



2870.059 Hood Canal District BEFORE 6/11/05

Olympic Peninsula Cooperative Noxious Weed Control 2005 Project Report

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



2870.059 Hood Canal District AFTER 07/21/05

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Executive Summary

Project Goal:

The goal of this project is to stop the spread of noxious weed species, reduce existing populations, and prevent the introduction of additional invasive plants throughout Clallam and Jefferson Counties. The objective is to coordinate and standardize weed control efforts across many jurisdictional boundaries to more effectively minimize the negative impacts of noxious weeds on watershed functions, wildlife habitat, human and animal health, and recreational activities. Work on this project began in 2002. In 2005 we have focused on treatment of previously defined problem areas – including follow-up site visits and repeat treatments where necessary.

Project Description:

This project is a comprehensive program for noxious weed control on the north Olympic Peninsula. Included are activities to survey, identify, and control noxious weeds, to coordinate action and communication between local, state and federal jurisdictions, and to raise public awareness of the impacts imposed by noxious weeds. This project also provides funding for the Jefferson County Noxious Weed Control Board and their local education, survey, and treatment programs.

On federal lands, the project involves monitoring sites previously identified in the 1998 Olympic National Forest Integrated Weed Management Program Environmental Assessment (EA), surveying and marking additional areas for noxious weed control, and developing a comprehensive control plan while implementing currently approved treatments, as resources allow. All noxious weed sites are mapped into Arcview GIS projects and entered into the Forest Service NRIS TERRA database.

This project implements control measures using the most effective treatments in accordance with the Forest Service EA and state/county guidelines on state land and county rights-of-way. The focus is on areas where uncontrolled noxious weed populations on federal, state, county, and private land are spreading and hindering control activities elsewhere. Clallam and Jefferson County Weed Boards provide the vital link to private landowners whose weeds threaten federal lands. Emphasis on Forest Service land goes to controlling noxious weeds on roads, in campgrounds, at trailheads, and in gravel pits. Due to heavy use or off-site movement of potentially infested materials, these areas serve as the primary source of new weed invasions into wilderness areas and between various land ownerships. In addition to the Weed Board survey team, the Clallam County Sheriff's/Road Department Chain Gang and Washington Conservation Corps (WCC) perform control measures.

In 2005, the project focus was to:

1. INCREASE the amount of control work
2. REVISIT control sites multiple times during the season and perform necessary follow-up control
3. MONITOR control work done previously to evaluate effectiveness

2005 Project Summary:

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

- 1 Supervisor, 4 hrs./week, 9 months
 - Supervised the project
 - Provided technical information and support
 - Participated in 3 planning meetings with Forest Service staff
 - Assisted with 2 field trips for the NFS EIS team
 - Provided a demonstration of the injection method of knotweed control to Mason County staff
 - Provided program overview/summary to Katie Bagby of Sierra Institute, hired by Congress to evaluate the effectiveness of Title II programs.
 - Gave 2 noxious weed informational presentations to Forest Service administrators and staff
- Field team: 1 person, 35 hrs./week for 9 months; 2 field technicians for 20 hrs./week for 3.5 months
 - Recorded 74 new noxious weed sites
 - Revisited previously controlled sites 44 times
 - Treated 113 miles of roads (137 acres)
 - Removed 51,775 noxious weeds
 - Trained and managed the WCC crew during 4 weeks of control work
 - Entered all sites into the Forest Service NRIS TERRA database
 - Mapped all sites into ArcView GIS

- Created an annual season-end report
- WCC crew: 1 supervisor, 4 crew members, 4 weeks/year, 40 hrs./week
 - Removed 880,655 weeds
- Clallam Co. Sheriff's/Road Department Chain Gang, 8 weeks, 40 hrs./week
 - Removed 108,225 weeds

2005 Project Conclusions/Recommendations:

Nature of the Problem:

- No new invasive species were found in 2005, although new sites of known invasive species were found. Most commonly found invasive plants continue to be Scotch broom, Tansy ragwort, Herb Robert, and Canada thistle.
- Existing infestations are expanding. Herb Robert sites, in particular, are increasing in size and number at an alarming rate.
- Extent of invasive plant populations in less accessible areas continues to be less well defined.

Treatment:

- Early detection and prevention must be emphasized. This allows for the greatest number of control options to be considered.
- Repeat treatments are essential for successful weed control. Not only is it necessary to continue treatments year-after-year, but multiple treatments to the same site during a single growing season will significantly improve the rate of success.
- The overall system burden of invasive plant species needs to be reduced before manual and mechanical methods become feasible in many cases.
- Often, the size of the herb Robert infestations makes manual control impractical. Treatment with an herbicide may be necessary. Other control methods for this weed also need to be explored including, but not limited to, burning, mulching, and foam/steam applications.
- Restoration or specific future management goals needs to be part of all control plans.
- Certain forest maintenance tasks create noxious weed contaminated waste that should be documented and monitored.
- Specific arrangements for disposal of plants removed during treatment need to be made prior to the control work starting. These arrangements need to be communicated throughout all the agencies involved.
- Both prioritization of control sites (based on well-developed protocols) and sustained follow-up are necessary for successful control of any noxious weed infestations in the Olympic National Forest.

