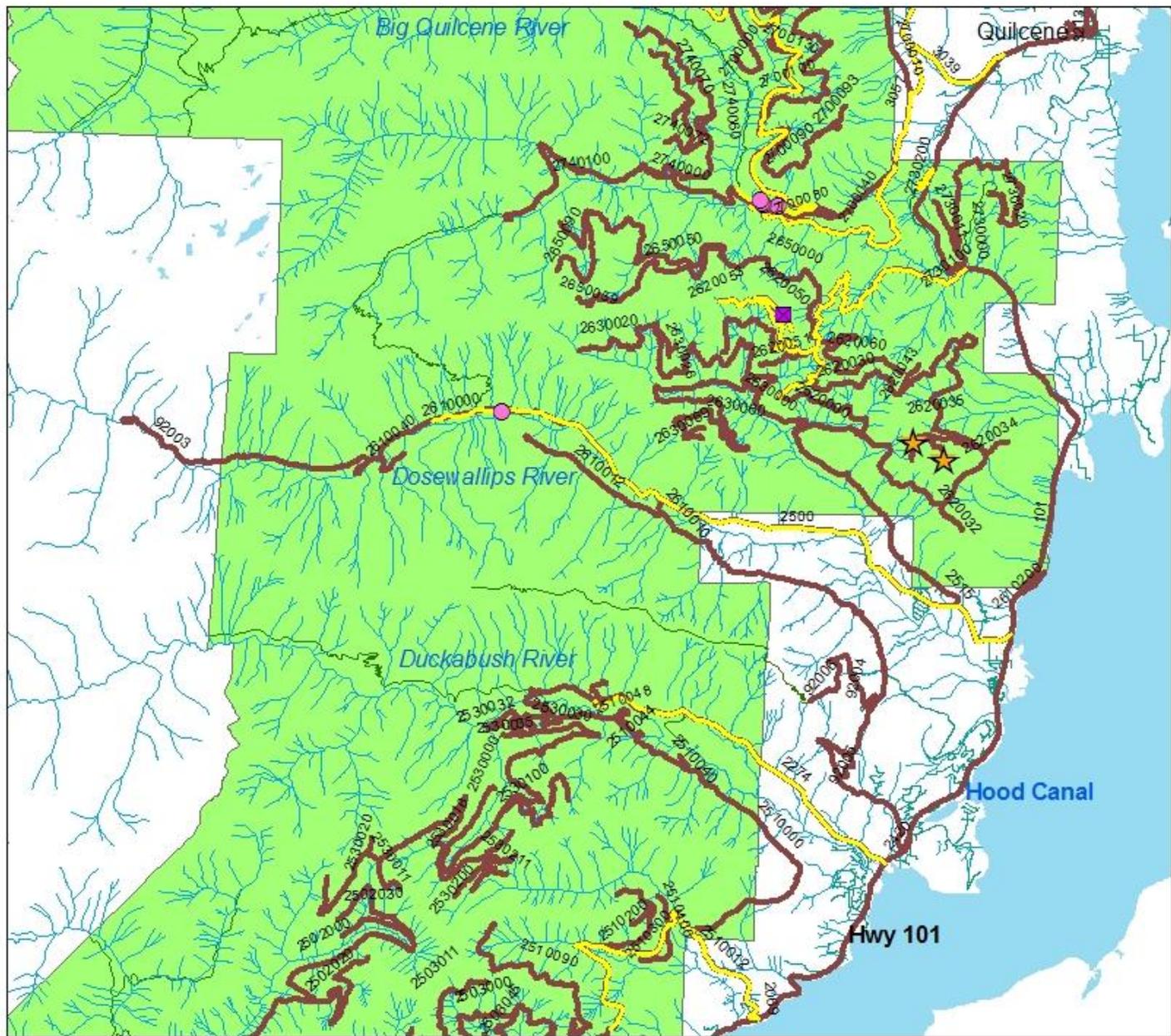


**Legend**

- + Canada thistle
- herb Robert
- meadow knapweed
- ★ tansy ragwort
- ▲ yellow archangel
- Roads Surveyed 2012
- FS Roads
- FS streams
- Trails
- FS Districts
- Water
- Jefferson Co Roads
- Clallam Co Roads



# Hood Canal South--Roads Surveyed and New Weed Sites, 2012

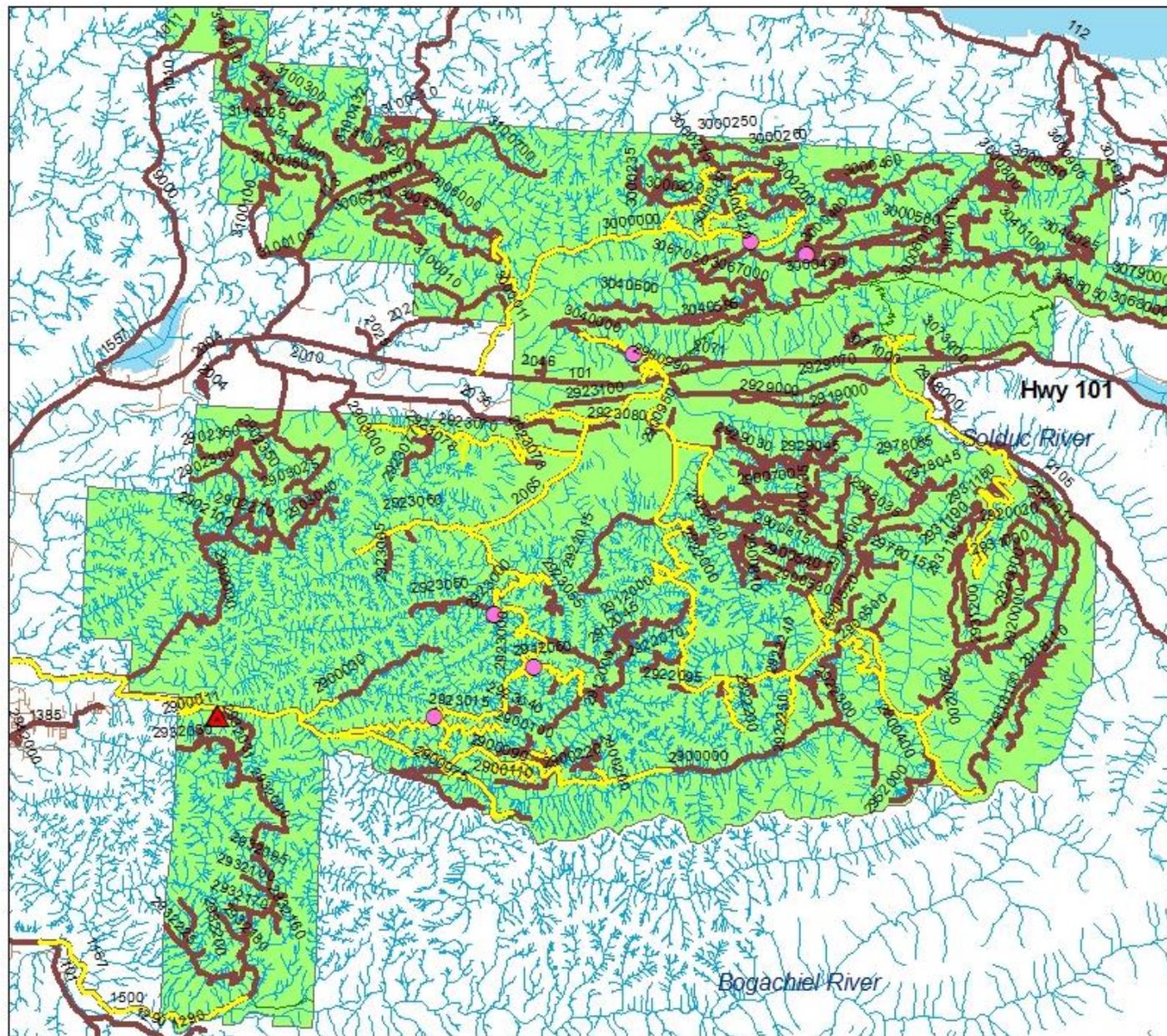


**Legend**

- + Canada thistle
- herb Robert
- meadow knapweed
- ★ tansy ragwort
- ▲ yellow archangel
- Roads Surveyed 2012
- FS Roads
- FS streams
- Trails
- FS Districts
- Water
- Jefferson Co Roads
- Clallam Co Roads



# Pacific North--Roads Surveyed and New Weed Sites, 2012



**Legend**

- + Canada thistle
- herb Robert
- meadow knapweed
- ★ tansy ragwort
- ▲ yellow archangel
- Roads Surveyed 2012
- FS Roads
- FS streams
- Trails
- FS Districts
- Water
- Jefferson Co Roads
- Clallam Co Roads



## The Great Canada Thistle Hunt in the Buckhorn Wilderness

Thistles are probably the most universally recognized weed. Canada thistle, long reviled in Washington State, was the first plant placed on our noxious weed list over 100 years ago. While we appear to blame our Canadian cousins for introducing this pernicious weed into the United States, Canadians, perhaps more appropriately referring to its true place of origin, call it European thistle. Europeans simply call it creeping thistle. All botanists would recognize it by its Latin name, *Cirsium arvense*.



By any name it can be a formidable foe. To understand, requires some background information. Canada thistle is a member of the Composite or Sunflower Family which means that each single “petal” of a “flower” is actually a flower all by itself, capable of making seed. Most composites produce high quantities of seed, often equipped to blow long distances by wind or to cling to unwitting victims as a means to assure wide dispersal for fertile progeny. Canada thistle is unique in that it generally produces male and female flowers on separate plants. Unless both are in close proximity to one another, the familiar white fluff that blows about, is only that. For this reason, it is estimated that less than 5% of Canada thistle seeds are viable. At first glance, it would seem that Canada thistle has limited its future success with this evolutionary development. Instead, its reproductive energy is focused on a secondary strategy; underground stems called rhizomes.

Canada thistle is a perennial that can establish from a mere rhizome fragment. Within ten days, a fragment can establish and photosynthesize. Under the right conditions, each rhizome can produce up to 900 clones of itself every year. But that's not all. The actual root system can be over three feet deep, and once established, can store years' worth of energy to tide it over during hard times. Cutting stimulates enthusiastic re-growth by stem buds previously lying dormant. In other words, cutting only makes it worse!. Finally, and here's why Canada thistle poses such a threat, it is believed to be allelopathic, secreting chemicals that suppress and inhibit competition from other plants, particularly grasses. Once present, it needs no further disturbance to continue its inexorable spread. Over time, Canada thistle can completely dominate a site, out-competing and pushing aside desirable species be they crop or native plants.



2 yrs root growth;  
(Purdue University)





In the upper areas of the Buckhorn Wilderness, strung like pearls on the necklace of the river, are slivers of meadow openings amid conifer dominated forest. These wetland meadows perform a number of important ecological functions in addition to supporting a multitude of beautiful native forbs such as rein orchids, cow parsnip, and cinquefoils which in turn, provide habitat to a diverse array of wildlife.

It's not clear how or exactly when it happened. Perhaps it dated back to when logging was still a going concern in the area. Perhaps it was a hiker resting in the shelter of Camp Handy enjoying a picnic lunch while admiring the mountain view. Perhaps it was a deer wandering from one meadow to the next pausing to drink from the river. Perhaps it was the wind. But many years ago, somehow, Canada thistle made its first appearance in the upper meadows of the Buckhorn Wilderness.

Over ten years ago, small patches of Canada thistle were noted and reported near Camp Handy. The popular Upper Dungeness trailhead system is about an hour's drive up into the hills behind Sequim, Washington. From there it is a gentle 3.5 mile hike to Camp Handy. For years volunteers, led by intrepid Olympic National Forest Service staff, repeatedly cut and hand pulled Canada thistle, attempting to halt its spread. It was prickly, disheartening work. After several years, the work was abandoned.

Two years ago, the Forest Service took up the challenge once again, this time armed with additional information and tools. Staff sought and was awarded, special funding to survey the wilderness for invasives. Canada thistle, although now greatly expanded, was identified in only two locations, Camp Handy and about ½ mile farther up the trail in Heather Basin. Tom Mix, from the Olympic Chapter of the Back Country Horsemen and a frequent visitor to the area reported an additional infestation across the river. He knew of no other sites in the vicinity despite the many miles of trail he traveled every summer.

Invasive species have been declared one of the major causes of species endangerment, perhaps second only to outright habitat loss. By 2006, USFS Region 6 had revised and begun implementing a new integrated invasive species management plan. This plan included the option to use 10 herbicides along with other control measures. The Clallam and Jefferson County Noxious Weed Control Boards have been working closely with the Forest Service since 2002 to limit invasive species impacts across jurisdictional boundaries.



Mary McCallam surveyed for invasives





Gathering at trail head



Volunteers prepare to treat thistle



Fording Heather Creek

This summer, with the help of many partners, we tackled this long standing Canada thistle problem and completed the first invasive plant treatment using herbicide in the Buckhorn wilderness.

In preparation, we reconnoitered known locations in late spring to determine when river fords would be passable, plant growth, and how long it would take to pack in supplies. We elected to use clopyralid because of the narrow spectrum of plants on which it is effective, as well as its very low non-target environmental toxicity. The Forest Service submitted the additional necessary documentation for the project well in advance. A week prior to any treatments, the Forest Service posted at the trail head and at access points on the perimeter of each infestation, specially crafted posters explaining the project and giving notice of planned treatment dates.

On July 30, five Back Country Horsemen and their horses, recruited by and including master packer, Tom Mix, met with Cathy Lucero and her weed board crew, as well as Forest Service staff Mary McCallum and Irene Matsuoka at the Upper Dungeness Trail parking area. Two additional volunteers, who are part of the Clallam County Tuesday Trail crew, later joined us. The Weed Board supplied calibrated back pack sprayers, herbicide, additional equipment and supplies, as well as lunch. Horsemen packed in as much equipment and supplies as they could. There was still plenty more to carry.

After a brief safety meeting conducted by FS staff, we proceeded to Heather Creek, the farthest destination. We posted fresh treatment notices. Cathy then gave a brief course in herbicide safety, mixing and application, and most importantly, Canada thistle identification versus native look-a-likes. Water to fill packs, was taken from the river with 5 gallon buckets. 10 of us fanned out in a line, starting at the top of the approximately 2 acre infestation, and worked our way toward the river. Tom, meanwhile, reconnoitered on horseback, the best place to cross to the other side.

Many hands make for a light task. Soon we had finished the first site and were ready to start on the next. We split into two teams, sending all the horsemen with some experienced weed crew across the river to start on an approximately 4 acre site. Forest Service, two late arriving volunteers and remaining weed crew headed 1/2 mile back to Camp Handy, an approximately 1/2 acre infestation. The two groups were to meet up by no later than 3 p.m. to allow sufficient time to get back to the parking area.

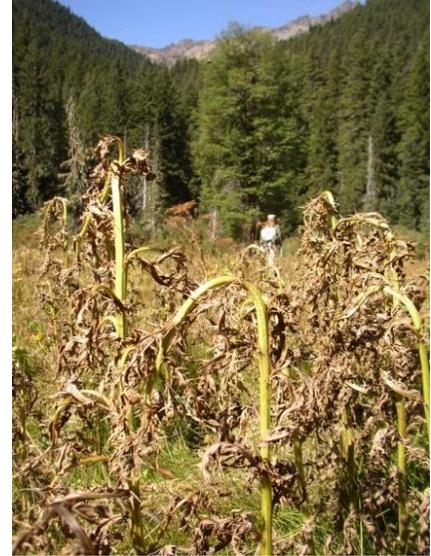
While we saw no one in the upper meadows, we made a point of talking to hikers who strolled into the meadow at Camp Handy during treatments. None were put off, but rather all seemed appreciative of the effort. The up-creek group joined us at the appointed time. To meet the deadline, they lamented that they had been unable to finish about 1/2 acre of the infestation.

Several of the volunteers told us they had been hesitant to join in an herbicide treatment or had friends who derided their participation. But by the end of the day, they had enjoyed their time, felt comfortable with the care with which treatment had been planned and executed, and were very interested in helping again!



Camp Handy, job well done.





Camp Handy meadow after treatment

Clopyralid is a slow acting herbicide, which is partially what makes it especially effective for deep rooted perennials. We waited six weeks, then returned to monitor treatments, to finish the remaining ½ acre, and to re-treat any re-growth in all three locations. The results were impressive. Treatments appeared to be 98-100% effective. Native plants were unaffected. Canada thistle re-growth was virtually non-existent. Most treatment was for inadvertent “misses”. We are anxious to see how well the treatment worked on the extensive root system when growth begins anew next summer.

The successful implementation of a project with so many working parts was exciting. While the Back Country Horsemen have always been the “work horse” of volunteer collaboration with the Forest Service, to capitalize on the energy and as a way to highlight their participation, we plan to share a copy of this report to be used in the Back Country Horsemen Newsletter. We hope this exposure will generate yet more volunteer participation in the future. We will also have an evening slide show with the local chapter so that they can relive the adventure of the Great Canada Thistle Hunt in the Buckhorn Wilderness.

## POST-SEASON OBSERVATIONS:



### **Nature of the Problem:**

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

Over the past ten years, weed infestation size, density, and diversity have been reduced overall. Although we treated more acreage this year than last, this in part reflects lower densities on those acres. Early Detection/Rapid Response is working. There have been fewer “surprises”. Only 1 new weed species, ribbon grass, an ornamental version of reed canary grass, was discovered and treated at two locations in 2012. Both were very early stage infestations and easily treated. Herb Robert has become the top most problematic invasive species in the Forest.

As the significance of invasive plant impacts percolates through the Forest Service as an agency, more prevention strategies are being built into a wide range of Forest Service projects and activities that have potential to act as vectors for weeds ; forest management, road to trail conversions, contract and material standards. These new policies are smart, cost effective steps that are already beginning to bear fruit. Additionally, as restoration projects mature and our work for the Forest Service transitions from heavy weed treatments to careful spot treatments amid site specific replanting, the weed board’s role becomes more complicated and nuanced. This emphasis was noticeable in our work plan. This season the NWCB crew treated **123** high priority projects many of which included pre-timber thinning units, ORV road decommissioning, and quarry treatments. We treated **41** acres of critical habitat. (Please see the Great Canada Thistle Hunt in the Buckhorn Wilderness on pg 10 for more details of one project this year). As with most things in government during these difficult economic times, it will be increasingly hard to balance all the needs with the demands, in the face of flat or decreasing budgets. This partnership has accomplished amazing things.

### **Invasive Weed Populations:**

- We continue to make progress. For example, Scotch broom abundance was very minor throughout project areas in 2012. There were no large patches of meadow knapweed; plants were generally sparse, or individual. There was only one spotted knapweed site treated vs. 12 recorded sites.
- Tansy abundance is down in areas where there has been consistent follow-up, especially in the Dungeness Watershed. There are still sites where little work has yet occurred. Those areas, particularly in Jefferson County, would benefit from treatments.
- 1 new orange hawkweed site was discovered by FS staff in the Calawah pit. Small orange hawkweed infestations still emanate from the Caretakers Cabin and bear watching. Other orange hawkweed sites are so minimal they may become difficult for inexperienced crew to recognize.
- 1 new knotweed site was discovered on the edges of the Calawah pit, but in general most knotweed sites are greatly reduced. Because of their known ability to return after years of invisibility, it will be important to periodically re-inspect.
- The single yellow archangel site near the Bogachiel River was completely treated.
- The most commonly recorded invasive species are herb Robert, everlasting peavine, tansy ragwort, Canada thistle, and bull thistle.