Program Development:

- Funding for this project has been reduced, thus our ability to control noxious weeds within the Olympic Forest and capitalize on our progress will be limited.
- Communication and cooperation with other agencies and partners is vital. Because of the excellent communication between this project and the Forest Service, we are able to be very flexible and responsive to Forest Service staff requests.
- Control crews must be thoroughly trained and their work monitored. High staff turn-over makes this task very difficult in the course of the short field season. Funding limitations additionally abbreviate staff positions.
- Protocols for monitoring our control efforts need to be further defined.
- In 2005 we participated in two Olympic Forest EIS team field trips. It was an excellent opportunity to give input to the team and we appreciate being included.
- Finally, as we go forward, it is important that an agency-wide commitment be made to a noxious weed control and prevention program. This commitment must be communicated throughout the agency.

2005 Data Collection Protocols

1. Team/Project Dates

Data was collected by control specialist Carol Dargatz and field technicians Jesse McCullough, Peter Morris, Ian Vermeeren, Shawn Kelly, and Jeff Rinck. Field work began on May 18, 2005 and continued through October 26, 2005.

2. Invasive species for which we surveyed

We surveyed for Class A and B-designate weeds listed by the WA State Noxious Weed List (see Appendix K for list). In most cases Class C and non-designate Class B weeds were only documented when an infestation was in a site of particular concern (e.g. a Botanical Area) or when the infestation was of notable size. Other non-native species that were conspicuously out-of-place were noted. Additional species of concern were added by FS staff – for a list of species see Appendix D). Surveys were not intended to document all non-native species.

3. Data reporting

We used the “Olympic NF Invasive Plant Inventory Data Collection Form” (hereafter referred to as “survey form”), that was modified slightly for ease of use and so the form could be used for collecting county noxious weed data as well as for FS data. A copy of the survey form follows this protocol list.

- a. GPS lat/long readings were recorded where accurate readings were available; otherwise the Legal Description of Township, Range, Section, Qtr. Section, and Qtr. Section was used.
- b. We used a FS-supplied Suunto compass and clinometer to read aspect and slope. Elevation was reported from a GPS reading, a FS-supplied altimeter, or off the “brown line” NFS maps. Site comments include a milepost number when we were able to determine it, or distance (in miles) from the specified beginning of the road (e.g. “north end”) as well as any other notable characteristics (e.g. “at turnout”).
- c. Distance to water was estimated visually or by use of NFS map.
- d. Daubenmire Cover Class codes were used to record weed canopy cover – this was a subjective measurement.
 - i. T 0 - 1%
 - ii. 1 1 - 5.0%
 - iii. 2 5.1 – 25.0%
 - iv. 3 25.1 – 50.0%
 - v. 4 50.1 – 75.0%
 - vi. 5 75.1 – 95.0%
 - vii. 6 95.1 – 100%
- e. Formula used for determining Gross Area:
$$\frac{5280 \text{ (ft/mile)} \times 10 \text{ feet (width surveyed)} \times \text{infestation length (in miles)}}{43560 \text{ (sq. feet per acre)}}$$
- f. Infested area is determined by multiplying the Gross Area by the Daubenmire Cover Class %:
$$11.6 \text{ acres (Gross Area)} \times 25\% \text{ (Cover class \%)} = 2.9 \text{ acres (Infested Area)}$$

4. NRIS RangelandPC data entry:

- a. Site ID field (30 characters) contains:

Year	YYYY
Month	MM
Day	DD
Township	TT
Range	RR
Section	SS
Qtr. Section	QQ
Road ID	XXXXXXX
Weed Code	XXXXXXX

Site ID Example: 20050917241001SE2170000CIVU

- b. The Road ID for trails surveyed is a “T” and the trail number. Ex: T823.

2005 Data Collection Protocols, continued

- c. The Road ID for botanical areas surveyed is the name of the BA abbreviated. Ex: SFCRBA = South Fork Calawah River Botanical Area.
- d. Regardless of whether a good GPS reading was available, location was always entered into NRIS using the legal description of township, range, section, Qtr. section, and Qtr. Qtr. section.
- e. In most cases, estimating Infested Area did not allow for an accurate representation of the weed site because we were consistently dealing with infested areas less than 1/10th of an acre (the minimum required in the field). Consequently, the Infested Acres amount is often an inflation of the actual weed site.

5. Road surveying/treating (see Appendix A):

- a. Roads were, for the most part, “windshield” surveyed.
- b. Trailheads, campground parking areas, gravel pits were surveyed on foot.
- c. In general, 5 feet on both sides of every road was surveyed.
- d. On each road surveyed, all gravel pits, emergency road repair areas (ERFOs), and radio tower sites were also surveyed, if found.

6. Arcview plotting:

- a. Sites were plotted as points for individual sites. Where practical, multiple sites on a road of the same species were turned into a linear polygon. Each point or polygon was identified with its Site ID.
- 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. Point and polygon layers were joined with the database (table) from the NRIS TERRA system.

7. Estimating WCC work for 2006 (see Appendix H):

- a. Work crew size assumed to be 5 members, including the crew supervisor.
- b. Each “job” is estimated in crew hours.
- c. A workday is 10 hours.
- d. A workweek is 4 days.
- e. Estimated time required for a job does not include travel time.
- f. Estimated time required was based on how long it took to finish similar tasks in prior years.
- g. Jobs are estimated for manual control only.

Invasive Plant Inventory Data Collection Form, continued

Circle one each for phenology, life form, and distribution of the weed.

Phenology	Grasses		F1	Forbs and Shrubs
G1	Leaves Partially Developed, no heads	F2	Vegetative, rosette, pre-flowering	
G2	Inflorescence inside the sheath	F3	Flowering	
G3	Inflorescence partially or fully extended	F4	Fruiting	
G4	Seeds maturing or mature		Senescent or dormant	
G5	Senescent or dormant			
RG	Regrowth			
Life Form	AL Algae	LC Lichen	SS Sub-shrub	
	FB Forb	LI Woody liana	TR Tree	
	FU Fungus	NP Nonvascular plant	UN Unknown	
	GR Graminoid	SH Woody Shrub	VI Herbaceous Vine	
Distribution	CL Clumpy	SE Scattered even		
	SP Scattered patchy	LI Linear		

*Infested Area (acres) _____ Gross area (ac) _____
 (Infested area is REQUIRED. Minimum size is 0.1 acre. Use Gross Area ONLY when portions of polygon are uninfested. Minimum Gross Area ≥ 1 acre. Gross Area x % of land occupied by weeds = Infested Area.)

Daubenmire Cover Class		*Weed Canopy Cover of Infested Area					
		OR	Estimated percent cover				
T	0 - 1%	2	5.1 - 25%	4	50.1 - 75.0%	6	95.1 - 100%
I	1 - 5.0%	3	25.1 - 50.0%	5	75.1 - 95.0%		

Horizontal Distance to Water (ft) _____ Vertical Distance to Water (ft) _____
 as crow flies, not slope distance

Associated Species	PLANTS Code	Scientific Name
	PRVU	PRUNELLA vulgaris
	LEVV	GRASSES

Comments: _____
 REMOVED all found (-1)