- Herb Robert's rapidly expanding populations remain a top concern. This is not only because of its destructive effects on forest understory, but also because of its high and quick reproductive capacity. Its ability to invade undisturbed forest understory and to produce prolific seedling growth throughout the year has made it exceedingly difficult to find and to get ahead of. We continually discover new herb Robert sites. **Re-treatments doubled** this year from last. We were finally able to get complete treatments on many of our largest sites such as those along Dosewallips River below the washout, Dungeness Forks Campground, and nearly all of the 3000 Rd. and at least 2 complete treatments on some smaller, but significant ones such as the Cranberry Bog. We are hopeful that the dry summer which greatly delayed fall germination may have reduced fall seed production and/ or germination that often occurs late in the season.
- The Forest Service coordinated treatments of several large everlasting peavine infestations this year using WCC (chemical methods) and Chain Gang crews (manual methods). It will be interesting to note the result next season to determine treatment effectiveness.
- The most infrequently recorded species are comfrey, hawkweeds, sulfur cinquefoil and knotweed.
- **Only one new weed**, a variegated, ornamental form of reed canary grass, was found this year at two locations; both were completely treated..
- Crew recorded approximately **56** new sites this year. This may merely be a reflection of new, remote treatments many of which were previously unmapped.
- On average, the condition of rock sources on FS land is improving. A few, especially those with high priority species, still need more work. Because of high visitation, disturbed condition, and potential use as yard waste dump sites, even those in good condition need to be periodically revisited. Some may be safely put on a two year rotating inspection/treatment schedule.
- Small populations of purple loosestrife, yellow, common and European hawkweed, hoary alyssum, hairy willowherb, and common reed are all present on Jefferson and/or Clallam County roadsides. We consider control of all of these plants—as yet unrecorded on Forest Service land (excluding highways)—a high priority to prevent their spread.
- Poison hemlock and wild chervil are still common on roadsides in Jefferson County. Neither has yet been seen on FS land but could easily spread through yard waste dumps or local visitors. Jefferson County has been actively treating wild chervil but it is unclear whether they have sufficient resources or options to further reduce spread.

### Survey and Treatment

- The project list was better sized this year than last year; field crew was able re-treat many herb Robert sites. However, ALL herb Robert sites require consistent follow up and a number of known sites were skipped this year.
- NWCB crews treated all but 13 priority 1, 1A, and 1\* sites of the 123 high priority projects listed for Jefferson/Clallam in the 2012 work plan. Two were inadvertently passed over because crew often relied on map coding to determine high priority and a couple were incorrectly coded.
- We more than doubled re-treatment acreage from **24.98 in 2011 to 51.82 in 2012**. This is particularly important as multiple treatments per season are viewed as critical to getting ahead of herb Robert infestations.
- The dry summer certainly enabled more herbicide treatments, which may account for increased acreage productivity. There was little time for surveys. Crew concentrated on treatments, or treatments of new areas surveyed in advance by Forest Service staff.
- It is clear that adding herbicide tools since 2007 has GREATLY increased productivity. See the Accomplishment Summary Table on Page 4 for comparisons of treated acreage in the first 5 years versus every year after.
- NWCB **Herbicide usage decreased by nearly 10 gallons; 38.57 gallons in 2012**, down from **48.58 gallons in 2011**, even though treated **acreage increased by over 30 acres**. We attribute this, at least in part, to lower weed densities as we continue to make progress, or re-treatments with high initial effectiveness. We do not believe this reflects protocol changes, which remained similar between 2011 and 2012 years. Prior years, however, had considerable variability and are thus difficult to compare.
- The large, remote area covered by this project still makes travel time a significant factor in the amount of fieldwork that can be accomplished in a season and hence associated costs. Additionally, the crew was deployed to more non-roadside sites than in previous years. We

treated approximately **41 acres** in botanical/critical/habitat areas. **Although difficult and time consuming, treatment at these specialty, less accessible sites will continue to be one of the best uses of our crew.**

- There were few sites on the project list where hand-pulling alone was an effective use of time.
- FS staff surveys of 1\* sites helped reduce overall project load for our field crew. Timely monitoring by the same helped direct follow-up effectively.
- Cranberry Bog treatments could not have taken place without the extraordinary cooperation and coordination with FS staff and the FS fire crew, which facilitated on-site water storage. The Cranberry Bog is an important experiment in transitioning from treatments to restoration.
- Cooperation between the Weed Boards, the Forest Service and the Port Townsend Municipal Watershed continued to be excellent. We met the request of Municipal Watershed managers and provided a report of treatments within the watershed to meet their November 1<sup>st</sup> reporting deadline and requirements.
- WCC crew willingness and capacity to spray has greatly increased the productivity of its crew. Combining WCC with other crews for large projects can be good for morale, but still may require greater communication and defined roles. The WCC crew did not have a licensed applicator while the crew leader was on vacation. This information was provided the day before crew arrived needing oversight.
- Cooperation between the Forest Service, Jefferson County Noxious Weed Control Board and the East Jefferson WCC Riparian Crew again facilitated knotweed treatments on FS land along the Dosewallips River. However, poor communication nearly led to missing an important site. Thanks to Mark McHenry and Laurel Moulton for dropping everything to get coverage. Insights gleaned from working with this crew may prove valuable if a similar crew is made available through the DNR for riparian work next season.
- The Chain Gang still appears to be underutilized. Their reporting appears to be fairly inconsistent or sporadic; they do not follow established FS protocols. It is difficult to gauge their effectiveness and efficiency.

### **Data Collection/Mapping**

- The pre-and post season meetings between the FS and Weed Boards are becoming more focused and organized. They have become a superb opportunity to exchange ideas and develop strategies before the hectic weed season begins.
- The Forest Service provided excellent pre-season planning documents and files. Maps, color coding assignments and their priority, adding reference numbers, and providing FS road numbers really helped. Shape files for previous year treatments were invaluable.
- There were no returning field crew members this year. This resulted in a steep learning curve, particularly in respect to filling out forms. There was confusion about and multiple versions of FACT forms which were revised during the treatment season. This sometimes resulted in missing information, for which we apologize.
- The “Project Completed?” check box was not always filled in. This went unnoticed until late in the season, making it difficult to determine whether subsequent treatment days were re-treatments or additional treatments, and whether a project was totally completed. It will be emphasized next year.
- We appreciated the reinstatement of “Acres Examined for Weeds” line and other changes made to the 2012 FACTS sheet.
- Equipping the crew with recreational-grade Garmin units loaded with Topo 24K has made it much easier to navigate and return to sites as needed. We did a better job maximizing the usefulness of these hand-held units this year than last. For example, the Garmins were used to calculate area treated for FACT sheets, based on the track log created while performing a treatment.
- Track logs enabled also us to fill in paper data gaps that sometimes arose because crew wasn’t quite certain of their exact field position, and therefore ended up under-reporting reference numbers on FACT sheets.
- The majority of weed sites in the Olympic National Forest have already been mapped in the county’s GIS system. Shape files were amended to reflect new GPS points created by crew.

## RECOMMENDATIONS:

### Future Direction of the Project

The Secure Rural Schools Act has provided the opportunity and impetus to develop a collaborative relationship between the Forest Service and local weed boards to address invasive plant issues. In many cases, we have made remarkable advances both in controlling invasive, detrimental plant species and in creating significant relationships with a wide array of entities.

There is funding for a small crew in 2013. However, the future of the SRSA is very much in question.



Sedge plugs planted at  
Cranberry bog

The successful adoption of the 2008 EIS, which authorized herbicide use throughout the Olympic National Forest, allows effective treatment of large infestations and certain weed species that do not lend themselves to non-chemical methods. We will continue to consider all control methods, but the most effective treatments for a small CCNWCB crew will likely continue to be a combination of herbicides with other control methods. We look forward to future EIS iterations that incorporate lessons learned over the past 6 years during which careful herbicide applications have been allowed.

Weed Board staff has extensive knowledge ranging from project history and infestation locations to weed identification and best treatment practices. The County weed boards have provided a relatively inexpensive, locally based work force with county wide jurisdiction and long term focus. The expertise, flexibility, and locally based Weed Boards are best suited to identify and control new or small infestations. We have been increasingly called upon for special, widely-dispersed infestations or to advise while augmenting other crews that are sized or equipped for larger projects. We appreciate the opportunity to provide input on weed control strategy and to help coordinate the Forest Service's weed management plan. Intra-agency invasive species control coordination has not only become increasingly important, but also is more likely to occur. This is a direct legacy of the working relationships created on the Olympic Peninsula during the tenure of the Secure Rural School Act. We hope this spirit of partnership will endure after the Act expires.

Specific recommendations for next year are listed below.

### Program Development

- Identify project opportunities with Puget Sound Corps (new WCC) in riparian areas next season. This is a brand new chance to leverage resources and to coordinate invasive species projects between Forest Service, Clallam, Jefferson, and Mason County NWCBs and neighboring land managed by WA Department of Natural Resources (DNR).
- Prepare a Chain Gang specific work plan that better aligns with overall invasive species management goals. The Clallam Chain Gang still appears to be an underutilized work force. The plan should include clear expectations, training on how to fill out FS reporting forms, and defined accountability and deadlines. The high turnover rate of most inmates can make it extremely difficult for officers to provide sufficient training for detailed work. The Clallam County Chain Gang should be tapped for specific, easily recognized, concentrated weed infestations, such as everlasting peavine. To do this will require more planning, increased training in identification and treatment, and most importantly, closing the communication gap between all involved.
- Consider an early season meeting with other land managers and/or contractors to identify needs, pool resources and formulate more cross boundary invasive plant control projects to protect FS resources.
- Prepare and send a Peninsula wide pre-season letter to quarry owners and known contractors that describe prevention strategies, rock source standards and opportunities to certify rock sources. Clallam County Department of Community Development has offered to host a web site posting quarries that currently meet such standards. We should work to develop such a resource in all 4 counties. This effort should be coordinated with the DNR which has rock source management responsibilities. An annual list of high priority non-FS pits and their locations at the beginning of the season would be very useful.

- Include a weed board representative in consultation meetings with NFMS and USFW services, if possible. This would help us better understand and address potential concerns.
- Expand treatment dates, allowing for earlier and later treatments as conditions, critical wildlife windows, and crew resources allow.
- Equip FS monitors or surveyors to treat very small infestations such as ones that take 15 minutes or less. Report these efforts through feed back to the counties and include with year-end reporting.
- Work together to update "species found" on our project list. This helps crew capitalize on information gleaned in a previous year. Please provide us with a list (per road or project) of species found by contractors and the Chain Gang.
- Advise the Resource Advisory Committee as part of the information packet the amount of money available for categories under Title II of SRS. (The federal criteria states that a minimum of 50% of the funding must go toward road access-decommissioning or watershed restoration projects; up to 50% may be used for other approved projects). Detail how projects fit into those two broad criteria. Petition to have invasive species control included as a watershed restoration activity, particularly since one of the top priority weeds is primarily a habitat threat.
- Seek to add new, low toxicity herbicides such as aminopyralid to the list of approved chemicals in the next Region 6 EIS.
- Support through SRS has provided improved year-to-year weed control continuity within the Forest and an improved weed control program on Jefferson County lands that are adjacent and directly connected to the Olympic National Forest. Funding from the Forest Service is especially important because allocations from Jefferson County for weed control continue to be insufficient.

### **Survey and Treatment**

- Use clopyralid where composites, such as thistle or knapweed are the only target. The results at Camp Handy were very encouraging.
- Treat established peavine infestations with systemic herbicide because it is a creeping perennial. Hand-pulling is not efficient. Clopyralid will likely be the most selective and effective herbicide for this purpose and may allow infested sites to re-populate with desirable species while they undergo treatment. We suggest setting an acreage goal for treatments every year, especially in Pat's Prairie, the Graywolf, and Dungeness watershed and making these areas a part of the contractor project list, or incorporate into a Chain Gang or WCC work plan. Explore this option on the 2700 and 2800 roads within the Big Quilcene watershed.
- Continue to build follow-up treatments into the work plan. At every known herb Robert site we recommend at least 2 treatments per season for several years. Results at Cranberry Bog have shown this may be the only effective means we have to get this plant under control.
- Include a survey component in the work plan. Pre-planning should include identifying areas where we have not been for four years. Surveys are an important activity that can be performed on inclement weather days and provide welcome variety and thus a morale boost for summer crew during a long season of weed control.
- Include re-seeding with native grasses as a late season, or very early season activity (where there will be sufficient moisture) into the NWCB work plan. Ask crews to be alert to areas that would benefit from re-planting to reduce erosion and possible sediment pollution into streams.
- Re-inspect historic knotweed sites at least every other year because of their known ability to return after years of invisibility.
- Categorize FS rock sources. Those with no high priority species or in good condition etc. could be placed on a two year inspection/treatment rotation schedule.
- To conserve dwindling funding, narrow and focus next year's project list to reflect high priority species, high priority sites, and early detection goals. A list of potential survey sites is given in Appendix D.
- Consider establishing perhaps a dozen study areas designed to closely track progress from one year to the next, documenting treatment and effectiveness several times each year, including what happens to desirable plants after treatments.

### **Documentation**

- Continue to discuss clear goals for data collection and how to realistically achieve them.

- Consider combining sites into larger, more clearly defined units (for example, from one road intersection to another). This would reduce confusion in the field.
- Please provide an updated road shape file that shows current status of the Forest Service road system such as closed roads, trails, and roads proposed for decommissioning. Our shapefile dates back to the '90's and does not include up-to-date information. We should make our own "brownline" maps based on the newer road status information for use in the field
- Changes to the 2012 FACTS forms were useful. We need to ensure earlier in the season that there is no confusion and that we are completely filling out forms.

## 2012 PROTOCOLS



2012 NWCB crew heads to the field

### 1. Team and Project Dates

This year's project focused almost entirely on treatment, rather than survey. Cathy Lucero (Clallam County Coordinator), Laurel Moulton (Weed Specialist) and field technicians Guyer Bogen, Jon Clevenger, Ian Vermeeren performed and documented treatments. Fieldwork began in June 2012 and continued through the first week in October.

### 2. Invasive Species Recorded

Treatment and surveys focused on Class A and B-designate weeds on the Washington State Noxious Weed List (see Appendix H), and additional species that are of concern to the Forest Service. In most cases Class B non-designate, Class C, and other low priority non-native weeds were only documented when an infestation was in a site of particular concern (e.g. a Botanical Area), when the infestation was of notable size, or when a new species was found. Exceptions were made for especially invasive species, such as herb Robert or knotweeds, which can threaten undisturbed areas. See Appendix G for a complete listing of species recorded from 2002 to 2012. Treatment and surveys were not intended to target all non-native species.

### 3. Survey and Treatment (see Appendix D):

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

- a. Many known sites are roadside, and are typically surveyed by vehicle. The distance surveyed was recorded in the field and the area surveyed was calculated using the following formula. Crew made a road specific estimation of how many feet on each side of the road were to be included in the formula.

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

- b. Trailheads, campground parking areas, and gravel pits were surveyed on foot and area surveyed or treated was estimated by using measurement functions on a Garmin GPS unit or by other predetermined figures.
- c. From 2007 through 2012 miles surveyed were estimated from treatment sites (recorded on FACTS forms) and roads taken to get to those treatment sites.
- d. Small tap rooted weed infestations were often treated manually on rainy days. Seeded plants were dead-headed; heads were bagged and disposed of off-site, during late season treatments.
- e. Herbicide treatments were applied based on guidelines established in the 2008 EIS which allow the use of 10 different herbicides.
  - i. A legal notice listing all sites under consideration for herbicide treatment (see Appendix I) was published in the Peninsula Daily News. Herbicide applications were carried out between June 6<sup>th</sup> and October 5<sup>th</sup>.
  - ii. Backpack sprayers were calibrated prior to use on FS lands per federal NPDES standards. A sample calibration sheet and the calibration methodology can be seen in appendix K.
  - iii. Foliar herbicide applications were made using 1.5% Garlon 3A or Element 3A (triclopyr) or Aqua Neat (glyphosate), or .39% Transline (clopyralid) and 0.5% Competitor (surfactant).
  - iv. On-site notices (see Appendix I) were posted prior to treatments and left in place for at least 24 hours afterwards. Treatments in high-use areas such as campgrounds

were avoided during busy times (near weekends or holidays), Forest Service recreational personnel were contacted prior to commencing treatment, and sites were posted a week before treatment.

#### 4. Data Collection

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

##### ***Forest Activity Tracking Sheet (FACTS)***

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

##### ***Invasive Plant Inventory for Rock Sources***

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

##### ***Olympic NF Invasive Plant Inventory Data Collection Form NRIS***

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

#### 5. Spatial Data Collection and Mapping:

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

- a. Individual sites were plotted as points. Where practical, multiple sites on a road of the same species were turned into a polygon.
  - b. There is a separate layer (shape file) for each weed species.
  - c. Polygons were drawn on a separate layer – one layer for each species.
  - d. New layers were produced post-season showing where treatment occurred.
- NWCB crew carried a Garmin 78 or a Garmin 76 CX pre-loaded with Topo US 24K. . The automatic track log function was enabled.
  - Meta data was set to NAD83 Harn, State Plane North 4601, statute feet.
  - Crew was instructed to turn and leave on units, just prior to entering project area.
  - Crew was directed to take waypoints for significant events or sites, such as beginning or end of treatments, new weed locations, or to document named locations such as quarries.
  - Crew documented the waypoint number, the nature of event or species, and road number in a log book. The waypoint may have also been noted on the relevant FACTS sheet. Waypoints and tracklogs were downloaded in the office and converted into shapefiles through the Minnesota DNR public domain software DNRGarmin version 5.14.

## 6. Data Reporting

Office staff reviewed FACTS forms and Rock Source Survey forms and submitted copies of them to the Forest Service; generally biweekly, during the field season. The originals were retained in the Clallam County Weed Board office. More detailed data is included in the Appendices to this report, as described below.