Map: _____ North

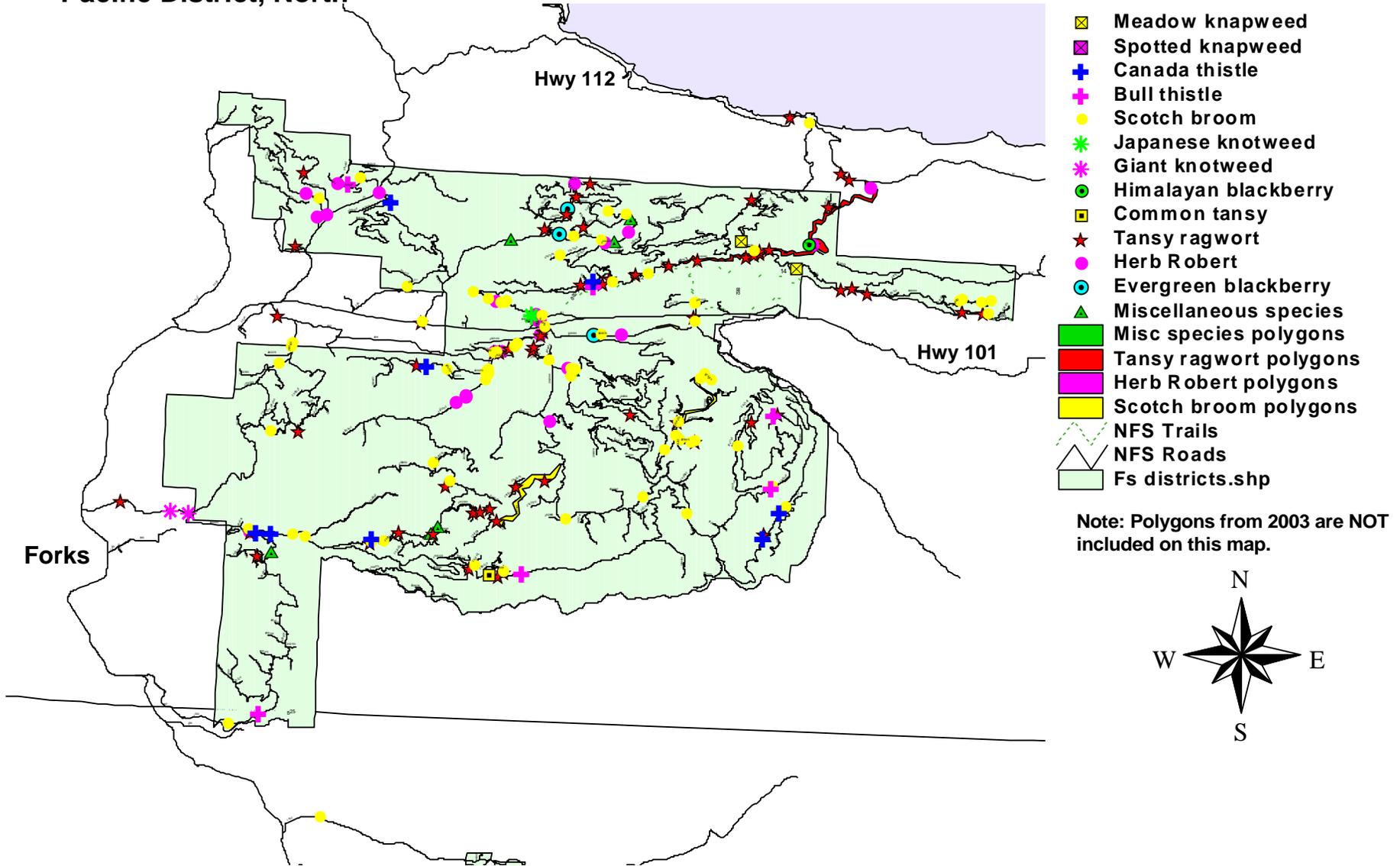
2005 Forest Service Priorities

The task priority lists from Pat Grover (PG) from the Hood Canal District, and Debra McConnell (DMc) from the Pacific District became our work focus. The table below shows their priorities and our responses:

From Whom	Road	Weed(s)	Work Performed/Comments	Treatment Dates
PG	Collins Campground	Herb Robert	Pat organized a volunteer weed pull, Carol wrangled some Master Gardener volunteers from Jefferson Co. to participate.	9/8/05
PG	Dungeness Forks Campground	Herb Robert	WCC crew worked for 3 days in the campground and began work on the trail south of the campground.	7/5/05
PG	Falls View Campground	Herb Robert	The Clallam Co. field crew worked on removing the Herb Robert from the campground on two different visits. The WCC crew spent one day here. Progress is being made, but follow-up is essential.	7/18/05 7/27/05 8/29/05
PG	Schmith Knob	Scotch broom	The Clallam Co. field crew performed follow-up treatment work.	7/5/05
PG	Seal Rock Campground	Scotch broom	The Clallam Co. field crew performed follow-up control work.	7/28/05
DMc	2190.220 (Higley Ridge)	Knotweed	Herbicide applied by the Clallam Co. field crew.	9/27/05
DMc	2900.000	Orange hawkweed Herb Robert Scotch broom	This is the Orange hawkweed control test plot, see Appendix J for details.	5/18/05 7/12/05 9/13/05
DMc	2900.200 and 220	Scotch broom	Road being decommissioned	6/23/05
DMc	3068.000	Tansy ragwort Scotch broom	Road being decommissioned, follow-up control work done by the Clallam Co. field crew.	8/9/05
DMc	Snider Work Center	Herb Robert Japanese knotweed	Removal of Herb Robert was done by Chain gang. The Clallam Co. field crew and the chain gang worked on control of the knotweed with herbicide.	9/26/05

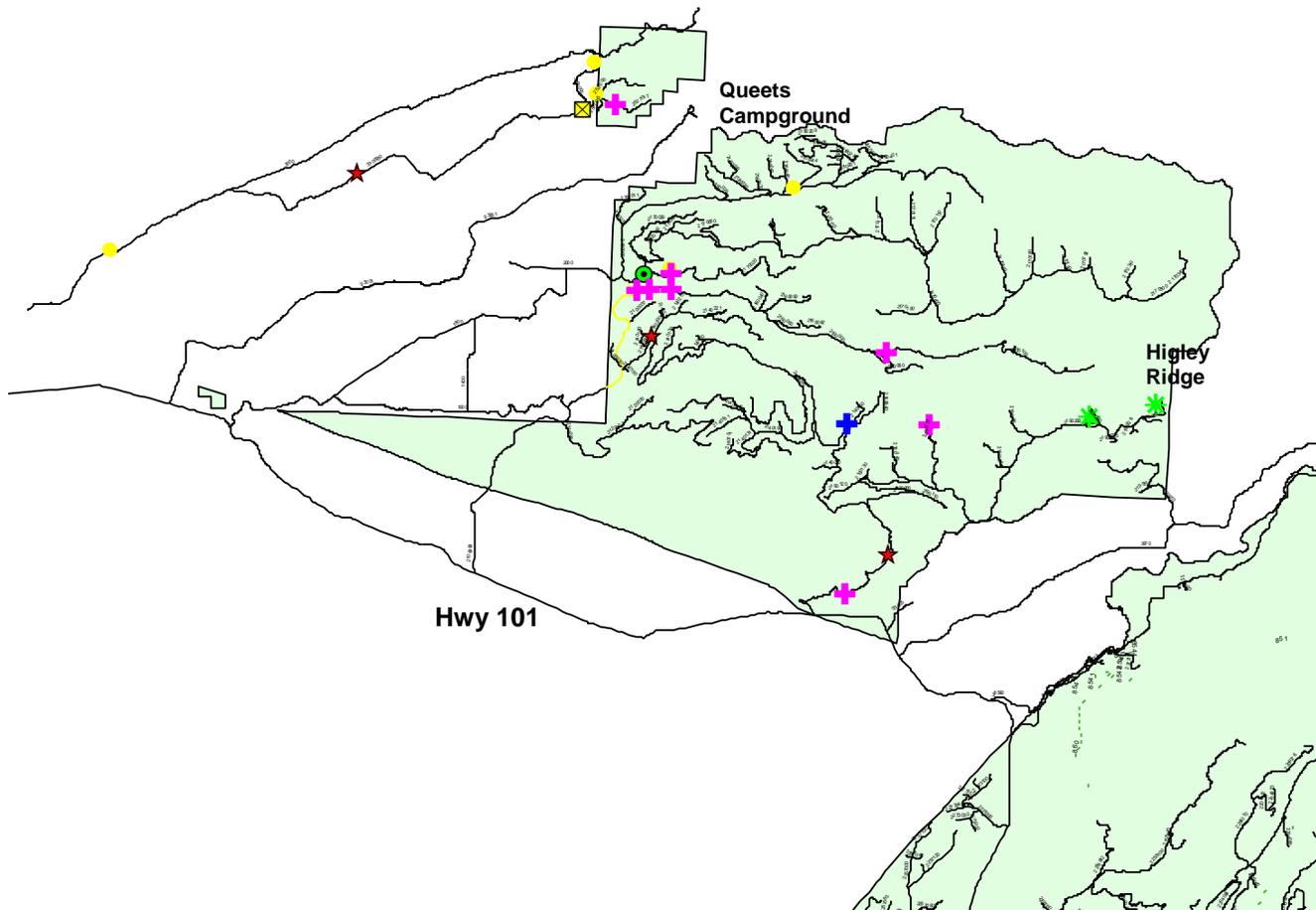
Maps: Weeds Found 2002- 2005

Pacific District, North



Maps: Weeds Found 2002-2005, continued

Pacific District, South

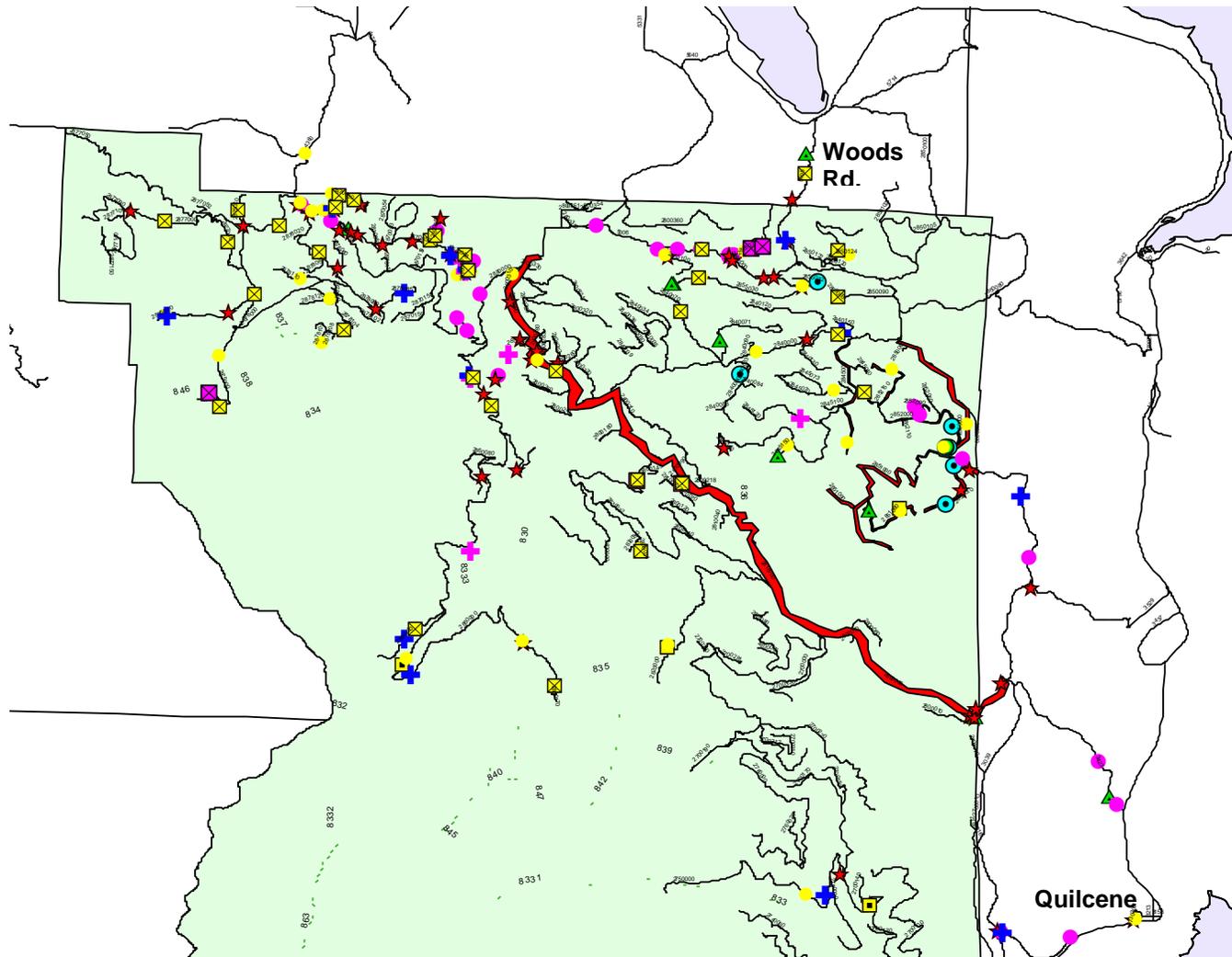


- ☒ Meadow knapweed
- ☒ Spotted knapweed
- ⊕ Canada thistle
- ⊕ Bull thistle
- Scotch broom
- * Japanese knotweed
- * Giant knotweed
- Himalayan blackberry
- Common tansy
- ★ Tansy ragwort
- Herb Robert
- Evergreen blackberry
- ▲ Miscellaneous species
- Misc species polygons
- Tansy ragwort polygons
- Herb Robert polygons
- Scotch broom polygons
- NFS Trails
- NFS Roads
- Fs districts.shp

Note: Polygons from 2003 are NOT included on this map.

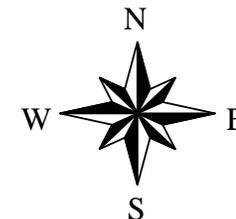
Maps: Weeds Found 2002-2005, continued

Hood Canal District, North (north of Quilcene)