- a. **Appendix A** is the Project Area list supplied by the Forest Service at the start of the season, with details of 2012 treatments by acreage, date and species. It is a comprehensive account of work accomplished in 2012.
- b. **Appendix B** is summary of rock source inspections and treatments.
- c. **Appendix C** is a master list of the roads surveyed and treated since the inception of our SRS, Title II projects. This list shows the amount of survey completed on each road, and totals for each year, as well as the number of weeds pulled manually for each year up to 2006. It also lists the area of treatment, by road, completed from 2007 through 2012, and weed species treated.
- d. **Appendix D** shows previously listed weed sites that were not included in a Forest Service "Project Area" as well as others that have never been surveyed and are close to known infestations.
- e. **Appendix E** is a summary of weed control work in Clallam and Jefferson Counties, off Forest Service lands.
- f. **Appendix F** gives control recommendations for each invasive species identified during the course of this project.
- g. **Appendix G** is a list of all weed species reported and entered into the NRIS Terra database over the lifetime of this project.
- h. **Appendix H** shows the 2012 Washington State Noxious Weed List-, which is updated annually according to WAC Chapter 16-750. Under RCW Chapter 17.10 all non-federal landowners in the state are responsible for controlling or eradicating listed noxious weeds on their property. The control threshold is defined by RCW 17.10 and is determined by the class into which each weed is placed. This same law provides for the formation of the County Noxious Weed Control Boards, and thus the weed control program in Jefferson County that is supported by 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
- i. **Appendix I** shows examples of a legal notice regarding herbicide use and an on-site posting notice.
- j. **Appendix J** shows a sample of all forms used in the project and Forest Service established protocols for filling out each form.
- k. **Appendix K** shows a sample record of calibrations performed to comply with federal NPDES requirements. The calibration methodology is also provided,

## APPENDIX A: 2012 PROJECT LIST ACTIONS-

This table is based on the Project List developed by the Forest Service, which served as the work plan for Clallam and Jefferson Counties' Noxious Weed Control Boards (CCNWCB and JCNWCB). The list was categorized into Priority 1\* 1A, 1, 2 or no priority. 1\*, a new priority symbol, indicated projects on hold until either a specific date, or until further information based on a FS survey, indicated the need for treatment. This table includes only Clallam and Jefferson Priority 1\*, 1A, 1 sites; Priority 2 sites are only shown when treated. There were no contractor treated sites this year. Treatments attributed to other crews have been summarized in the Accomplishment Table but have not been included in this table.

The table shows the acreage treated each time the crew was on site, and whether the treatment was manual or chemical. (Re-treatments are identified with green shading and total 51.82 acres). **Re-treatments** are noted to account for the work, but **are not included** in the **Acres Treated** column; this avoids counting the same area twice. Therefore, we are reporting **318.29** total acres treated, manually or chemically.

All of the Priority 1\* and most 1A and 1 sites were treated at least once. 1\* sites that FS staff excluded for treatment (based on surveys), are highlighted in yellow. ED/RR sites, requested mid-season by FS staff, or newly discovered are highlighted in red. Some high priority sites were missed for a variety of reasons: because of time constraints, because the crew could not find them, inadvertently overlooked them, or because they were mis-prioritized on focal maps or access was not available as supposed. These are highlighted in blue and should be treated in 2012.

In the *Species Treated* column, we recorded only those species we found and treated on each site. High priority species have been **bolded** in this column. The *Species Treated* column does not necessarily list species previously noted by the FS. *Our Comments* column notes high priority species not previously mentioned, or not found this year.

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
5	1A	Canyon Creek /Pats Creek	<b>Canyon Pit</b>	2875000	3.80	3.5		AquaNeat	34	6/6/2012	<b>CEDE5</b> , CIVU	
5	1A	Canyon Creek /Pats Creek	<b>Canyon Pit</b>	2875000	4.00		2.00	Element 3A	8	8/30/2012	<b>CEDE5</b> , CIVU, CIAR, SEJA	
6	1	Canyon Creek /Pats Creek	<b>Caraco Cat Unit 6</b>	2870054	3.00	2		Element 3A and Aquaneat	16	8/22/2012	CIAR4, CIVU, LEVU	WCC retreatment ?
7	1	Canyon Creek /Pats Creek	<b>Caraco Cat Unit 5</b>	2870050	1.00		1.00	Element 3A	18	8/22/2012	CIAR4, CIVU,	WCC retreatment ?
8	1	Canyon Creek /Pats Creek	<b>Caraco Cat Unit 2</b>	2870057	3.00	0.4		Element 3A, Aquaneat	6	8/23/2012	CIAR4, CIVU, PHAR3, SEJA	WCC retreatment ?
9	1	Canyon Creek /Pats Creek	<b>Caraco Cat Unit 3</b>	2870056	6.80	0.35		Element 3A and Aquaneat	4	8/23/2012	CIAR4, CIVU, SEJA	WCC retreatment ?

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
10	1A	Canyon Creek /Pats Creek	<b>Cranberry Bog</b>	2870059	3.00	2		Element 3A and AquaNeat	64	7/24/2012	<b>GERO</b> , PHAR3, CIVU, CIAR4	
10	1A	Canyon Creek /Pats Creek	<b>Cranberry Bog</b>	2870059	6.00	2	2.00	Element 3A and AquaNeat	38	8/30/2012	<b>GERO</b> , CIAR, CIVU, PHAR3	
11	1	Canyon Creek /Pats Creek		2870050	0.25		0.01	Element 3A	9	6/28/2012,	<b>GERO</b> , CIVU, HYPE	GERO coming out of Lower Caraco quarry was treated 2x,. Rest of rd only treated 1x.
11	1	Canyon Creek /Pats Creek		2870050	3.00		3.00	Element 3A	14	7/25/2012	<b>CLEAN</b>	unnamed pit just past 58 spur clean!
11	1	Canyon Creek /Pats Creek		2870050	1.50		0.10	Aquaneat	0.5	8/22/2012	CIVU, <b>GERO</b> , LALA, CIAR4	knapweed not seen in 2012
13	1	Canyon Creek /Pats Creek		2870052	0.20	0.2		Element 3A	0.06	7/25/2012	CIVU, HYPE	no knapweed found 2012
14	1	Canyon Creek /Pats Creek		2870053	3.40	0.3		Element 3A and Aquaneat	2	8/22/2012	CIVU, <b>CEDE5</b> , HYPE, LALA, <b>GERO</b> , SEJA, CIAR4	knapweed
15	1	Canyon Creek /Pats Creek		2870056	1.50	0.1		Element 3A	2	8/23/2012	SEJA, CIVU, <b>CEDE5</b>	Small knapweed
16	1	Canyon Creek /Pats Creek		2870057								

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
17	1	Canyon Creek /Pats Creek		2870058	0.75	0.75		Element 3A and AquaNeat	0.06	7/25/2012	CIVU	spur is mostly clean, knapweed not seen in 2012
17	1	Canyon Creek /Pats Creek		2870058	2.00	2		Element 3A	2	8/30/2012	<b>GERO</b> , HYPE, CIAR4, CIVU	GERO present, very few other weeds
18	1	Canyon Creek /Pats Creek		2870059	0.50	0.25		AquaNeat	2	7/25/2012	<b>GERO</b> , CIVU	knapweed not seen in 2012
18	1	Canyon Creek /Pats Creek		2870059	1.00	1		Element 3A	8	8/30/2012	<b>GERO</b> , CYSC, CIAR4, CIVU	
19	2	Canyon Creek /Pats Creek	<b>Lower Caraco Quarry</b>	2870000	0.25	0.25		Manual		6/14/2012	<b>GERO</b>	
19	2	Canyon Creek /Pats Creek	<b>Lower Caraco Quarry</b>	2870000	1.00	1		Element 3A	56	6/28/2012	<b>GERO</b> , CIVU, CIAR SEJA	
19	2	Canyon Creek /Pats Creek	<b>Lower Caraco Quarry</b>	2870000	2.00		1.50	Element 3A	16	7/25/2012	<b>GERO</b> , CIVU, <b>CEDE4</b> , DACA	
20	1A	Canyon Creek /Pats Creek	<b>Ned Hill Quarry</b>	2878123	1.00	1		Element 3A and AquaNeat	22	6/6/2012	LALA4, CIVU, CIAR4	
21	2	Canyon Creek /Pats Creek	<b>Upper Caraco Quarry</b>	2870000	2.00	0.01		Element 3A	1	6/13/2012	CIVU	
23	1	Canyon Creek /Pats Creek		2870030	4.40	0.1		Aquaneat	0.5	8/22/2012	CIVU, CIAR4, HYPE, SEJA, <b>CEDE5</b>	
24	2	Canyon Creek /Pats Creek		2870000	6.50	6.5		Manual		6/13/2012	<b>GERO</b> , CIAR4, CIVU,	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
24	2	Canyon Creek /Pats Creek		2870000	0.13	0.125		Element 3A	3	6/14/2012	CIAR4, CIVU, <b>CEDE4</b>	Very little CEDE4 is present, BUT it should be retreated
24	2	Canyon Creek /Pats Creek		2870000	0.50	0.5		Element 3A	0.25	6/28/2012	CIAR4, CIVU, <b>CEDE4</b>	
24	2	Canyon Creek /Pats Creek		2870000	0.74		0.15	Aquaneat	0.5	8/22/2012	CIVU, SEJA	Retreatmen t
24	2	Canyon Creek /Pats Creek		2870000	1.20		0.05	Element 3A	2	8/23/2012	CIVU, HYPE	
25	2	Canyon Creek /Pats Creek		2875000	3.50	3		Manual		6/6/2012	SEJA, <b>GERO</b> , CIVU	
26	2	Canyon Creek /Pats Creek		2878000	0.25	0.1		Manual, Garlon 3A	8	6/6/2012	GERO	
31	1	Canyon Creek /Pats Creek		2870054	1.72	0.3		Element 3A	1	8/22/2012	<b>CEDE5</b> , CYSC, CIVU, CIAR4, HYPE	knapweed
32	2	Canyon Creek /Pats Creek	<b>unnamed gravel pit</b>	2870000	2.00	2		Manual		6/13/2012	<b>CEDE5</b> , CIAR4, CIVU, CYSC4, LALA4	
33	2	Canyon Creek /Pats Creek		2870000	1.10	0.9		Element 3A	6	8/22/2012	CYSC, CIVU, SEJA, <b>GERO</b> , LALA, HYPE	
37	1	Canyon Creek /Pats Creek		2875070	1.75	0.01		AquaNeat	8	6/6/2012	SEJA, CEDE5	
37	1	Canyon Creek /Pats Creek		2875070	4.00	0.5		Element 3A	8	8/23/2012	SEJA, <b>GERO</b> , CIAR4	
688	2	Canyon Creek /Pats Creek		2880000	0.25	0.25		Element 3A	16	7/24/2012	<b>GERO</b> , CIVU,	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
											CIAR4, HYPE	
697	1	Canyon Creek /Pats Creek	<b>Juniper Meadow</b>	2875070	13.00	0.4		Element 3A	30	8/23/2012	CIAR4	Treatment with Cheryl
43	1	Deep Creek		3000200	12.60	12.6		Element 3A	110	7/10, 8/6	<b>GERO</b> , SEJA, CIVU, CYSC4	Heavy GERO along whole spur
43	1	Deep Creek		3000200	0.60		0.40	Element 3A	20	9/21/2012	<b>GERO</b>	
43	1	Deep Creek		3000200	7.50		2.00	Element 3A	106	9/26/2012	<b>GERO</b> , CIVU	Retreatmen t/finished spur
43	1	Deep Creek		3000200	1.00	0.5		Element 3A	20	10/2/2012	GERO	Retreatmen t/finished spur
45	1	Deep Creek		3000330	1.30	0.7		Element 3A	36	7/4/2012	CYSC, SEJA, CIVU	Bad scotch broom here
734	2	Deep Creek		3000370	0.07	0.07		Element 3A	12	7/4/2012	<b>GERO</b> , SEJA, CIVU, CYSC	Since this is priority 2 we only treated GERO patch w/in first 100 yds for now
278		Fulton Creek/Waketick Creek		2500000								
57	1A	Jimmy-come-lately Creek	<b>Coho Pit</b>	2840080	1.90	0.1			0			
58	1A	Jimmy-come-lately Creek	<b>Louella Rock pit</b>	2800351	1.00	0.5		Garlon 3A	2	6/7/2012	SEJA, <b>CEDE5</b> , CIVU, CIAR4	CEDE5 only near pit entrance (coming up road) along ROW

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
59	1A	Jimmy-come-lately Creek	Luella LuLu quarry	2800360								
60	1A	Jimmy-come-lately Creek	Racoon Pit	2855070	1.50	1.5		Garlon 3A	10	6/7/2012	GERO, LALA4, CYSC4, SEJA, CIVU, CIAR4	
60	1A	Jimmy-come-lately Creek	Racoon Pit	2855070	1.00		0.50	Element 3A	4	9/20/2012	GERO, HYPE, LALA, SEJA, CIVU, CIAR4	
61	1A	Jimmy-come-lately Creek	2845073 spur pit	2845073	1.00	1		Manual		5/31/2012	CIVU, CIAR4, CYSC4, HYPE, SEJA	
61	1A	Jimmy-come-lately Creek	2845073 spur pit	2845073	1.00		0.00	Manual		8/29/2012	SEJA, CIVU	Retreatment, original treatment effective
62	1A	Jimmy-come-lately Creek	Wolf Quarry 2	2840120	1.00	0.02		Manual		5/31/2012	GERO, SEJA, CIVU	
64	2	Jimmy-come-lately Creek		2855070	2.00		0.50	Manual		5/31/2012	GERO, CEBI, CYSC, SEJA	This road should be a high priority
64	2	Jimmy-come-lately Creek		2855070	1.60	1.6		Manual		6/7/2012	GERO, LALA4, CYSC4, SEJA, CIVU, CIAR4	
64	2	Jimmy-come-lately Creek		2855070	0.50		0.01	Element 3A	14	7/25/2012	GERO, LALA4, CIVU, CIAR4	
65	2	Jimmy-come-lately Creek		2800351	0.50	0.5		Garlon 3A	8	6/7/2012	CEDE5	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
65	2	Jimmy-come-lately Creek		2800351	0.72	0.72		Garlon 3A	0.25	6/7/2012	CEDE5, CIAR, CIVU, SEJA	
65	2	Jimmy-come-lately Creek		2800351	0.60	0.6		Element 3A	8	7/24/2012	CEDE4, HYPE, CIVU	
70	1	Jimmy-come-lately Creek		2840070	1.27	1.27		Element 3A		8/29/2012	SEJA	
71	1	Jimmy-come-lately Creek		2840071	4.50	3		Element 3A, AquaNeat	22	6/15/2012	LALA4, CIVU, SEJA, CIAR4, GERO, PHAR3, HYPE, SYOF	Small amount of GERO in pit area. Open areas that parallel the last .75 miles of Rd have bad SEJA infestation
71	1	Jimmy-come-lately Creek		2840071	2.00	2		Element 3A	18	7/24/2012	SEJA, CIVU	
71	1	Jimmy-come-lately Creek		2840071	4.90		2.50	Element 3A	36	8/29/2012	CIVU, CIAR4, SEJA, LALA, HYPE, CYSC	Retreatmen t...weeds still thick pulled flowering tansy
75	2	Jimmy-come-lately Creek	Louella Work Center	2800350	0.30	0.3		Garlon 3A	0.5	6/7/2012	CEDE5, CIVU, CIAR4	don't forget 350 spur near the Louella work center
75	2	Jimmy-come-lately Creek	Louella Work Center	2800350	0.50	0.01		Element 3A	0.008	7/24/2012	CEDE5	
78		Jimmy-come-lately Creek		2840000				Manual		8/28/2012	CIVU, SEJA, CYSC	Pulled, raining
194	1A	Little Quilcene River	Bon Jon Quarry	2800000	0.25	0.25		manual		8/28/2012	LALA, HYPE, SEJA	Pulled, raining

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
195	1	Little Quilcene River		2800010	1.00	0.18		manual		9/6/2012	<b>GERO</b>	Walked to water intake cabin, pulled flowering GERO... possible WCC retreatment ?
195	1	Little Quilcene River		2800010	2.00	2		Element 3A	45	9/27/2012	<b>GERO</b>	Retreated WCC area before gate for GERO
195	1	Little Quilcene River		2800010	5.40		4.50	Element 3A	84	10/3/2012	<b>GERO</b> SEJA, CIAR4, HYPE	Retreated WCC area before gate for GERO
203		Little Quilcene River		2700330	1.00	0.3		manual		8/28/2012	SEJA	pulled, raining
292	1	Lower Big Quilcene River	<b>Falls View CG</b>	2730200	12.00		1.50	Element 3A	6	9/6/2012	<b>GERO</b> , CIVU	
295	1	Lower Big Quilcene River		2620000	4.40	4		Element 3A	54	9/4/2012	SEJA, CIAR4, HYPE, <b>GERO</b> , LALA	Heavy SEJA, CIAR4, and HYPE
295	1	Lower Big Quilcene River		2620000	6.10	4.5		Element 3A	18	9/6/2012	SEJA, CIAR4, HYPE, <b>GERO</b> , LALA, CIVU	Pulled flowering SEJA
462	1	Lower Big Quilcene River		2700040	6.00	1.5		Element 3A	57	8/31/2012	<b>GERO</b> , SEJA, HYPE CIAR4	
462	1	Lower Big Quilcene River		2700040	3.00		2.00	Element 3A	33	9/20/2012	<b>GERO</b> , SEJA, HYPE CIAR4	Retreatment