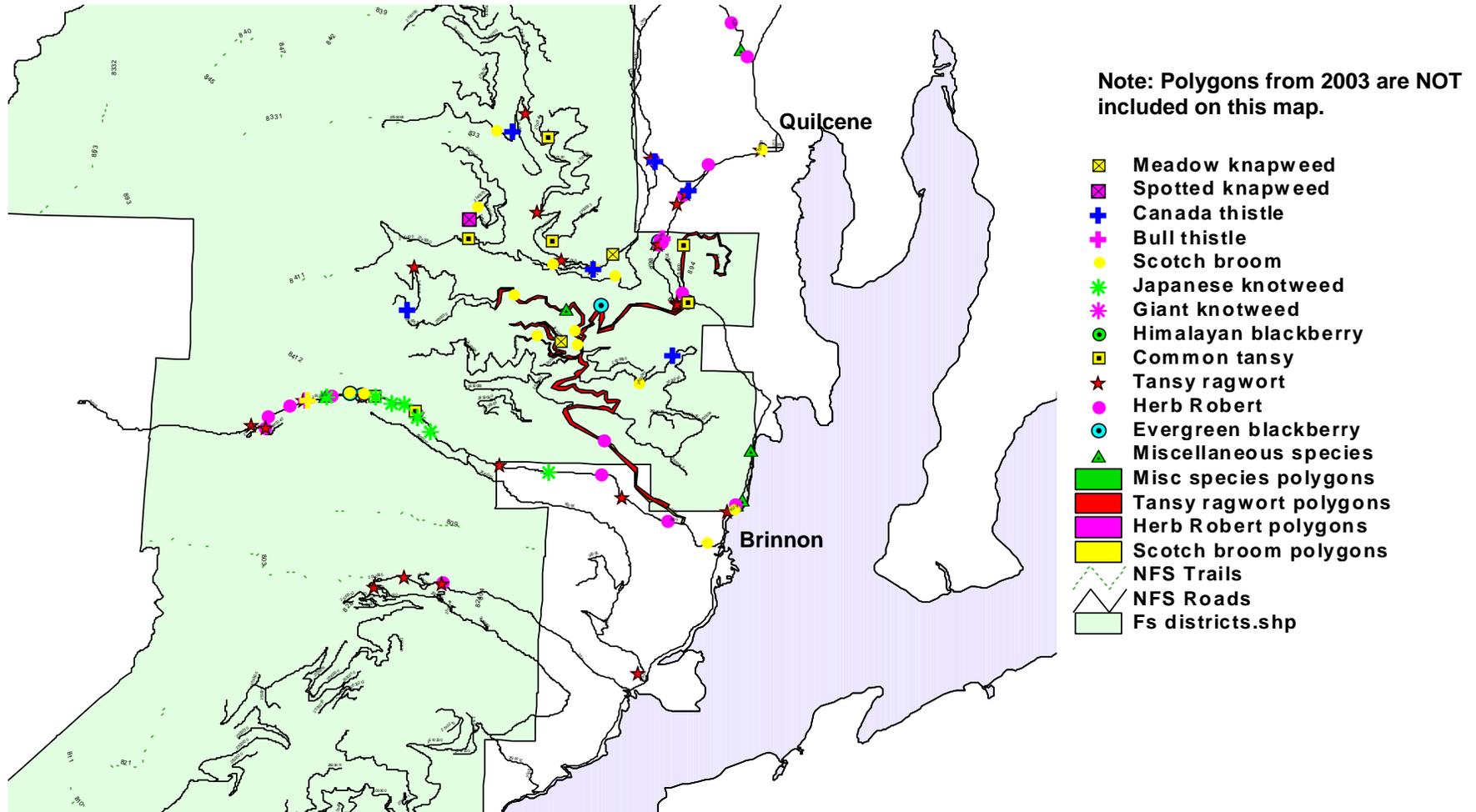
- ☒ Meadow knapweed
- ☒ Spotted knapweed
- + Canada thistle
- + Bull thistle
- Scotch broom
- * Japanese knotweed
- * Giant knotweed
- Himalayan blackberry
- ☐ Common tansy
- ★ Tansy ragwort
- Herb Robert
- Evergreen blackberry
- ▲ Miscellaneous species
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- Tansy ragwort polygons
- Herb Robert polygons
- Scotch broom polygons
- - - NFS Trails
- ▴ NFS Roads
- Fs districts.shp

Note: Polygons from 2003 are NOT included on this map.