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
590	1	Lower Big Quilcene River	PT Muni WS caretakers cabin	2700040	2.00	2		Element 3A and AquaNeat	28	6/19/2012	AEPO, CASE, CIAR, GERO, HEHE, HIAU, LAGA2, PHAR3, SEJA, SYOF, VI MI2	
285	1	Lower Big Quilcene River	Quilcene office compound	2730300	5.00	5		manual		06/18-19/2012	CYSC, GERO, HEHE, PORE5, SEJA	
289	1	Lower Big Quilcene River		2700000	6.00	4.75		Element 3A and Aqua neat	131	6/20 and 6/21/2012	GERO, CEDE5, SEJA, HYPE, POSA4, LALA4, CIAR4	
291	1	Lower Big Quilcene River		2740000	2.06	2.06		Element 3A		9/20/2012	SEJA	
292	1	Lower Big Quilcene River	Falls View CG	2730200	1.00	1		Element 3A	18	7/27/2012	GERO	
294	2	Lower Big Quilcene River	Rainbow CG	2730100	2.00	0.1		manual		7/27/2012	SEJA, CIVU	Very few weeds here
295	1	Lower Big Quilcene River		2620000	3.00	1.5		Element 3A	24	8/28/2012	GERO, SEJA, CIAR4	
296	1	Lower Big Quilcene River		2700080	0.73	0.73		Element 3A	36	6/21/2012	GERO, HYPE, LALA4, SEJA	
462	1	Lower Big Quilcene River		2700040	13.50	6.8		Element 3A	159	6/19/12-6/20/12	GERO, HYPE, SEJA	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
617	1	Lower Big Quilcene River		2620060								
206	1	Lower Boqachiel River		2932000	5.00	5		Element 3A	42	8/16/2012	GERO, RULA, RUDI, SEJA, HYPE, CIVU	Heavy GERO patch .5 from trailhead
298	1	Lower Dosewallips River		2610000	2.00	2		Element 3A	108	6/26/2012	GERO, HYPE, SEJA, CIVU, CIAR4	
298	1	Lower Dosewallips River		2610000	2.00	2		Element 3A	94	6/27/2012	GERO, HYPE, SEJA, CIVU, CIAR4	
298	1	Lower Dosewallips River		2610000	10.40	10.4		Element 3A	78	7/16/2012	GERO, HPE, CIAR4, CIVU, SEJA, CYSC, LALA4	Log jam on river with heavy infestation of SEJA and thistles. Make sure to check all the way to river bank!
298	1	Lower Dosewallips River		2610000	10.00		5.20	Element 3A and Polaris	56	9/18/2012	GERO, CIAR4, SEJA, HYPE, LALA, POSA4	
299	1	Lower Dosewallips River	Dosewallips Rd county portion ELJ	2500	2.00		0.04	Polaris & Aquaneat	6.4	10/8/2012	POSA4	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
301	1	Lower Dosewallips River		2620000	8.00	6.4		Element 3A	60	7/3/2012	GERO, SEJA, CIVU, CYSC4, HYPE, CIAR	
302	1	Lower Dosewallips River		2620056	1.50	1		Element 3A and manual	4	9/27/2012	SEJA, HYPE, CIVU	
304	1	Lower Dosewallips River		2620030								
305	1	Lower Dosewallips River		2620030								
306	1	Lower Dosewallips River		2620050	4.00	3		Element 3A and Manual	8	9/27/2012	SEJA, HYPE, CIVU, CIAR4	Pulled flowering tansy
306	1	Lower Dosewallips River		2620050	3.40	0.8		Element 3A and Manual	4	10/3/2012	SEJA, HYPE, CIAR4	Pulled flowering tansy
307	1	Lower Dosewallips River		2620051	3.00	0.3		Element 3A	4	10/3/2012	SEJA	
308	1	Lower Dosewallips River		2620053	2.36	0.2		Element 3A		10/3/2012	SEJA	Pulled flowering tansy
758	*	Lower Dosewallips River		2610010								*Directed to wait until next year
309	1	Lower Duckabush River		2510000	4.80						HYPE, GERO, SEJA, CIAR4, CIVU, CYSC, LALA	
309	1	Lower Duckabush River		2510000	6.13	4.8		Element 3A	24	7/17/2012	GERO, HYPE, SEJA, CIVU	
310	1	Lower Duckabush	Collins CG	2510070	8.50	8.5		Element 3A Element 3A	62 116	7/27/2012 8/1/2012	GERO, CIVU	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
		River										
757	1	Lower Duckabush River	<b>Big Hump Fire Trail Corridor</b>									
85	1	Lower Elwha River		3050000	4.00	1		Element 3A	12	9/10/2012	<b>GERO</b> , CIAR4, CIVU, HYPE, SEJA	Hiked looking for Orange Hawkweed ...did not find.
30	1	Lower Gray Wolf River		2880000	5.85	4.25		Element 3A	256	6/29/12, 7/2/12,	<b>GERO</b> , CIVU, LALA	
36	1	Lower Gray Wolf River		2870150								
94	1	Lower Gray Wolf River	<b>Dungeness Forks Campground</b>	2880050	1.00		0.50	manual		6/8/2012	<b>GERO</b>	Campsites 2,4,5 are worst
94	1	Lower Gray Wolf River	<b>Dungeness Forks Campground</b>	2880050	12.00	12		Element 3A, Manual	150	7/11/2012	<b>GERO</b> , LALA4	
94	1	Lower Gray Wolf River	<b>Dungeness Forks Campground</b>	2880050	20.00		11.00	Element 3A	156	9/19/2012	<b>GERO</b> , CIAR4	
96	1	Lower Gray Wolf River		2870000	4.20	2		Element 3A Element 3A	18.5	6/14/2012	<b>GERO</b> , CIVU, CIAR4, LALA4, <b>CEDE5</b>	
96	1	Lower Gray Wolf River		2870000	6.00	0.5		Element 3A	16	6/28/2012	LALA4, CIAR4, CIVU, <b>GERO</b>	
96	1	Lower Gray Wolf River		2870000	10.00	1		Element 3A, Manual	32	6/29/2012	<b>GERO</b> , CIVU, CIAR4, LALA4,	
98	1	McDonald Creek/Siebert Creek		2877000	2.80	1.5		Manual	0	6/6/2012	CIVU, SEJA	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
98	1	McDonald Creek/Siebert Creek		2877000	5.50	2.5		Element 3A	6	7/25/2012	CIAR4, CIVU, HYPE, LALA4, SEJA	relatively clean road
99	1	McDonald Creek/Siebert Creek	Pat's Prairie	2877000	8.00	8		Element 3A	25	7/25/2012	CIAR4	
708	1*	Middle Dungeness	Gold Creek	2830000	3.00	1					LALA	WCC Gold Creek Decommissioning
101	1A	Middle Dungeness River	Lost Pit (aka Canine Pit)	2800130					0			
708	1*	Middle Dungeness River		2830000							LALA	wcc treatment
709	1*	Middle Dungeness River		2830010							LALA	wcc treatment
116	1	Middle Sol Duc River		3000000	13.20	13.15		Element 3A	159	7/4 and 7/5/2012	GERO, CYSC, CIVU, CIAR4, RUDI2, RULA	
116	1	Middle Sol Duc River		3000000	8.20	5		Element 3A	168	10/2/2012	GERO, CIVU, CIAR4, LALA	
116	1	Middle Sol Duc River		3000000	7.73	6.2		Element 3A	237	10/4/2012	GERO	
116	1	Middle Sol Duc River		3000000	3.00	2.5		Element 3A	54	8/15/2012	GERO, CIVU, HYPE	Heavy GERO
117	2	Middle Sol Duc River		2071000	7.00	5		Element 3A	108	8/2 and 8/7/12	GERO, LALA4, RUDI2, POCU6	GERO heavy through berry bushes on North side of road

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
119	2	Middle Sol Duc River		3040000	18.00	6		Element 3A and Aquaneat	90	7/18/2012	<b>GERO</b> , CIVU, CIAR, HYPE, ILAQ80, PHAR3	ribbon grass ornamental PHAR3
119	2	Middle Sol Duc River		3040000	3.00	3		Element 3A	48	8/2/2012	<b>GERO</b> , LALA4, SEJA, CIVU	
119	2	Middle Sol Duc River		3040000	0.50	0.4		Element 3A	10	8/16/2012	<b>GERO</b> , LALA RUDI, CIVU	"Weed garden" above Snider camp
126	1	Middle Sol Duc River		3000200	7.27	7.27		Element	87	8/7/2012	<b>GERO</b> , SEJA, CIVU, CYSC4	Heavy GERO along whole spur
127	1A	Middle Sol Duc River		2923090	1.82	0.001		Manual		10/3/2012		minimal St. John's wort- otherwise very clean
128	1	Middle Sol Duc River		3000300	2.10	0.7		Element 3A	57	7/4/2012	<b>GERO</b> , SEJA, CIVU, CYSC	
637	1A	Middle Sol Duc River		2923070	3.50	0.06		Manual		9/26/2012	CYSC	
662	1A	Middle Sol Duc River		2923095	0.91	0.001		Manual		10/3/2012		very clean
733	1	Middle Sol Duc River		3000320								
152	1A	North Fork Calawah	<b>Calawah Pit</b>	2900015	4.12	4.12		Element 3A and AquaNeat	16.12	8/8 and 8/9/12	<b>POSA4</b> , RULA, RUDI2, CIAR4	Knotweed patch SW corner

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
133	1A	North Fork Calawah River	<b>Grindstone Pit</b>	2923070	2.00	1		Polaris	3	9/13/2012	CIVU, CYSC, PHAR3	large PHAR3 patch, mostly dead from previous treatments
134	1A	North Fork Calawah River	<b>Bonidu Meadow</b>	2929000	6.00	5		Element 3A and AquaNeat	84	7/12/2012	CIAR and PHAR3	
134	1A	North Fork Calawah River	<b>Bonidu Meadow</b>	2929000	10.00		4.50	Element 3A and AquaNeat	16	9/21/2012	CIAR and PHAR3	Retreatment, still lots of CIAR4
136	2	North Fork Calawah River		2900000	1.00	0.8		Element 3A and AquaNeat	144	7/12 and 7/12/2012	<b>GERO</b> , HYPE and HIAU	
141	1A	North Fork Calawah River		2923060	2.80	0.2		Element 3A	1	8/15/2012	CYSC, CIVU, CIAR4, HYPE	Former CYSC treatments effective
650	1A	North Fork Calawah River		2923072	0.50	0.02		Element 3A	1	9/26/2012	CYSC, CIAR4, HYPE	
651	1A	North Fork Calawah River		2923073	1.50					9/26/2012		NO weeds
652	1A	North Fork Calawah River		2923074	0.50	0.01		Element 3A	0.5	9/26/2012	CIVU	
702	1	North Fork Calawah River		2929030								nt on list to do after FS survey
703	1	North Fork Calawah River		2900715								nt on list to do after FS survey
704	1	North Fork Calawah River		2900700								nt on list to do after FS survey
705	1	North Fork Calawah River		2900735								nt on list to do after FS survey
706	1	North Fork Calawah River		2900730								nt on list to do after FS survey

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
707	1	North Fork Calawah River		2900725								nt on list to do after FS survey
143	1	Pysht River		3000200	12.52	12.52	.	Element	100	8/7/2012	GERO, SEJA, CIVU, CYSC4	Heavy GERO along whole spur
147	1	Snow Creek/Salmon River		2845070	1.80		0.30	Manual		8/29/2012	SEJA, CIVU, CYSC, CIAR4	Retreatment, pulled flowering tansy
147	1	Snow Creek/Salmon River		2845070	2.00	2		Garlon 3A and Element 3A	26	6/8/2012 and 6/15/2012	SEJA, CIVU, HYPE	
148	1	Snow Creek/Salmon River		2845073	1.00	1		Element 3A	18	6/15/2012	SEJA, CIVU	
148	1	Snow Creek/Salmon River		2845073	1.20		0.10	Manual		8/29/2012	SEJA, CIVU	Retreatment, pulled flowering tansy
149	1	Snow Creek/Salmon River		2850010								
153	1	Snow Creek/Salmon River		2851000								
501	2	Snow Creek/Salmon River		2850000	2.00	0.3		Manual		8/29/2012	SEJA, CIVU	Treated for Tansy
141	1A	South Fork Calawah		2923060	2.00	1		Element 3A	30	8/13/2012	GERO, CYSC, SEJA, CIVU, CIAR4, RULA	
154	1	South Fork Calawah		2923000	15.24	15.24		Element 3A	32	8/8 and 8/9/12	CYSC, RULA, HYPE, CIVU, CIAR 4, SEJA,	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
											GERO	
155	2	South Fork Calawah		2932000	0.50	0.2		Element 3A	12	9/21/2012	LAGA2	Treated archangel .1 in from Calawah side
156	1	South Fork Calawah		2900000	11.00	1		Element 3A	18	8/13/2012	LALA, CYSC, SEJA, CIVU, CIAR4, RULA	
158	1*	South Fork Calawah		2912060	4.00	1		Element 3A	32	8/9/2012	GERO, CYSC, SEJA, CIAR	
743	1*	South Fork Calawah		2912000								Nt on list to do after FS survey
744	1*	South Fork Calawah		2912040								Nt on list to do after FS survey
745	1*	South Fork Calawah		2912045								Nt on list to do after FS survey
746	1*	South Fork Calawah		2912050								Nt on list to do after FS survey
747	1*	South Fork Calawah		2912063								Nt on list to do after FS survey
748	1*	South Fork Calawah		2900072								Nt on list to do after FS survey
749	1	South Fork Calawah		2923015	3.00	3		Element 3A	30	8/8/2012	GERO, CYSC, CIVU, SEJA	Road blocked, abundant CYSC...sm all GERO .3 miles

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
750	1	South Fork Calawah		2923020	0.73	0.73		Element 3A	6	8/8/2012	CYSC, SEJA	small CYSC meadow .4 miles
751	1	South Fork Calawah		2952000	2.70	0.1		Element 3A	1	8/21/2012	CIVU, CYSC	Rock slides make for a difficult passage
752	1	South Fork Calawah		2900810	4.80	0.1		Element 3A	2	8/16/2012	CIAR4, CYSC, RULA	
753	1	South Fork Calawah		2922200	3.50	0.3		Element 3A	6	8/21/2012	CYSC, HYPE	Can't drive past .8
754	1	South Fork Calawah		2922250	6.40	4		Element 3A	72	8/20/2012	LALA, CYSC, CIVU	Lots of LALA
755	1*	South Fork Calawah		2922020	0.01	0.009		Element 3A	0.5	8/21/2012	<b>GERO</b>	Treated GERO patch at roadhead
756	1	South Fork Calawah		2900030	1.80	0				8/15/2012	no weeds found	Road ends abruptly at 1.5 mp...no weeds found
761	1	Spencer Creek / Marple Creek		2620030								
762	1	Spencer Creek / Marple Creek		2620035	2.60	2.6		Element 3A	40	7/18/2012	SEJA, CIAR4, HYPE, CYSC4, CIVU, <b>GERO</b>	Bad SEJA on last ~.5 mile of rd that is inaccessible to vehicles
763	1	Spencer Creek / Marple Creek		2620036	2.00	1		Element 3A	10	7/18/2012	SEJA, CIAR4, CIVU, CYSC4, HYPE	Clearing at end of rd has bad SEJA
764	1	Spencer Creek / Marple Creek		2620043								
765	1	Spencer Creek / Marple Creek		2620032								

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
319	1	Spencer Creek/Marple Creek	Seal Rock CG	2610200	2.00	1		Element 3A	10	8/1/2012	HYPE, SEJA, CYSC4, GERO, LALA4	
160	2	Upper Dungeness River		2870000	1.00	1		Element 3A	42	7/11/2012	CYSC, CIAR4	
162	1	Upper Dungeness River	Camp Handy		6.00	5		Transline	82	7/31/2012	CIAR4	Did not finish treating in meadow across river
162	1	Upper Dungeness River	Camp Handy		6.50		6.50	Element 3A	26.5	9/5/2012	CIAR4, GERO At trail head	Great thistle kill from previous treatment. Just a handful of patches at each meadow were missed.
759	1	Upper Dungeness River	Dungeness Trail		2.00							Do not treat/per FS directive
760	1	Upper Dungeness River	Heather Basin Trail		1.00							Do not treat/per FS directive
165	1A	Upper Sol Duc River	Bonidu Pit	2900000	6.30	6.3		Manual		5/3/2012	GERO	Just pulled from ROW and large plants at this time
165	1A	Upper Sol Duc River	Bonidu Pit	2900000	4.00	2.5		Element 3A	42	8/21/2012	GERO, CIVU	lots of GERO/CIVU
165	1A	Upper Sol Duc River	Bonidu Pit	2900000	6.00	4		Element 3A	16	9/13/2012	CYSC, CIVU, HYPE, GERO	

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method	Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
166	2	Upper Sol Duc River	Klahowya CG	2900990	3.00	3		Manual		5/17/2012	GERO, ILAQ80	GERO found sites 8, 23, 47. LALA4 reported by FS person
168	1A	Upper Sol Duc River	Tom Creek Pit	2931000	11.00	0.01		Manual		5/17/2012	CEDE5	did not treat PHAR3 at this time
173		Upper Sol Duc River	Littleton Horse Camp gravel pit	3071000	1.00	0						
174	2	Upper Sol Duc River		2900000	1.00	0.5		Element 3A		9/13/2012	GERO	Finished our packs on GERO patch at end of day
612	2	Upper Sol Duc River	Mt. Muller TH gravel pile	3071000	1.00	0					No weeds	
613	1	Upper Sol Duc River		2929000	5.50	2		Element 3A and AquaNeat	15	7/13/2012	GERO, PHAR3, CIVU, CYSC	
187	1	West Twin River		3000000	9.60	5		Element 3A	68	8/6/2012	CYSC, SEJA, CIVU, CIAR, LALA, GERO	
	ED/RR		Sink Lake		5.00	0.2		Aquaneat	6	8/31/2012	PHAR4	Sprayed "Ribbon Grass" around lake
	ED/RR		Lower Big Quilcene Trailhead		0.30	0.1		Element 3A	10	9/20/2012	GERO	Per FS request
	ED/RR		Little Quilcene, Spur off		2.50	1.5		Element 3A	37	10/3/2012	GERO	Old rd down to river

Ref #	Priority	6th Field Watershed Name	Site Name	Road #	Acres Examined for Weeds	Acres Treated	Acres Retreated	Treatment Method		Herbicide Amount (oz)	Treatment Date	Species Treated	2012 Notes
			2800010 spur										
								MAANUAL ACRES	HERBICIDE ACRES				
			TOTALS		634.88	318.29	51.82	32.77	285.22	4937 oz			

## APPENDIX B: ROCK SOURCE SURVEYS AND TREATMENT

18 high-priority pits were incorporated into the project list in 2012; we inspected and/or treated 16. Details of treatment are given here. Rock Source Index numbers and codes, where available, have been added because they are helpful when locating pits. 5 non-Forest Service quarries were inspected, CCNWCB consulted on one additional quarry that did not request, nor receive, an annual survey. (See notes under Penny Creek Quarry)



Name	RSI	RSI Code	Road	Weeds	Date	Treatment Type	Acreage Treated
2845073 Spur Pit (a.k.a. Loop Pit)			2845073	CIVU, CIAR4, CYSC4, HYPE, SEJA	5/31/2012 8/29/2012	Manual	1
Bon Jon Quarry	21	280000004.60	2800	CIAR4 HYPE LALA4 SEJA DIPU LEVU	8/28/12	Treated manually Meets requirements	0.25
Bonidu Pit	8	290000037.20	2900	CYSC CIVU HYPE GERO	5/3/2012 8/21/2012 9/13/2012	Treated chemically Meets minimum requirements	6.6
Calawah Pit	53	290001500.10	29000	POSA4 RULA RUDI2 CIAR4 HIAR	8/8/2012 8/9/2012	Treated chemically	4.12
Canyon Pit	139	287500001.40	2875000	CEDE5 CIVU CIAR SEJA	6/6/2012 8/30/2012	Treated chemically	1.5
Unnamed Pit: small ,near Canyon Pit at MP 2.6		287500002.6	2875	CEDE5 CIAR4 CIVU	6/10/2012	Manual	0.25
Coho Pit		28400800.2	2840080	CIAR4 CIVU LALA4 SEJA	5/31/2012	Treated manually Meets requirements	0.01
Grindstone Pit	39	292307000.10	2923070	CIVU CYSC PHAR3	9/13/2012	Treated chemically	1
Louella Rock Pit		2800351.04	2800351	CEDE5 CIVU CIAR SEJA	6/7/2012	Treated chemically	0.5
Ned Hill Quarry (aka Sandstone Quarry)	138	287812500.50	2878125	CYSC4 LALA4 CIAR4 CIVU	6/10/12	Treated chemical	1
Raccoon Pit			2855070	CIVU GERO LALA4 SEJA CIAR4 HYPE	6/7/2012	Treated chemically	1.5
Tom Creek Pit	51	293100000.20	2931	CEDE5 PHAR3 (nt treated) CIAR4 may nt have been up,	5/17/12	Treated manual Meets requirements	.01
Unnamed Gravel Pit at junction of 2870 and 2878 roads (ref #587)			2870	CEDE5, CIAR4 CIVU, CYSC4 LALA4	6/13/2012	Treated manually	2
Lower Caraco Quarry	143	287000001.00	<b>2870</b>	GERO SEJA CIVU CEDE4	6/14/2012 6/28/2012 7/25/2012	Treated chemically Does not meet requirements	<b>1.5</b>
Upper Caraco Quarry	142	287000001.30		<b>CIAR</b>	<b>10/12/11</b>	<b>Treated chemically Meets requirements</b>	<b>0.01</b>
Wolf Quarry 2	27	284012000.30	2840120	GERO, SEJA, CIVU	5/31/2012	Treated manually Meets requirements	.02

<b>Other Pits Inspected</b>					
<b>Name</b>	<b>Address</b>	<b>Weeds Present</b>	<b>Date Inspected</b>	<b>Conclusion</b>	<b>Acres Inspected</b>
Beaver Falls Pit	Burnt Mountain Road (Highway 113)	CYSC4 PHAR3 DACA6 HYPE RUDI2 RULA SEJA hedge bindweed DIPU HYRA3 LOPE80	8/15/12	Met with Lynn Bruch-meets requirements	10
DNR pit, Fairholm Pit	Hwy 101-on north side, just west of Sol Duc Hot Springs Rd.	CYSC4 GERO LALA4 PHAR3	5/17/12	Mt with Dave Bibler-Have nt re-inspected, this was to be used for staging area for Discovery Trail. CYSC4 was treated at gate.	1
Heckle Rd Quarry	End of Heckle Rd off Hwy 101	CIVU CYSC4 HYPE ILAQ80 LALA4 RUAR9	10/29/12	Met with Jeff Konopaski-For use on Discovery Trail-removing broom and other species by #2 shovel. Will meet requirements-advised treatments next yr	2
Hilcar –Fletcher Quarry	La Push Rd	CYSC4 PHAR3 RUAR4 SEJA	4/12	Met with Jack Hilcar-Meets requirements	20
Snider Quarry	E Snider Rd	GERO CYSC4 RUAR4	8/15/12	Pre-project survey Currently will not meet requirements due to GERO-owner plans to treat	5
Penny Creek Quarry	Penny Creek Road	CIAR4 COAR4 CYSC4 DACA6 GERO HYPE LALA4 POBO10 RUDI2 SEJA TAVU DIPU HYRA3 LEVU RARER TAOF	<b>Nt inspected</b>	<b>Used this season w/o new inspection.</b> Received call from Contractor Nolan-rock used fresh from pit only. Wrote to FS staff	0

### APPENDIX C: ROADS SURVEYED OR TREATED

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

For common name equivalent of Forest Service weed species plant codes, see Appendix G.

This table is based on a table of all roads provided by Olympic National Forest in 2002, but currently contains only Forest Service roads within Clallam and Jefferson Counties. Many roads have since been closed or decommissioned. The lower-numbered roads (<2500), originally included in this table because of surveys conducted in Mason and Gray's Harbor Counties on behalf of Olympic National Forest, have been removed. See reports prior to 2010 for that information.

The project focus has shifted each year as the program has matured. Scope of accomplishments is directly tied to project funding and Forest Service policies which have both varied since its inception, affecting crew composition and size. Additionally, reporting protocols were modified by the Forest Service, changing how on the ground conditions were reported and how accomplishments were documented. Specific comments are presented after the roads table to add perspective.

ROAD	Total s 2002- 2012	Total Miles	Total Weeds Removed	Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
				Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
SR101	3	15.5	4	2	4	0.1	HICA10 GERO SEJA	19	28. 7	POBO POSA CYSC									
CR5695	5	8.98	8,499	4.9 8	8,499		CYSC CIAR SEJA	4	2	SEJA				1.7					
CR5331	3	14.24		8.2 4				6	1.0 3	GERO CEDE SEJA				7.5					
CR 5006	1	1.22												1.2 2					
CR4361	1	2.6												2.6					
CR4360	1	2.6												2.6					

	Total s 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
CR3057	1	1.9	3	1.9	3	0.1	SEJA							1.9						
CR3039	2	5.1	4,959	1.1	4,959	0.1	GERO	4	0.5	SEJA				1.4						
CR2515	1	0.4		0.4																
CR2500	4	25.05	35,074	25. 1	35,074		GERO CYSC							7.6						
CR2274	1	3.8												3.8						
CR2071	4	4	15	2	15	0.2	SEJA	1	3	GERO CIAR LALA POBO CYSC	1	6	GERO POBO	0.5						
CR2065	4	11.52	22,049	8.5 2	22,049		CYSC SEJA GERO	3	1	GERO CYSC				2.7						
CR2036	1	10												5	0.1	CYSC 4 SEJA TAVU HYPE CIVU				
3116000	4	13.45		10				3.5	3.1	GERO CIAR RUDI										
3100420	1	0.6		0.6																
3100400	1	2.9		2.9																
3100300	3	6.95		5				2	3.5	GERO										
3071015	1	0.6		0.6																
3071000	3	3.4	60	3.4	60		CYSC	1												
3068200	3	7.2	815	7.2	815		CYSC													
3068190	2	0.4		0.4																

ROAD	Total s 2002- 2012	Total Miles	Total Weeds Removed	Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
				Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3068000	5	35.1	521	32.3	521		SEJA CYSC CEDE	2.8	5.1	CYSC				3.5 8	3.3	CYSC 4			
3067000	2	7.06	1,402	7.0 6	1,402		SEJA CYSC												
3050150	1	1.1						1.1	1.7	GERO									
3050011	4	7		1.5				2.5	5.0 8	GERO HYPE CIVU	1.5	3.5		1.4	8.2	GERO HIAU CYSC 4 LEVU			
3050000	5	44.2	2	3.8	2		SEJA	18	18	GERO HIAU LEVU LALA CIVU CIAR4 HYPE	9	68	GERO HIAU LALA CIVU CIAR HYPE	4	13.3	GERO HIAU SEJA ILAQ8 0 PRLA5	7.2	1	GERO CIAR4 CIVU HYPE SEJA
3040800	6	4	54,709	0.5	54,709	1.8 5	POCU ARMI2 ILAQ8 0	2	17	GERO CYSC RUDI POBO LALA4 CIVU CIAR SEJA CIVU PHAR3	0.5	4	GERO RUDI POBO ILAQ CIVU	0.5	0.1 3	GERO			
3040595	3	4	373	4	373		CIVU SEJA	4	1	SEJA GERO									
3040200	1	1		1															
3040115	3	2.4	95	1	95	0.1	GERO							0.7	0	0			

ROAD	Total s 2002- 2012	Total Miles	Total Weeds Removed	Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
				Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3040100	3	7.2	8	4	8	0.3	SEJA CYSC	2						2.3	1.0 9	HYPE CIVU DIPU SEJA			
3040025	3	0.5	1	0.4	1		RUDI												
3040012	1	0.31	2	0.3 1	2	0.1	CYSC												
3040011	2	2		2															
3040000	10	196	35,136	71	35,136	1.3	CYSC SEJA GERO	67	23. 4	GERO SEJA LALA4 CYSC4 CIVU CIAR4 CEDE5	20	19	GERO HYPE CIAR CIVU CYSC	15	9.8	CEDE 5GER O SEJA CIVU CIAR4 HYPE LALA4 CYSC 4	14	9.6	GERO CIVU CIAR4 HYPE ILAQ80 PHAR3LAL A4 SEJA RUDI2
3006300	1	4.1		4.1															
3006011	1	1.2		1.2															
3006000	3	25		8				2	1	CYSC				6.5	2.4 6	GERO RUDI2 RULA HYPE CIVU SEJA			
3000591	1	0.1												0.3	0.3	GERO CIVU DIPU			
3000401	1	1		1															
3000400	1	2.2		2.2															
3000395	1	0.2		0.2															

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
3000370	1	0.8															0.8	0.07	GERO SEJA CIVU CYSC4
3000330	1	2.2															2.2	0.7	CYSC4 SEJA CIVU
3000300	3	10.5		3.5													3.5	0.7	GERO SEJA CIVU CYSC4
3000260	1	0.7		0.7															
3000250	2	18	10	10	10	1.2	CYSC	8	2.6 6					3.8	0.1	GERO			
3000220	1	2.8		2.8															
3000215	4	5		3.6				1	2	GERO				0.6	0.4	GERO CYSC 4			
3000200	7	124.5	6	70	6	0.2	SEJA	30	26. 6	GERO LALA4 CIVU CYSC4				8.4 6	16. 8	GERO CIVU LALA4	10.3	13.5	GERO CIVU CYSC4 SEJA
3000011	1	1		1															
3000000	7	148.3	883,09 8	92	##### #	1	GERO RULA CYSC CIVU SEJA	39	32	CYSC SEJA GERO CIVU CIAR LALA CEDE				16	5.4 6	GERO	14.8	31.9	GERO CYSC4 CIVU CIAR4 RUDI2 RULA HYPE LALA
2978085	2	1.1		1.1															

	Total s 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2978040	2	0.3		0.3																
2978035	2	0.1		0.1																
2978030	2	0.6		0.6																
2978030	2	0.7		0.7																
2978025	2	0.3		0.3																
2978015	2	1.6	18	1.6	18		CYSC													
2978011	2	0.4		0.4																
2978000	2	4.7	3,604	4.7	3,604		CYSC SEJA													
2952000	1	2.2															2.2	0.1	CIVU CYSC4	
2932070	1	0.9	12	0.9	12		CYSC													
2932050	1	0.3		0.3																
2932040	1	0.4		0.4																
2932035	1	0.2		0.2																
2932031	1	0.5		0.5																
2932030	3	2.4		1.4				1	0.1	CYSC4										
2932000	6	28	2,153	15	2,153	0.3	LEVU CYSC	11		CYSC SEJA GERO							5	5.2	GERO RULA RUDI2 SEJA HYPE CIVU LAGA2	
2931200	1	2.5		2.5																
2931190	1	1.7		1.7																

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2931000	3	24.3	1	12	1		SEJA				12	7	CYSC LALA CIVU	0.2	11	CEDE 5 CIVU	0.1	0.01	CEDE5
2929070	5	18.6	525	3	525		GERO RULA CYSC	6	2	GERO	3	1	GERO	3.3	5.1 2	GERO RUDI2 RULA DIPU HYPE			
2929000	5	32		10				13	1	HIAU GERO CIVU CYSC	3	0.5	CIAR HYPE LALA CYSC GERO	6.4	1.4 2	HYPE LEVU CIAR4 CYSC 4 CIVU DIPU GERO HYRA 3	6	11.5	PHAR3 CIAR4 GERO CIVU CYSC4
2923100	1	0.2		0.2															
2923095	1	0.4												0.2	0.2	CYSC 4 HYPE TAVU SEJA			
2923090	1	2.4												1.2	1	CYSC 4 HYPE TAVU SEJA			
2923077	2	18.6						16	2.1 5	CYSC SEJA							2.6	0.1	CYSC4 SEJA HYPE
2923074	1	0.8															0.8	0.01	CIVU
2923073	1	0.8															0.8	0	

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2923072	1	0.8															0.8	0.02	CYSC4 CIAR4 HYPE
2923070	4	20	2	5	2		SEJA	9	8.6	CIVU HYPE GERO SEJA CYSC CIAR RUDI							6	1.06	CIVU CYSC4 PHAR3
2923060	3	8.6		1				3	0.1 5	CYSC CIAR GERO							4.6	1.2	GERO CYSC4 SEJA CIVU CIAR4 RULA HYPE
2923020	1	1.2															1.2	0.73	CYSC4 SEJA
2923015	1	2.4															2.4	3	GERO CYSC4 CIVU SEJA
2923000	6	68	1,434	41	1,434	0.5	SEJA CIAR HIAU CYSC	27	4	CYSC GERO							18	15.2	CYSC4 RULA HYPE CIVU CIAR4 SEJA GERO
2922250	1	2.6															2.6	4	LALA4 CYSC4 CIVU

ROAD	Total s 2002- 2012	Total Miles	Total Weeds Removed	Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
				Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2922200	1	2.86															2.86	0.3	CYSC4 HYPE
2922020	1	1.72															1.72	0.01	<b>GERO</b>
2922000	3	33		13				20	4.2	GERO									
2920210	1	0.2		0.2															
2920020	1	1.4		1.4															
2920000	3	14		6							6	0.5	GERO CIVU CIAR CYSC	2					
2918110	3	2		1				1	1	CYSC DIGIT LEVU LALA	1		None						
2918100	3	23		3				3	1	CYSC DIGIT LEVU LALA	17	20	CYSC CIAR GERO SEJA CIVU HYPE						
2918000	3	34.4	2,315	20	2,315		SEJA CYSC	9	1.5	CYSC DIGIT LEVU LALA				5.4					
2912060	3	9.8	3	2.8	3		SEJA										7	1	<b>GERO</b> CYSC4 SEJA CIAR4
2903000	1	7	78	7	78		SEJA CYSC												
2902375	1	0.8		0.8															

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2902300	1	0.6		0.6																
2902000	3	2.91	4,175	2.9 1	4,175	0.2	CYSC SEJA													
2900992	1	0.5						0.5	0.1	GERO										
2900990	5	4.7	5,300	2.4	5,300		CYSC GERO	2	0.4	GERO				0.2	0.1	GERO CYSC 4 ILAQ8 0	0.1	3	GERO ILAQ80	
2900950	1	0.1		0.1																
2900810	1	2.6															2.6	0.1	CIAR4 CYSC4 RULA	
2900650	1	1.2		1.2																
2900540	1	2		2																
2900200	2	0.7	54	0.7	54		CYSC SEJA													
2900070	1	2.3		2.3																
2900030	1	3															3	0		
2900015	3	0.9		0.1				0.7	4.5	CYSC RUDI SEJA GERO							0.1	4.12	POSA4 RULA RUDI2 CIAR4	

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2900000	9	123.4	664,225	72.2	664225	2.3	CYSC GERO HIAU SEJA POSA CIAR	25	8.1	CYSC SEJA CIVU HIAU RUDI LALA HYPE GERO				11	5.05	HYPE LEVU CIAR4 CYSC 4 CIVU DIPU GERO HYRA 3 SEJA	16	15.1	GERO HYPE HIAU LALA4 CYSC4 SEJA CIVU CIAR4 RULA PHAR3 DIPU LEVU
2880050	9	3.1	255,004	0.5	##### #	0.5	GERO	1.5	23	GERO	1	4	GERO	0.1	2	GERO	0.1	23.5	GERO LALA4 CIAR4
2880000	8	30.51	9,923	17	9,923	0.3	GERO SEJA	8	5.1	SEJA CYSC4 GERO CIAR4 CEDE5				1.81			3.7	4.5	GERO CIVU CIAR4 HYPE LALA4
2878123	4	0.65		0.2				0.2						0.15	1	LALA4 CYSC 4	0.1	1	LALA4 CIVU CIAR4
2878120	5	4.5	2,170	1	2,170		CYSC	2	2	LALA	1	0.25	LALA CYSC CIVU	0.4		LALA4			
2878110	3	3		1				1	1	LALA	1	0.25	CIVU CYSC LALA CEDE						
2878109	1	0.27		0.27															

ROAD	Total s 2002- 2012	Total Miles	Total Weeds Removed	Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
				Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2878108	1	0.13		0.13															
2878102	1	0.4		0.4															
2878100	3	3.5		1.5				1	3	LALA	1	0.2	LALA CIVU CIAR SEJA GERO	0.95		LALA4			
2878085	3	3		1				1	1	CIAR CIVU GERO	1	0.01	SEJA CIAR CIVU						
2878080	3	3.5		1.5				1	0.5	LALA CIAR	1	0.25	SEJA CIAR CYSC						
2878060	3	2.5	127	0.5	127		CYSC	1	0.5	LALA CIAR	1	0.25	SEJA CIAR CYSC						
2878050	1	0.6		0.6															
2878000	8	44	2,971	4	2,971	0.2	CYSC	20	13	LALA4 CIAR4 CEDE5 CYSC4 GERO SEJA	4	8	LALA CIAR GERO CIVU	4	4.5	GERO CIVU SEJA LALA4	8	0.1	<b>GERO</b>
2877100	2	1.5		0.5							1		None						
2877052	1	0.29		0.29															
2877050	1	2.65		2.65															

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2877040	3	4.5		2.5				1	0.2	SEJA CEDE CIAR CIVU	1	1.3	CIVU CYSC CIAR GERO	1.1	0.5	SEJA CIVU			
2877000	5	51.2		5				20	13.4	CEDE LALA CIAR CIVU CYSC SEJA	10	3.8	CIAR CIVU CYSC HYPE	5.1			9.2	12	CIAR4 CIVU HYPE LALA4 SEJA
2875090	1	0.1		0.1															
2875070	4	7.1		2.5				1	0.5	CIAR CYSC							3.6	0.91	CEDE5 SEJA GERO CIAR4
2875020	4	3.7	6	0.5	6		CYSC	1	0.5	CIAR CYSC POBO	1	1.1	CEDE CIAR CIVU CYSC SEJA PHAR	0.6	0.5	SEJA CIVU			
2875000	8	53.2	268	12	268	0.4	CEDE	23	10.8	CEDE5 LALA4 CIVU CIAR4 CEBI	4	3.5	HYPE GERO CIAR CIVU LALA CYSC SEJA	6.5	1	SEJA CIVU	7.2	8.5	SEJA GERO CIVU CEDE5 CIAR4
2870270	2	7		3.5		0.28	CIAR CIVU	3.5	3.2	CIVU CEDE SEJA HYPE									

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2870250	1	1						1	1.5	CEDE5 CEBI									
2870230	4	8	38	4	38	0.3	SEJA CIAR CIVU HYPE	4	0.4	CIVU CIAR GERO									
2870150	3	4.1		0.5				1	3	LALA				0.7	5.1	LALA4 CIVU CIAR4			
2870130	2	2	1	1	1	0.1	CYSC				1	0.1	SEJA CEDE						
2870110	2	1	729	0.5	729		CYSC				0.5	0.1	CYSC						
2870059	7	5.8	19,529	3	19,529		CIAR CIVU SEJA CEDE CYSC GERO	1						0.4	7.9 6	GERO CIAR4 SEJA CYSC 4 CIVU LEVU HYPE DACA 6 PHAR 3	0.8	7.25	CIVU GERO PHAR3 CIAR4 CYSC
2870058	6	16		3		2.5 5	GERO CIAR PHAR	8	6.5	GERO CIAR4 PHAR3 CIVU	4	0.25	GERO	0.5 5	2.2	GERO CIAR4 SEJA CYSC 4 CIVU LEVU HYPE DACA 6	1	2.75	CIVU GERO HYPE CIAR4

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2870057	4	7.1						5	4	CIAR4 CIVU HYPE GERO PHAR	1	0.1	CIVU	0.1	2.6	CIVU CIAR4 CYSC 4 GERO	0.1	0.4	CIAR4 CIVU PHAR3 SEJA	
2870056	8	7	14	2	14	0.1	CEDE SEJA	3	8.9	SEJA CIVU CEDE CYSC CIAR4	1	0.1	CIVU CIAR TAVU HYPE CEDE	0.6	4.2	GERO CIAR4 SEJA CYSC 4 CIVU LEVU HYPE DACA 6	1.2	0.45	CIAR4 CIVU SEJA <b>CEDE5</b>	
2870054	4	4.5						1.5	4	CEDE CIAR CIVU	1	0.75	CIAR CIVU SEJA	0.1	7.2	PHAR 3 CYSC 4 CEDE 5 LEVU CIAR4 CIVU HYPE	1.4	2.3	CIAR4 CIVU LEVU <b>CEDE5</b> CYSC4 HYPE	
2870053	6	6.7						2	1.7	CIAR4 CIVU CEDE5	1.5	15	CIAR CIVU SEJA	0.2						CIVU <b>CEDE5</b> HYPE LALA4 <b>GERO</b> SEJA CIAR4
2870052	2	1.6									1	0.1	CIAR HYPE							CIVU HYPE

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2870050	10	42.6	110	16	110	0.8	CEDE CIAR CIVU CYSC GERO HYPE LALA SEJA	13	10.5	CIAR4 CIVU GERO LEVU PHAR3 RUDI SEJA	3	0.6	CEDE CIAR CIVU GERO HYPE	2.6	10.2	GERO CIAR4 SEJA CYSC 4 CIVU LEVU HYPE DACA 6 CEDE 5 PHAR 3	5.6	4.11	CIVU GERO LALA4 CIAR4 HYPE	
2870030	7	14.6	78	5	78		CEDE CYSC SEJA	4	3.5	CEDE SEJA CIAR CYSC	2	10.3	CEDE CIAR CIVU HYPE				3.6	0.1	CIVU CIAR4 HYPE SEJA CEDE5	
2870000	10	476.4 8	3,853	143	3,853	3.1 3	CEDE SYSC SEJA	25 6	21. 7	CEDE CIAR4 CIVU CYSC4 GERO HYPE LEVU SEJA LALA4	30	5.6	CEDE CIAR CIVU CYSC GERO HYPE LALA RUDI SEJA	4.3	2.5	CYSC 4 PHAR 3 LALA HYPE CIAR4 CIVU SEJA	18	17.5	GERO CIAR4 CIVU SEJA CEDE5 DACA6 HYPE LALA4	
2860120	1	1.6		1.6																
2860011	2	1	2,708	1	2,708		GERO SEJA													
2860000	4	50	54,000	50	54,000		CIVU GERO													

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2855100	2	2.4		2.4										1.1	2	GERO SEJA CEDE 5 HYPE				
2855070	7	11	5497	5	5497	0.5 2	CEDE CIAR CYSC GERO RULA SEJA	3	5	CEBI CEDE CYSC SEJA				1.4	3.0 6	GERO LALA4 CIVU SEJA	3	4.11	GERO LALA4 CYSC SEJA CIVU CIAR4 HYPE CEBI2	
2855032	2	1.6	1	1.6	1		RULA													
2855030	3	10.4	19,200	5.4	19,200		SEJA							1.2 5	3.2	SEJA HYPE CIVU CYSC 4 GERO CIAR4 CIVU				
2855000	9	22.3	51,947	10	51,947	0.4	CEBI CEDE CIVU CYSC GERO SEJA	11	2.2	SEJA				1.3					3	
2852150	2	1.29	25	1.2 9	25		CYSC													
2852090	2	10	3,362	10	3,362		CIAR CYSC GERO SEJA													

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2852000	6	12.5	47,605	5	47,605	0.3	CEDE CIAR CIVU CYSC GERO HYPE RULA SEJA	2	1	CEDE	3	3.6	CEDE CIAR CIVU CYSC GERO HYPE SEJA				2.5	0.24	SEJA	
2851090	2	1		1																
2851080	2	4	1,660	4	1,660		CYSC SEJA TAVU													
2851000	3	8	10,090	8	10,090	0.6	SEJA													
2850124	1	0.2		0.2																
2850120	3	8.6		3		0.2	CYSC							2.8	3.2	SEJA HYPE CIVU CYSC 4 GERO				
2850093	1	0.1		0.1																
2850090	1	1		1																
2850010	3	3	5,352	3	5,352	0.9	RULA SEJA													
2850000	7	34.4	67,334	22	67,334	0.6	CYSC GERO RULA SEJA				5	6	SEJA	7.2	3	SEJA	2.4	0.3	SEJA CIVU	
2845200	1	0.28		0.28																
2845150	1	0.2		0.2																

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2845120	2	4	84	2	84		CYSC SEJA	2	1.9	CIVU CYSC SEJA									
2845090	2	1	12	1	12		CYSC SEJA												
2845073	4	6.3		1				1.5	2	CYSC				1	2.0 9	SEJA CYSC 4 CIAR4 CIVU CEDE 5 DIPU DACA 4	1.8	2.1	SEJA CIVU CIAR4 CYSC4 HYPE
2845070	5	16.6	1,860	6	1,860		CYSC	6	4	CEDE CYSC SEJA CIAR CIVU				1.6			3	0.9	SEJA CIVU HYPE CYSC4 CIAR4
2845040	1	0.3	160	0.3	160		SEJA												
2845000	5	20.4	12,378	5	12,378	0.7	SEJA	10						5.4					
2840150	1	1	1	1	1		SEJA												
2840130	1	1		1															
2840120	3	4.27		1.2 7										0.2	1	CIVU HYPE GERO SEJA	1.6	0.05	GERO CIVU SEJA
2840084	1	0.25		0.2 5															
2840080	2	4.09	1	0.8 9	1		RULA							0.3	1	CIVU CIAR4 LALA4 SEJA			

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2840071	3	5.2	36	2	36		BORA G SEJA										3.2	7.5	LALA4 CIVU CIAR4 <b>GERO</b> SEJA PHAR3 SYOF HYPE CYSC	
2840070	2	4	5,753	4	5,753		CYSC SEJA													
2840036	1	3.5									3.5	1	CEDE CIAR SEJA							
2840035	1	1									1	0.6	CIAR CIVU HYPE							
2840034	2	4		2							2	2.5	CEDE CIAR CIVU GERO SEJA							
2840030	2	6		3							3	7.5	CEDE CIAR CIVU HYPE SEJA							

	Total s 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2840000	6	30	10,010	11	10,010		CIAR CYSC SEJA	10			2	2.5	CIAR CYSC GERO HYPE LEVU SEJA comfre y	2.8	3	SEJA			
2830034	1	0.33		0.3 3															
2830032	1	1		1															
2830030	1	2		2															
2830000	4	20.5	1,250	10	1,250		CEBI	11	0.2	SEJA									
2820000	5	24	2,274	4	2,274	0.2	SEJA	8	2	SEJA CIAR CEDE	4	14	CIAR CIVU HYPE SEJA	2.2 5	3	CEDE 5 LALA4 GERO CIAR4 CIVU HYPE SEJA			
2810070	1	0.61		0.6 1															
2810000	2	8	10,190	8	10,190		CYSC SEJA												
2800351	5	8.1						4.5	3	CEDE5 CYSC4				0.8	1.5	GERO SEJA CEDE 5 HYPE	1.6	1.72	CEDE5 CIVU CIAR4 SEJA
2800350	2	3.1						3	4	CEDE CIAR CIVU				0.2	1.2	SEJA HYPE CIAR4 CIVU	0.1	0.31	CEDE5 CIVU CIAR4

	Total s 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
<b>ROAD</b>	<b>No. Years Visited</b>	<b>Total Miles</b>	<b>Total Weeds Removed</b>	<b>Survey Miles</b>	<b># of Weeds</b>	<b>Acres Treated (2006 Only)</b>	<b>Weed Species</b>	<b>Survey Miles</b>	<b>Acres Treated</b>	<b>Weed Species</b>	<b>Survey Miles</b>	<b>Acres Treated</b>	<b>Weed Species</b>	<b>Survey Miles</b>	<b>Acres Treated</b>	<b>Weed Species</b>	<b>Survey Miles</b>	<b>Acres Treated</b>	<b>Weed Species</b>
2800310	4	1	4,655	1	4,655	0.2	CYSC												
2800290	2	1	2	1	2		CYSC SEJA												
2800270	1	1	310	1	310		CYSC SEJA												
2800262	1	0.6		0.6															
2800260	1	1.2		1.2															
2800250	3	5	92	5	92	0.1	SEJA												
2800240	1	0.8		0.8															
2800220	1	1.2		1.2															
2800210	1	0.4		0.4															
2800145	1	0.3		0.3															
2800132	2	2	463	1	463	0.1	CEBI CEJA	1											
2800130	1	2						2	1.3	CEBI SEJA									
2800060	1	1		1															
2800010	6	7	10	1	10	0.1		3	6	GERO CIAR4 LALA4 CIVU ILAQ	1	11.5	GERO	0.6	5.1	GERO SEJA HYPE CIVU CIAR4	1	8.18	GERO SEJA CIAR4 HYPE

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2800000	11	211.1	70,321	89	70,321	1	CEDE CIAR CIVU CYSC GERO SEJA	87	88.8	CEBI CEDE5 CIAR4 CIVU CYSC4 GERO ILAQ80 SEJA DIPU LALA	25	3.5	CIAR CIVU CYSC HYPE LALA PHAR SEJA	6.5	0.25	HYPE SEJA LALA4 DIPU CIAR4	0.1	0.25	LALA4 HYPE SEJA
2750020	1	1.5		1.5															
2750000	3	15		5				5	8	SEJA LALA CIAR CIVU CYSC	5	18	CIAR CIVU HYPE LALA SEJA						
2740110	1	1.5						1.5	1	SEJA CYSC CIAR CIVU CEDE									
2740075	2	1		0.5				0.5	1	SEJA CYSC CIAR CIVU CEDE									
2740072	4	2	200	1	200	0.1	CEBI	1	1	SEJA CYSC CIAR CIVU CEDE									

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2740070	3	7		4				3	1	SEJA CYSC CIAR CIVU CEDE									
2740060	4	18	33	9	33	0.2	CYSC	9	1	SEJA CYSC CIAR CIVU CEDE									
2740000	6	56		21				25	3.6	CEBI SEJA CEDE CIAR CIVU CYSC				2.4	8.7 3	GERO HYPE CYSC 4 SEJA CIAR4 CIVU LALA4 DIPU CEDE 5			
2730300	7	4.2	934	1	934		CYSC	2	8.3	CYSC LALA RUDI PORE SEJA GERO CIAR	1	2	CYSC	0.1	7.6 6	PORE 5 SEJA CYSC 4GER O LALA4 RULA HYPE	0.1	5	PORE5 CYSC4 SEJA HEHE GERO
2730200	9	9.1	19,621	5	19,621		CIVU GERO SEJA	2	4	GERO	1	1.6	GERO	0.5	7.1 2	GERO HYPE	0.1	2.5	GERO CIVU
2730100	4	0.5	35	0.4	35		SEJA										0.1	0.1	SEJA CIVU

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2730020	3	1		1																
2730011	3	4	51	1	51		GERO				1	2	GERO SEJA	0.9	2	GERO SEJA HYPE ILAQ8 0				
2730000	4	15	146,40 0	15	##### #		CYSC SEJA TAVU													
2700330	2	2		1													1	0.3	SEJA	
2700140	1	1.2		1.2																
2700100	1	4.6		4.6																
2700090	1	1.99		1.9 9																
2700080	2	1.6						1	2	GERO SEJA LALA CYSC CEJA CIAR CIVU							0.6	0.73	GERO LALA4 HYPE SEJA	
2700040	4	22.6						4	11. 2	GERO SEJA CYSC HIAU BORA G ILAQ80 PRLA5 CIVU LAGA2 PHAR HEHE	4	10.5	CIAR CIVU CYSC GERO HYPE LALA SEJA	3.7	28. 2	GERO SEJA DACA 6 HYPE LALA4 ILAQ8 0 HIAU AEPO LAGA2	7.4	7.9	GERO SEJA HYPE CIAR4 SYOF HIAU AEPO LAGA2 VIMI2 CASE HEHE	

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012			
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	
2700000	10	97.7	4,201	37	4,201		SEJA TAVU	21	15.1	CEDE CIAR CIVU CYSC GERO LALA SEJA	9	4	CIAR SEJA	12.7	33.4	GERO CIVU CIAR4 HYPE LALA4 SEJA CYSC 4	5.2	1.75	GERO CEDE5 SEJA HYPE POSA4 LALA4 CIAR4	
2650090	1	1.68		1.68																
2650050	2	0.9		0.9																
2650000	3	30	2	15	2		ARMI2							2.7	6.61	SEJA CIAR4 CIVU HYPE				
2620060	1													2.8	3.1	SEJA HYPE CIAR4 CIVU CYSC				
2620056	3	2.36	24	0.76	24		CEJA										1.6	1	SEJA HYPE CIVU	
2620053	2	1.3		1.3																
2620051	3	2.49		0.89													1.6	0.3	SEJA HYPE	
2620050	3	6.8		2.8													4	3.8	SEJA CIAR4 HYPE CIVU	
2620043	1	0.7		0.7																

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2620036	1	0.6															0.6	1	SEJA CIAR4 CIVU CYSC4 HYPE
2620035	1	1.2															1.2	2.6	SEJA CIAR4 HYPE CYSC4 CIVU <b>GERO</b>
2620030	1	9.7		9.7															
2620000	5	55.6	39,464	35	39,464		CIVU CYSC GERO RULA SEJA	12									8.6	15.9	SEJA CIVU <b>GERO</b> CIAR4 LALA4 HYPE CYSC4
2610200	10	16.2	3,676	11	3,676	0.2	CYSC GERO HEHE RUDI SEJA	4	5	CYSC SEJA	1	0.1	SEJA	0.1	3	LALA4 <b>GERO</b> CYSC 4 CIVU SEJA	0.1	1	HYPE SEJA CYSC4 <b>GERO</b> LALA4
2610050	1	1						1	1	GERO SEJA CIAR CYSC									
2610040	4	3	3,000	1	3,000		SEJA	1	2	GERO SEJA CIAR CYSC	1	4	GERO						

	Total s 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2610012	2	5.85	397	0.8 5	397	0.2	GERO							0.5	0.4 2	CYSC 4			
2610000	9	68.4	6,570	20	6,570	0.1	CEDE CIAR CIVU CYSC GERO RULA SEJA	32	17. 5	CIAR CYSC GERO POBO SEJA				2	42	GERO	6.4	17.6	GERO HYPE CIAR4 CIVU SEJA CYSC4 LALA4 POSA4
2530000	3	8.5		5.7										4.4	1	GERO SEJA			
2527000	1	1.2		1.2															
2510070	7	4.1	1,600	1	1,600	0.8 2	GERO	1	6.5	GERO	1	11	GERO	0.2	10	GERO	0.1	8.5	GERO CIVU
2510065	2	2		1							1	0.5	GERO HYPE SEJA						
2510012	2	2.7		1										1.7					
2510000	5	123	53	40	53	0.5 3	CEDE CYSC SEJA	41	19. 5	CIAR4 CIVU GERO HYPE RUDI RULA SEJA							42	10.8	HYPE GERO SEJA CIAR4 CIVU CYSC4 LALA4
2503000	1	9												3.7	11. 7	GERO HYPE SEJA			

	Totals 2002- 2012			Survey, manual control and limited herbicide 2002-2006				2007-2009			2010			2011			2012		
ROAD	No. Years Visited	Total Miles	Total Weeds Removed	Survey Miles	# of Weeds	Acres Treated (2006 Only)	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species	Survey Miles	Acres Treated	Weed Species
2500000	3	23		4				19	3.75	GERO SEJA CIAR CYSC POBO									
2190220	1		251		251		COTON POCU												
2190200	3	42		4		0.1	POCU	38	1.7	CIVU CYSC4 DIPU POBO SEJA									
2190170	1	2		2															
2190000	2	24		14				10											
2100000	2	8	50	8	50		SEJA												
2071	1	1															1	5	GERO LALA4 RUDI2 POCU6
<b>TOTALS</b>		<b>3485.79</b>	<b>2695475</b>	<b>1499.2</b>	<b>2695475</b>	<b>28.53</b>		<b>1154.3</b>	<b>596.05</b>		<b>222.5</b>	<b>291.81</b>		<b>236.92</b>	<b>334.25</b>		<b>308.5</b>	<b>323.461</b>	

## PROGRAM HISTORY FROM 2002-2012-A PERSPECTIVE

- Focus: When the project began in 2002 the focus was almost exclusively on surveying, with a small amount of manual weed removal. From 2003 to 2005 surveying was still the primary focus, and the use of herbicide was limited by policy. Different crews manually removed thousands of weeds each year. In 2006 some herbicide treatments were allowed. After the completion of a new EIS, herbicide treatments expanded and the focus shifted from survey to control. This year we have condensed years with manual only, 2002-2006. The increase in productivity is striking. In a single year crews were able to cover in one year what previously took nearly five. As we transition to more riparian, restoration, or habitat projects, productivity may decrease due to long walk in or other logistical difficulties.
- Crew Resources: The County has hired a small field crew each year since the inception of the project, but changes in funding have meant that the crew size has ranged from 2 to 5 members. Some years a WCC crew has been made available to the Counties (typically for two weeks in each county, but this can vary). From 2007 to 2009 an Olympic Corrections Center (OCC) crew was used, mainly to pull Scotch broom from pits, quarries and roadsides. A Clallam County Sheriff's Chain Gang has been funded for a number of years for mixed purposes, sometimes weed control. Their efforts were not always coordinated with the Weed Control program, but when provided, their data has been incorporated into the end of year report.
- Reporting: Protocols have changed during the life of the project. From 2002 to 2005 we reported miles of roads surveyed and/or treated and number of weeds manually removed. Acres treated and/or surveyed were estimated, based on the road miles.
- In 2006, when herbicide treatments began, we were asked to simply report acres treated. However, crews or office staff tracked miles surveyed, for some reporting consistency across project years. Most roads are surveyed multiple times during the year, when different plant species are apparent.
- Because 2006 was a transition year crews reported manual treatments both as acres treated and number of weeds removed. County crews have not reported number of weeds removed since 2006; the WCC crew made the change in 2005. The Chain Gang still reports number of weeds removed but in 2011 they also reported acres treated. Chain Gang reporting in 2012 was chaotic and inconsistent. It is possible that they made more complete reports directly to the Forest Service.
- Estimating acres treated has always been problematic. In 2007 the OCC crew reported treating 337 acres, which we suspect is an inflated figure, because of confusion about protocol. Still, that figure has been retained in the table as reported.
- Each year, some of our documented work is for re-treatments. When compiling acreage figures for each year we record re-treatments and subtract them from the total, however, the work involved should somehow be acknowledged as it shows a new kind of success; time in the season to do needed follow-up work..
- Changes in the FACTS sheets over the years have made comparisons of acreage treated from year to year difficult. From 2007 to 2009 we used the "Infested Area Treated" figure from the FACTS sheets to sum up acres treated. In 2010 the forms were changed and "Infested Area Treated" was no longer on the form, so in that year we used the "Application Area" figure from the back of the form.
- In 2011 the form was changed again and "Infested Area Treated" was again used.
- Further, in 2010 "Acres Examined for Weeds" was on the FACTS sheet, so that figure was used for "Acres Surveyed" in the table below, rather than extrapolating it from "Miles Surveyed".
- In 2011 we began to break down acres treated chemically and acres treated manually in the summary table. We have continued that practice in 2012. We believe re-treatments are a significant factor in effective control of certain species such as herb Robert.
- In 2012, there has been a notable emphasis on restoration, habitat, or prevention projects that are more logistically complicated, and therefore, more labor intensive and expensive. However, it is heartening to see weed infestations so significantly reduced that re-introduction of native plants has begun in some of the more fragile environments.
- The table showing the number of new sites/ total sites recorded in any given year nicely depicts changes in program focus since its inception. As more emphasis is given to treatments, and less to surveys and discoveries, fewer "new" sites are recorded.

## APPENDIX D: POTENTIAL SURVEY AND TREATMENT SITES

Future Forest Service work should focus on FS Priority species with limited distribution in the forest. Herb Robert which has become one of the most troublesome species and a top concern should be the other top priority.

- Ensure thorough treatment of bishop’s weed and periwinkle at Caretaker’s Cabin and Snider.
- Eradicate orange hawkweed, yellow archangel, butter and eggs (yellow toadflax), comfrey, spotted knapweed, sulfur cinquefoil and knotweeds
- Allow sufficient time for multiple treatments of all herb Robert sites. Inspect and treat neighboring road spurs. Work with DNR crew for herb Robert sites downstream of Dungeness Forks Campground and along the Dosewallips River.
- We may have turned the tide with meadow knapweed: We should ensure that **all** meadow knapweed sites are on the work plan in 2013. Treatments should be scheduled after July to maximize plant identification, growth and susceptibility. The DNR has funding in 2013 to undertake some important treatments on neighboring properties but will need coordination with the Weed Boards to ensure there is a corresponding Burnt Hill project, which is the likely source of knapweed in neighboring FS properties
- Identify high-priority cross-boundary projects with other public land agencies.
- Plan follow-up treatments of Cranberry Bog, Bonidu Meadows, Pat’s Prarie, Juniper Meadow, Sink Lake, and Caraco Units. (Locate PHAR deep in units, consult Aluzas about conditions).
- Treat the following pits, Luella LuLu, Armpit, (potential re-seeding?) Lost Pit (a.k.a. Canine) Canyon, Lower Caraco, Bonidu, Calawah, Racoon, and lower Tom Creek (for small PHAR patch and CIAR), and the DNR’s Mary Clark because of high use. Survey and treat others not seen in the past two years. Provide a list of important non-Forest rock sources that may be under consideration for FS projects in the next several years.
- Survey and treat all campgrounds, trailheads and special use facilities such as administrative sites and water diversions.
- Try to include the ends of roads and small spurs in projects, since these areas often harbor weeds.
- Set annual goals for everlasting peavine treatments, try using clopyralid. Use contractor, WCC or Chain Gang as workforce.
- Some Contractor site suggestions are noted in the table below. Pre-survey to confirm most urgent need.

At the end of 2011 we used GIS to compared shape files and tables of treatments with our baseline weed survey files and tables and identified roads that still need survey or treatment. A search of the 2012 list shows that we didn’t make it to most of these sites. Several have been re-listed below where appropriate. We look forward to using a GIS-based map with overlaid treatments from previous years to direct next year’s project list during our 2012 post-season meeting.

FS Road	Note	Weed(s)	Note (2012)
2610000	Survey above Elkhorn Campground —herb Robert is rampant below-joint treatment with North Cascades EMPT?		
2610012	Consider special contractor project to coincide with planned LWD project.		
2620000 and spurs	Some were missed this year	GERO	
2630000	Never surveyed	GERO	
2650000	MP 1.56- ARMI2 not noted in 2011, recheck to confirm	GERO SEJA	Found several small, but significant patches last year. Needs follow up
2700010	Vague recollection from 2010	??	
2700090	Survey due	ARMI2—ck SEJA CIAR4 CIVU HYPE,	
2800250	Survey due	POBO10	
2800270	Survey due		
2800290	Survey due	SEJA	
2800310	Schmidt Knob	CYSC4 SEJA	
2800320	Close to known herb Robert infestation	SEJA CYSC4	
2800321	Survey due	CYSC4	
2800360	Survey due ”		
2840034			
2840036			
2840071	survey	CEDE5	

FS Road	Note	Weed(s)	Note (2012)
2840080	Close to known herb Robert infestation		
2840088	Survey due "		
2850000			CIVU CIAR4 LALA4 SEJA treated 2011
2850080			
2850100			
2850105	Survey due	CIVU CIAR4 LALA4 SEJA	
2850090	Not completed in 2011		Priority 2—not treated
2851000			
2860000	Not surveyed since 2004	CEDE5—untreated for several years	On work plan, #1, not treated—high priority next year!!!
2860011	East Crossing CG	SEJA	Not on work plan, not treated
2877040	2877000 may not have been surveyed	GERO SEJA	Not on work plan, not treated
3078	Olympic Hot Springs Road as it passes through ONF	CIAR, GERO on 040 spur	
2978000	Not checked in a long time.	GERO	
2900200	Pit	POBO10 GERO	
2923070 (to end of road)	Close to known herb Robert infestation		
3000000	Bad herb Robert infestation--should be contractor	CYSC4 SEJA	<b>CONTRACTOR</b>
3000300	"	CIAR and RUDI treated 2009-GERO	<b>CONTRACTOR</b>
3000400	"	GERO	<b>CONTRACTOR</b>
3000450	Close to known herb Robert infestation	Likely GERO	
3006000	Bad herb Robert infestation--should be contractor. Closed midway	Likely GERO	<b>CONTRACTOR</b>
3068000		Likely GERO	
3068200	Off 3040, above Snider	GERO RUDI2	
3008000		CEDE5 & SEJA. Treated 2007 and 2008	CYSC4 treated 2011
3100700	Close to known herb Robert infestation. Closed	CYSC4	Not on work plan, not treated
3116000 (to end of road)	Close to known herb Robert infestation		
3116200	Survey due		

## APPENDIX E: COUNTY ACCOMPLISHMENTS-

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

**Clallam County** covers 1,112,960 acres on the north edge of the Olympic Peninsula, along the Strait of Juan de Fuca. Almost half the acreage of the county (46%) is in federal ownership (National Park or National Forest). The major highway, US 101, runs from east to west through most of the county. Many roads lead from US 101 into the National Forest and many go through the Forest into the popular Olympic National Park. The County has a stable weed program funded by an assessment.

<b>Clallam County 2012 Snapshot</b>	
Number of Known Weed Species	67
Number of Regulated Weed Species	44
Most Common Weeds	tansy ragwort, poison hemlock, knapweeds
Least Common Weeds	hoary alyssum, hairy willowherb, purple loosestrife, sulfur cinquefoil, giant hogweed, gorse
Total Number of Sites (Regulated Species Only)	1,7270
Number of Landowner Contacts	1,034
Educational Events	28
Public Contacts (Phone Calls, Walk-Ins, Emails)	1640
Web-Site Hits	925
Volunteer Weed Events	3
Area of Weeds Controlled by Weed Board Staff	4 solid acres—over 12,970 individual plants removed.

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

The weed control program is poorly funded and has relied extensively on Title II funding and help from Clallam County to remain viable. Jefferson County Road Department has had a no-spray policy for 20 years but in 2009 the Weed Board was able to get permission to spray certain weeds on county roads. Small amounts of spraying to treat common hawkweed, meadow knapweed, knotweed, orange hawkweed and wild chervil took place in 2010 and 2011. The wild chervil population is increasing and in early 2012 it was thought to be beyond the capacity of Weed Board staff to control. The Weed Board planned to hire a contractor to spray but public opposition to this plan escalated. The Weed Board sprayed just one mile—the worst wild chervil site, and is working with the County Commissioners and Public Works to develop a Management Plan for 2013.

<b>Jefferson County 2012 Snapshot</b>	
Number of Known Weed Species	46
Number of Regulated Weed Species	25
Most Common Weeds	tansy ragwort, poison hemlock, wild chervil, knapweeds
Least Common Weeds	purple loosestrife, sulfur cinquefoil, milk thistle, giant hogweed, gorse, phragmites, hawkweeds
Total Number of Sites (Regulated Species Only)	410
Number of Landowner Contacts (est.)	400
Educational Events	2
Weed Pulls	7

The two Counties work together closely. In addition to receiving Title II funding, they have for several years jointly received funding from Washington State Department of Agriculture for knotweed control and have worked on all the major waterways in both counties. This program has involved cooperation with six Native American Tribes, Olympic National Park, 4 state agencies (WSDOT, WDNR, WDFW, and Washington State Parks) and hundreds of private landowners. Six workshops for landowners with knotweed were offered during 2011, covering knotweed ID, impacts and control and safe herbicide use. Equipment and supplies were made available to landowners who attended the workshop.

Additionally, Clallam County is the *de facto* leader of the Olympic Knotweed Working Group, a loose consortium of government entities, tribes, and non-profits that meets twice a year to exchange information and strategize effective knotweed control on the Peninsula.

Both Counties partner with many other agencies and volunteer groups, including the Back Country Horseman, Master Gardeners, Stream Keepers, Beach Watchers, North Olympic Land Trust, Jefferson Land Trust and Port Townsend School District.

## APPENDIX F: CONTROL RECOMMENDATIONS BY WEED SPECIES-CHANGE

Specific treatment recommendations for each species encountered are given in the table below. General recommendations based on plant lifecycle are listed below.

- Annuals like herb Robert, particularly at campgrounds, should be treated as early in the season as possible. With herb Robert in particular it will almost certainly be necessary to repeat treatments within the season, though if seed set is prevented each time, the size of the infestation can be greatly reduced with each treatment effort.
- Early blooming perennials, such as orange and yellow hawkweed should be treated as early as possible.
- Biennials like tansy ragwort are often difficult to treat effectively with either chemical or manual treatment alone; once plants have bolted it may be most effective to pull and deadhead flowering stalks, though first year rosettes may be easier to treat chemically.
- Scotch broom and other woody shrubs can be effectively pulled early in the season before seed set and while the ground is damp; herbicide treatments will be most effective later in the summer.
- Later blooming perennials like reed canarygrass, Canada thistle, everlasting peavine, knotweeds, knapweeds, common tansy and common toadflax may be effectively treated from midsummer until fall, depending on the species and the location (altitude, aspect, etc).



Bishop's weed

Plant Code	Common Name	Botanical Name	Control Recommendation
AEPO	bishop's weed	<i>Aegopodium podgraria</i>	Foliar application of imazapyr, or triclopyr
ANSY	wild chervil	<i>Anthriscus sylvestris</i>	Manual removal; spot herbicide application
ARM2	common burdock	<i>Arctium minus</i>	Where minimal occurrence, manual removal; spot herbicide application to rosettes by early spring; or to second year growth, before budding
BUDA	butterfly bush	<i>Buddleja davidii</i>	Manual removal small plants, or cut-stump/foliar treat with triclopyr, or glyphosate,
CEBI2	spotted knapweed	<i>Centaurea stoebe</i>	Manual removal very small sites; spot application with selective herbicide - clopyralid preferred
CEDE5	meadow knapweed	<i>Centaurea jacea x nigra</i>	Foliar herbicide application with selective herbicide, late season - clopyralid preferred
CEDI	diffuse knapweed	<i>Centaurea diffusa</i>	Manual removal for very small sites; foliar herbicide application - clopyralid preferred
CIAR4	Canada thistle	<i>Cirsium arvense</i>	Manual removal has limited effectiveness, for only very early infestations; spot herbicide application with glyphosate at bud to full bloom; fall or foliar application of a selective herbicide throughout the summer, fall. Clopyralid has worked well
CIVU	bull thistle	<i>Cirsium vulgare</i>	Where minimal occurrence, manual removal; spot herbicide application to rosettes by early spring or to second year growth, before budding
COTON	rockspray cotoneaster	<i>Cotoneaster horizontalis</i>	Manual removal; herbicide treatment only if size of infestation increases
CYSC4	Scotch broom	<i>Cytisus scoparius</i>	Manual removal for small infestations; cut stump treatments preferred for very large infestations, foliar herbicide applications possible
DACA6	wild carrot	<i>Daucus carota</i>	Manual removal; spot herbicide application
GERO	herb Robert	<i>Geranium robertianum</i>	Manual removal for small infestations; spot herbicide application where feasible; multiple treatments per season preferred, to prevent multi-generational seed productin each season. Prevention measures a must.
HEHE	English ivy	<i>Hedera helix</i>	Manual removal; cut stump or foliar herbicide application
HIAU	orange hawkweed	<i>Hieracium aurantiacum</i>	Spot spray with selective herbicide in late spring or summer; - clopyralid preferred - possible manual removal for very small infestation

Plant Code	Common Name	Botanical Name	Control Recommendation
HYPE	St. Johnswort	<i>Hypericum perforatum</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Herbicide control options are available should this species otherwise become a resource management issue.
ILAQ80	English holly	<i>Ilex aquifolium</i>	Manual removal; cut stump or foliar herbicide treatment. May be best treated with imazapyr.
LAGA2	yellow archangel	<i>Lamiastrum galeobdolon</i>	Foliar herbicide application –triclopyr, glyphosate, or a combination
LALA4	everlasting peavine	<i>Lathyrus latifolius</i>	Foliar herbicide application - clopyralid preferred
LEVU	oxeye daisy	<i>Leucanthemum vulgare</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Herbicide control options are available should this species otherwise become a resource management issue.
LIVU2	common toadflax	<i>Linaria vulgaris</i>	Spot herbicide application
LYSA2	purple loosestrife	<i>Lythrum salicaria</i>	There is only one known site: manual removal should be possible, however herbicide application is available (potential aquatic application)
PHAR3	reed canary grass, ribbon grass	<i>Phalaris arundinacea</i>	Glyphosate in mid-June and mid-Sept.
POBO10 POSA or POCU	knotweed species	<i>Polygonum spp.</i>	Injection with glyphosate; and/or foliar application of glyphosate or imazapyr
PORE	sulfur cinquefoil	<i>Potentilla recta</i>	Selective herbicides preferred. Will need several years of re-treatment
RUDI	Himalayan blackberry	<i>Rubus discolor</i>	Cut stump with glyphosate or triclopyr or foliar application as appropriate to site. Triclopyr preferred
RULA	evergreen blackberry	<i>Rubus laciniatus</i>	Cut stump or foliar herbicide application - triclopyr preferred
SEJA	tansy ragwort	<i>Senecio jacobaea</i>	Will require <u>systematic</u> removal from roadsides and follow-up; manual removal before full bloom (after full bloom, flower heads need to be removed and disposed of); selective herbicide application in first year or pre-bloom in 2 <sup>nd</sup> year.
SYOF	comfrey	<i>Symphaticum officinale</i>	Minimal occurrence; spot herbicide application
TAVU	common tansy	<i>Tanacetum vulgare</i>	Spot herbicide application

**APPENDIX G: WEED SPECIES REPORTED ON FOREST SERVICE LAND IN CLALLAM OR JEFFERSON COUNTIES, 2002-2012**

(Other counties may have reported other species)

List sorted alphabetically by botanical name.



Ribbon grass, a variegated, ornamental form of reed canary grass, at Sink Lake.

Plant Codes come from the USDA Natural Resources Conservation Service PLANTS database.

Common Name	Botanical Name	Plant Code
bishop's weed	<i>Aegopodium podgraria</i>	AEPO
common burdock	<i>Arctium minus</i>	ARMI2
cheatgrass	<i>Bromus tectorum</i>	BRTE
butterfly bush	<i>Buddleja davidii</i>	BUDA
meadow knapweed	<i>Centaurea debeauxii</i>	CEDE5
diffuse knapweed	<i>Centaurea diffusa</i>	CEDI
spotted knapweed	<i>Centaurea stoebei</i>	CEBI2
Canada thistle	<i>Cirsium arvense</i>	CIAR4
bull thistle	<i>Cirsium vulgare</i>	CIVU
rockspray cotoneaster	<i>Cotoneaster</i>	COTON
Scotch broom	<i>Cytisus scoparius</i>	CYSC4
wild carrot	<i>Daucus carota</i>	DACA6
herb Robert	<i>Geranium robertianum</i>	GERO
English ivy	<i>Hedera helix</i>	HEHE
orange hawkweed	<i>Hieracium aurantiacum</i>	HIAU
yellow hawkweed	<i>Hieracium caespitosum</i>	HICA10
European hawkweed	<i>Hieracium sabaudum</i>	HISA
St. Johnswort	<i>Hypericum perforatum</i>	HYPE
English holly	<i>Ilex aquifolium</i>	ILAQ80
yellow archangel	<i>Lamiastrum galeobdolon</i>	LAGA
everlasting peavine	<i>Lathrus latifolius</i>	LALA4
oxeye daisy	<i>Leucanthemum vulgare</i>	LEVU
common toadflax	<i>Linaria vulgaris</i>	LIVU2
purple loosestrife	<i>Lythrum salicaria</i>	LYSA2
reed canary grass	<i>Phalaris arundinacea</i>	PHAR3
ribbon grass*	<i>Phalaris arundinacea, variegated</i>	PHAR3
Japanese knotweed	<i>Polygonum cuspidatum</i>	POCU6
giant knotweed	<i>Polygonum sachalinense</i>	POSA4
Bohemian knotweed	<i>Polygonum x bohemicum</i>	POBO10
sulfur cinquefoil	<i>Potentilla recta</i>	PORE
Himalayan blackberry	<i>Rubus discolor</i>	RUDI2
evergreen blackberry	<i>Rubus laciniatus</i>	RULA
tansy ragwort	<i>Senecio jacobaea</i>	SEJA
comfrey	<i>Symphytum officinale</i>	SYOF
common tansy	<i>Tanacetum vulgare</i>	TAVU
periwinkle	<i>Vinca minor</i>	VIMI

\*new-detected on the 3040 rd and sink lake

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

wild chervil	<i>Anthriscus sylvestris</i>
hoary alyssum	<i>Berteroa incana</i>
poison hemlock	<i>Conium maculatum</i>
spurge laurel	<i>Daphne laureola</i>
hairy willowherb	<i>Epilobium hirsutum</i>
common hawkweed	<i>Hieracium lachenalii</i>
common reed	<i>Phragmites australis</i>

**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.

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

**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 County Noxious Weed Control Coordinator to learn which species are designated in your area.

Austrian fieldcress	<i>Rorippa austriaca</i>
blackgrass	<i>Alopecurus myosuroides</i>
blueweed	<i>Echium vulgare</i>
Brazilian elodea	<i>Egeria densa</i>
bugloss, annual	<i>Anchusa arvensis</i>
bugloss, common	<i>Anchusa officinalis</i>
butterfly bush	<i>Buddleja davidii</i>
camelthorn	<i>Alhagi maurorum</i>
common catsear	<i>Hypochaeris radicata</i>
common fennel	<i>Foeniculum vulgare</i>
common reed (nonnative genotypes)	<i>Phragmites australis</i>
Dalmatian toadflax	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
fanwort	<i>Cabomba caroliniana</i>
gorse	<i>Ulex europaeus</i>
grass-leaved arrowhead	<i>Sagittaria graminea</i>
hairy willow-herb	<i>Epilobium hirsutum</i>
hawkweed oxtongue	<i>Picris hieracioides</i>
hawkweed, mouseear	<i>Hieracium pilosella</i>
hawkweed, orange	<i>Hieracium aurantiacum</i>
hawkweed, polar	<i>Hieracium atratum</i>
hawkweed, queen-devil	<i>Hieracium glomeratum</i>
hawkweed, smooth	<i>Hieracium laevigatum</i>
hawkweed, yellow	<i>Hieracium caespitosum</i>
herb-Robert	<i>Geranium robertianum</i>
hoary alyssum	<i>Berteroa incana</i>
houndstongue	<i>Cynoglossum officinale</i>
indigobush	<i>Amorpha fruticosa</i>
knapweed, black	<i>Centaurea nigra</i>
knapweed, brown	<i>Centaurea jacea</i>
knapweed, diffuse	<i>Centaurea diffusa</i>
knapweed, meadow	<i>Centaurea jacea x nigra</i>

## APPENDIX H: 2012 STATE WEED LIST

Class B Weeds - Continued	
knapweed, Russian	<i>Acroptilon repens</i>
knapweed, spotted	<i>Centaurea stoebe</i>
knotweed, Bohemian	<i>Polygonum x bohemicum</i>
knotweed, giant	<i>Polygonum sachalinense</i>
knotweed, Himalayan	<i>Polygonum polystachyum</i>
knotweed, Japanese	<i>Polygonum cuspidatum</i>
kochia	<i>Kochia scoparia</i>
lawnweed	<i>Soliva sessilis</i>
lepyrodiclis	<i>Lepyrodictis holosteoides</i>
longspine sandbur	<i>Cenchrus longispinus</i>
loosestrife, garden	<i>Lysimachia vulgaris</i>
loosestrife, purple	<i>Lythrum salicaria</i>
loosestrife, wand	<i>Lythrum virgatum</i>
oxeye daisy	<i>Leucanthemum vulgare</i>
parrotfeather	<i>Myriophyllum aquaticum</i>
perennial pepperweed	<i>Lepidium latifolium</i>
perennial sowthistle	<i>Sonchus arvensis</i> ssp. <i>arvensis</i>
poison-hemlock	<i>Conium maculatum</i>
policeman's helmet	<i>Impatiens glandulifera</i>
puncturevine	<i>Tribulus terrestris</i>
rush skeletonweed	<i>Chondrilla juncea</i>
saltcedar	<i>Tamarix ramosissima</i>
Scotch broom	<i>Cytisus scoparius</i>
spurge laurel	<i>Daphne laureola</i>
spurge, leafy	<i>Euphorbia esula</i>
spurge, myrtle	<i>Euphorbia myrsinites</i>
sulfur cinquefoil	<i>Potentilla recta</i>
swainsonpea	<i>Sphaerophysa salsula</i>
tansy ragwort	<i>Senecio jacobaea</i>
thistle, musk	<i>Carduus nutans</i>
thistle, plumeless	<i>Carduus acanthoides</i>
thistle, Scotch	<i>Onopordum acanthium</i>
water primrose	<i>Ludwigia hexapetala</i>
white bryony	<i>Bryonia alba</i>
wild carrot	<i>Daucus carota</i>
wild chervil	<i>Anthriscus sylvestris</i>
yellow archangel	<i>Lamiastrum galeobdolon</i>
yellow floating heart	<i>Nymphoides peltata</i>
yellow nutsedge	<i>Cyperus esculentus</i>
yellow starthistle	<i>Centaurea solstitialis</i>

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

absinth wormwood	<i>Artemisia absinthium</i>
babysbreath	<i>Gypsophila paniculata</i>
black henbane	<i>Hyocyamus niger</i>
cereal rye	<i>Secale cereale</i>
common groundsel	<i>Senecio vulgaris</i>
common St. Johnswort	<i>Hypericum perforatum</i>
common tansy	<i>Tanacetum vulgare</i>
curly-leaf pondweed	<i>Potamogeton crispus</i>
English ivy - four cultivars only	<i>Hedera helix</i> 'Baltica', 'Pittsburgh', and 'Star'; <i>H. hibernica</i> 'Hibernica'
evergreen blackberry	<i>Rubus laciniatus</i>
field bindweed	<i>Convolvulus arvensis</i>
fragrant water lily	<i>Nymphaea odorata</i>
hairy whitetop	<i>Cardaria pubescens</i>
hawkweed, common	<i>Hieracium lachenalii</i>
hawkweeds, nonnative and invasive species not listed elsewhere	<i>Hieracium</i> spp.
Himalayan blackberry	<i>Rubus armeniacus</i>
hoary cress	<i>Cardaria draba</i>
*Japanese eel grass	<i>Zostera japonica</i>
jointed goatgrass	<i>Aegilops cylindrica</i>
old man's beard	<i>Clematis vitalba</i>
reed canarygrass	<i>Phalaris arundinacea</i>
scentless mayweed	<i>Matricaria perforata</i>
smoothseed alfalfa dodder	<i>Cuscuta approximata</i>
spikeweed	<i>Hemizonia pungens</i>
spiny cocklebur	<i>Xanthium spinosum</i>
thistle, bull	<i>Cirsium vulgare</i>
thistle, Canada	<i>Cirsium arvense</i>
tree-of-heaven	<i>Ailanthus altissima</i>
white cockle	<i>Silene latifolia</i> ssp. <i>alba</i>
yellow flag iris	<i>Iris pseudacorus</i>
yellow toadflax	<i>Linaria vulgaris</i>

\*in commercial shellfish beds only

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

- Prevent small infestations from expanding by eradicating them when they are first detected
- Restrict already established weed populations to regions of the state where they occur and prevent their movement to uninfested areas
- Allow flexibility of weed control at the local level for weeds that are already widespread.

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

**Washington State  
Noxious Weed Control Board**

P.O. Box 42560  
Olympia, WA 98504-2560  
(360) 725-5764

Email: [noxiousweeds@agr.wa.gov](mailto:noxiousweeds@agr.wa.gov)

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

Or

**Washington State  
Department of Agriculture**

21 North First Avenue #103  
Yakima, WA 98902  
(509) 225-2604

Or

**Clallam County  
Noxious Weed Control Board**

223 E 4<sup>th</sup> St., Suite 15

# 2012 Washington State Noxious Weed List



Oriental clematis, *Clematis orientalis*,  
a new 2012 Class A noxious weed

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

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

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

### LEGAL NOTICE

The Pacific and Hood Canal Ranger Districts, Olympic National Forest may be applying the herbicides glyphosate, triclopyr, clopyralid or imazapyr to noxious weeds or other invasive plant species at the following Forest Service sites in Clallam and Jefferson Counties between June 6 through November 1, 2012. 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, triclopyr, clopyralid 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 Susan Piper, Wildlife, Botany, and Invasive Plant Program Manager at 360-956-2435, Joan Ziegler, Forest Ecologist and Botanist at (360)956-2320, or Cathy Lucero, Clallam County Noxious Weed Coordinator at 360-417-2442.

**Bockman Creek Subwatershed**- 2010, 2902 and 2903 roads, associated spurs and pits; **Canyon Creek /Pats Creek Subwatershed**- 28, 2870, 2875, 2877, 2878, 2880 roads and associated spurs, pits, and Cranberry Bog; **Deep Creek Subwatershed**- 30, 3040 and 3067 roads and associated spurs; **East and West Twin River Subwatersheds**- 30, 3040 and 3068 roads and associated spurs; **Fulton Creek/Waketickah Subwatershed**- 2503 and 2510 roads and associated spurs; **Headwaters, upper and middle Sol Duc River Subwatersheds**-2036, 2065, 2071, 29, 2918, 2920, 2923, 2929, 2931, 2978, 30, 3006, 3040, 3071, 31, 3116 roads and associated spurs, Klahowya campground, Littleton Horse Camp and Kloshe Nanitch Loop Trail; **Jimmy-come-lately Creek Subwatershed**- 28, 2840, 2845, 2850, 2855, 5006 and 5331 roads, associated spurs and pits; **Little, Lower and Upper Big Quilcene River Subwatersheds**-2620, 2650, 27, 2730, 2740, 2750, 28, 2820, 3039 and 3057 roads, associated spurs and pits; **Lower Bogachiel River Subwatershed**- 2932 road and associated spurs; **Lower Dosewallips River Subwatershed**- 25, 2610, 2620, and 2630 roads and associated spurs; **Lower Duckabush River Subwatershed**- 2510 and 2530 roads, associated spurs and the Big Hump Fire Trail Corridor; **Lower Elwha River Subwatershed**- 3050 road and associated spurs; **Lower Gray Wolf River Subwatershed**-2870, 2875, and 2880 roads and associated spurs; **Matheny Creek Subwatershed**- 21, 2140 and 2190 roads and associated spurs; **McDonald Creek/Siebert Creek Subwatershed**- 2877 road, associated spurs and Pats Prairie; **Middle and Upper Dungeness River Subwatershed**,-28, 2820, 2830, 2860, and 2870 roads, associated spurs, Camp Handy, Dungeness Trail and Heather Basin Trail; **Middle Quinault Subwatershed** including the 2140 and 2190 roads and associated spurs; **North and South Fork Calawah Subwatersheds**-2036, 2065, 29, 2922, 2923 and 2932 roads, associated spurs and Bonidu meadow; **Pysht River Subwatershed**- 30, 3006, 31 and 3116 roads and associated spurs; **Salmon River Subwatershed**- 21 and 2140 road; **Sam's River Subwatershed**- 2180 road; **Snow Creek/Salmon River Subwatershed**-2840, 2845, 2850, 2851, and the 2852 roads and associated spurs; **Spencer Creek/Marple Creek Subwatershed**- 2620 and Seal Rock campground.

**Onsite Posting Sample:** The blank lines (planned/actual date of application, time, and weed species targeted) were filled out by hand at the site.

# **NOTICE**

The herbicide glyphosate, triclopyr, imazapyr, or clopyralid will be applied to this site between May 26, 2012 and October 20, 2012 to control noxious weeds, which threaten native vegetation and habit in this area.

Planned / Actual application date\* : \_\_\_\_\_

Time : \_\_\_\_\_

\*Actual date of application contingent upon weather conditions.

Targeted Noxious Species\*\* : \_\_\_\_\_

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

## **NO USE RESTRICTIONS ARE IN PLACE**

Avoid contact with treated vegetation until after it has dried.

### **FOR MORE INFORMATION CONTACT:**

Susan Piper,  
Wildlife, Botany, and Invasive Plant Program Manager  
Olympic National Forest  
1835 Black Lake Blvd., SW Suite A  
Olympia, WA 98512  
360-956-2435

Or

Cathy Lucero  
Clallam County Noxious Weed Control Board  
223 East Fourth Street, Suite 15  
Port Angeles, WA 98362  
360-417-2442

**APPENDIX J: PROJECT FORMS**

**FACTS Manual/Herbicide Treatment Data Form**

GF

Should this area be a high priority for follow-up treatments next year? Yes / No (Circle one)  
 Provide reasoning in comments field below or on back page (For example: Are high priority species present? Major infestation? Sensitive area?)

Ref #: 754

UNV

**2012 FACTS Invasive Plant Treatment Data Form - ONF and Counties**  
 General Activity Fields

Region	Forest	District (circle one)*	6 <sup>th</sup> Field Watershed Name	Project # and Name	Owner	Workforce**
06	09	PAC-N HC-N PAC-S HC-S	South Fork Cohavah		FS	Clallam
Method Code	Equipment Code (circle one)	Job Code:	Comments: If road, enter requested information, including beginning & ending mileposts. If non-road, give site name. Comments box can be used to describe extent of infestation, provide recommendations, etc.			
700 Herbicide	711 hand sprayer 712 backpack sprayer 713 hack & squirt 716 injector 721 mobile ground sprayer 000 other	S2FL62	Road number with BMP & EMP -OR- site name: 2922290 0-1.3			
100 Manual			Was entire area represented by the Ref# examined and treated for weeds? Yes / No If no, describe what part was surveyed and treated in comments box.			

\*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, USFS Force Account

**Site/Inventory Fields**

Start Date	Stop Date	Acres examined for weeds	Application Site (circle one)	Licensed Applicator: Name and License #	Total Manual Infested Area Treated (DO NOT lump plants together):	acres	Comments
8/20	9/20	6.4	Road edge/ROW Gravel/rock source Forest Admin Site	Guyer Baer 84179		4	
LALA							
CYSC							
CIN							

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

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.



APPENDIX J: PROJECT FORMS

Rock Pit Inspection Form

Rock Source Inventory (RSI) Number:  
(Administrative use only)

Invasive Plant Inventory for Rock Sources, Olympic National Forest

A copy of this form is to be placed in implementation folders for projects utilizing this rock source

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, with no non-native plants observed. Non-native plants, 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 very small, isolated patches within or near the rock source.
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. Areas contaminated with these weeds and/or their propagules must be clearly flagged (with weed species codes written on flagging) prior to any rock being removed from this source.

Color of flagging: Species code(s) written on flagging:

\*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, isolated patches AND these patches were treated with herbicides at the time of inspection AND the location of the infestation is clearly marked with flagging.

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

Signature: Laurel Moulton

Date: 6/10/12

Name of Rock Source: Louella Rock Pit Ownership (circle one): Forest Service / Private

Narrative of Pit Location (include, at minimum, road number and milepost for FS pits OR address/cross streets for private pits):

0.4 on 2800351

Ref # (from project spreadsheet): 58

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: Laurel Moulton, Weed Inspector Date of Inspection: 6/7/12

Comments: Include, at minimum, a description of what parts of pit are usable, and what parts must be avoided. This information should also be shown in the sketch of the pit on next page.

Handwritten comments: - Mostly just small amounts of tansey & thistles - CEDES is near entrance to pit along road so be careful in this area.

Name of Rock Source:

Date inspected:

Field Data

Species present:

Present?	Code	Scientific Name	Common Name	ONF Treatment Priority	% of infestation	Comments
	AEPO	<i>Aegopodium podagraria</i>	Bishop's weed, goutweed	1		
	ARM12	<i>Arctium minus</i>	lesser burdock	2		
	BOOF	<i>Borago officinalis</i>	common borage	2		
	BRTE	<i>Bromus tectorum</i>	cheatgrass	1		
	CEB12	<i>Centaurea biebersteinii</i>	spotted knapweed	1		
✓	CEDE5	<i>Centaurea debeauxii</i>	meadow knapweed	1	10	
	CEDI	<i>Centaurea diffusa</i>	diffuse knapweed	1		
	CEJA	<i>Centaurea jacea</i>	brownray knapweed	1		
✓	CIAR4	<i>Cirsium arvense</i>	Canada thistle	2	5	
✓	CIVU	<i>Cirsium vulgare</i>	Bull thistle	2	5	
	COAR4	<i>Convolvulus arvensis</i>	field bindweed	2		
	CYES	<i>Cyperus esculentus</i>	yellow nutsedge	1		
	CYSC4	<i>Cytisus scoparius</i>	Scotch broom	2		
	DACA6	<i>Daucus carota</i>	Queen Anne's lace	2		
	GERO	<i>Geranium robertianum</i>	herb Robert, stinky Bob	1		
	HEHE	<i>Hedera helix</i>	English ivy	2		
	HIAU	<i>Hieracium aurantiacum</i>	orange hawkweed	1		
	HIPR	<i>Hieracium caespitosum</i>	meadow (yellow) hawkweed	1		
	HISA4	<i>Hieracium sabaudum</i>	European hawkweed	1		
	HYPE	<i>Hypericum perforatum</i>	common St. Johnswort	2		
	ILAQ80	<i>Ilex aquifolium</i>	English holly	2		
	LAGA2	<i>Lamium galeobdolon</i>	yellow archangel	1		
	LALA4	<i>Lathyrus latifolius</i>	everlasting peavine	2		
	LIVU2	<i>Linaria vulgaris</i>	butter and eggs	1		
	LYSA2	<i>Lythrum salicaria</i>	purple loosestrife	1		
	LYVU	<i>Lysimachia vulgaris</i>	garden yellow loosestrife	2		
	PHAR3	<i>Phalaris arundinacea</i>	reed canarygrass	2		
	POBO10	<i>Polygonum bohemicum</i>	Bohemian knotweed	1		
	POCU6	<i>Polygonum cuspidatum</i>	Japanese knotweed	1		
	POSA4	<i>Polygonum sachalinense</i>	giant knotweed	1		
	PRLA5	<i>Prunus laurocerasus</i>	English laurel	2		
	RUD12	<i>Rubus discolor</i>	Himalayan blackberry	2		
	RULA	<i>Rubus laciniatus</i>	cutleaf blackberry	2		
✓	SEJA	<i>Senecio jacobaea</i>	tansy ragwort	2	80	
	TAVU	<i>Tanacetum vulgare</i>	common tansy	2		
	VIMA	<i>Vinca major</i>	bigleaf periwinkle	1		
	VIM12	<i>Vinca minor</i>	common periwinkle	1		
<p>If other priority species are present that are not listed above, write them down in the space provided on the next page.</p>					<p>this column (including what's on next page) should add up to 100%</p>	



# Rock Pit Inspection: Louella Rock Pit

Clallam County  
2800351 road, MP 0.7

Date of Inspection: 6/7 (include year)

Approx 1.0 acres



**APPENDIX K: SAMPLE NPDES BACKPACK CALIBRATION RECORD**

Calibration Verification

Agency/Organization: Clallam Co Nox Wads Date: 5/25/12

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

Signature:  Position: Coordinator

19.04: 45 - 67:30 = 2:45 min/sec  
 2:15  
 2:30

Date	Equipment ID	Equipment Type	Calibrated GPA	Maint. CK?	Comments	Examiner Initials
5/25/12	99	Backpack	57	✓	<del>the</del> less after screen replace	Ch, Jm
	83	Backpack	41	✓	new screen	Ch, Jm
	94	Backpack	54	✓		Ch, Jm
	98	Backpack	50	✓	new screen & nozzle	Ch, Jm
	85	Backpack	44	✓		Ch, Jm

2:45  
 2:15  
 2:30  
 2:20  
 2:35

## APPENDIX K: CALIBRATION METHODOLOGY

- Followed Method 2

### Method 1-Hand Sprayer Calibration Method

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

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

Example: One gallon of water was put in a 1-gallon hand-operated sprayer. After spraying a 100-square-foot test area, it was determined that 8 ounces of water were needed to refill the tank to the 1-gallon mark. At this application rate, how many square feet of carpet could be treated with 1 gallon?

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

Thus, 1,600 square feet of carpet could be treated with 1 gallon of liquid.

### Change Delivery Rate

If your sprayer is delivering less than or more than enough spray, you can change the rate by using one of three methods:

- Change the pump pressure. Lower pressure pushes less spray out of the nozzle; higher pressure pushes more spray out. This is not the best method because a pressure change will change the nozzle pattern.
- Change the speed of the sprayer. Slower speed leaves more spray along the target area; faster speed means less spray is left behind. Doubling the speed you move cuts the application rate in half. Changing the speed is practical for small adjustments of the application rate. Adjust each nozzle's hole size by changing the nozzle's disk or change the entire nozzle. This is the preferred method of adjusting the application rate. By increasing the size of the hole in the disk or nozzle, you increase the application rate.

### Method 2-Calibration of Small Volume & Hand Held Sprayers

The procedure for calibrating a hand-held or backpack sprayer is simple. Just follow these steps: 1. Measure out an 18- x 18- foot strip in the area similar to the one you will be spraying.

2. Add water to your tank and in a uniform manner, spray this area with water and record the amount of seconds it takes. Do this 2 or 3 times making sure that you keep your pattern and pressure constant. Take the average.

3. Measure the amount of water delivered to this strip by spraying into a bucket for the same amount of time as in step #2. Also keep your pressure the same as when you sprayed the strip. 4. The amount of water collected in fluid ounces equals the output or GPA. (Ounces = GPA)

This method works because of the relationship between a square that is 128th of an acre (18 1/2 x 18 = 342.25 ft<sup>2</sup>) and the fact that there are 128 ounces in a gallon.