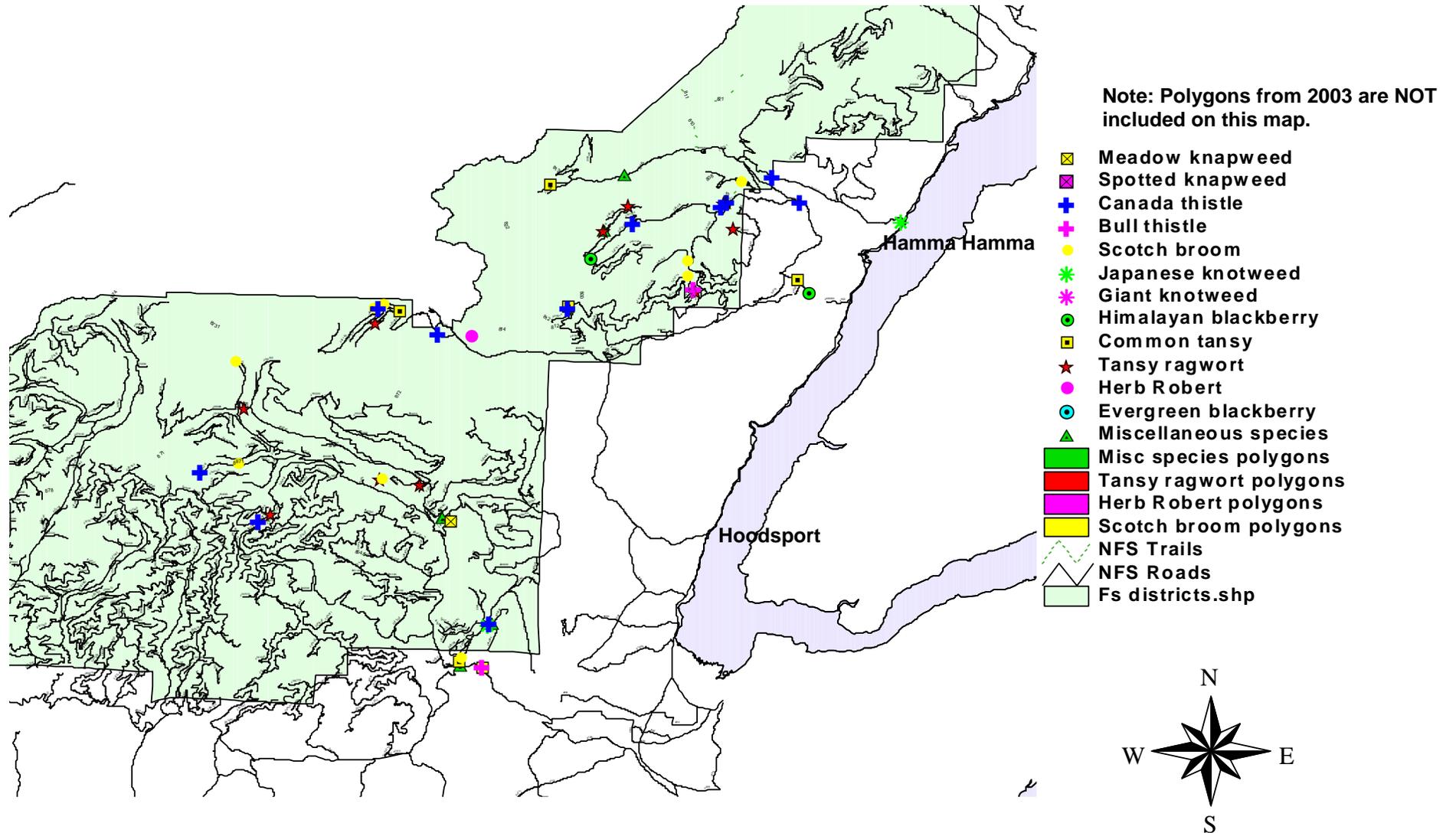
Maps: Weeds Found 2002-2005, continued

Hood Canal District, North (Quilcene to Dosewallips Rd.)



Maps: Weeds Found 2002-2005, continued

Hood Canal District, South



Appendix A: Roads Surveyed/Treated

The table below shows survey, monitor, and control work completed since the inception of this project. Each Forest Service Road is listed, along with the corresponding work performed during 2002, 2003, 2004, or 2005. Appendix G has the details of the WCC work and Appendix H lists the details of the Clallam Co. Sheriff's Dept. Chain gang work. The focus for each year of this project was:

- 2002: Familiarize ourselves with the Forest Service road systems, learn which noxious weeds threaten the health of the forest, begin the formal survey of the Pacific and Hood Canal districts, learn documentation and mapping processes, and begin control efforts.
- 2003: Survey as many roads as possible and document. Continue control efforts. Roads in Mason and Grays Harbor Counties (roads numbered 2500000 or lower) were surveyed as part of a Botanical Areas survey.
 - 2004: Survey any roads not previously done, monitor control work previously done, and perform as much new control work as possible.
- 2005: Increase the amount of control work and continue to monitor previous control sites, repeating control as necessary.



Definitions for the Weed Species Plant Codes can be found in Appendix D.

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
State Route 101	2	-	1.00		-			-		0	-		1	-	HIAC10 GERO
County 5695	3	8,499	4.98	1.66	5,532	SEJA CIAR4 CYSC4	1.66	2,967	CYSC4 SEJA	1.66	-			-	
County 3039	1	4,800	0.00		4,800	GERO		-			-			-	
County 2500	4	35,074	23.55	7.85	-		7.85	35,074	GERO CYSC4	7.85	-		7.85	15	CYSC4
County 2065	2	22,049	4.40		5,564	CYSC4		-			-		4.4	16,485	CYSC4 SEJA GERO
3116000	2	-	10.00	5	-		5	-			-			-	
3100420	1	-	0.60		-		0.6	-			-			-	
3100400	1	-	2.90		-		2.9	-			-			-	
3100300	1	-	5.00		-		5	-			-			-	

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
3071015	1	-	0.60		-		0.6	-			-			-	
3071000	2	60	1.20	0.6	60	CYSC4	0.6	-			-			-	
3071000	2	-	3.40	1.7	-		1.7	-			-			-	
3068200	3	815	7.20		-		2.4	-	2.4	80	CYSC4	2.4	735	CYSC4	
3068190	1	-	0.40		-		0.4	-			-			-	
3068000	3	30	2.40		-		0.8	-	0.8	-		0.8	30	SEJA	
3068000	3	491	29.10		-		9.7	86	9.7	250	CYSC4 SEJA	9.7	155	CEJA SEJA	
3067000	1	1,402	3.53		-		3.53	1,402	SEJA CYSC4					-	
3050011	1	-	1.50		-		1.5	-			-			-	
3050000	1	2	3.80		-		3.8	2	SEJA					-	
3040900	1	-	0.50		-		0.5	-			-			-	
3040800	2	54,709	0.10		-		0.1	-			-	.1	54,709	POCU6 GERO	
3040595	2	370	1.00		-		0.5	370	CIVU	0.5	-			-	
3040595	2	3	3.00		-		1.5	-	1.5	3	SEJA			-	
3040115	1	-	0.70		-		0.7	-			-			-	
3040100	1	-	0.50		-		0.5	-			-			-	
3040100	1	-	1.80		-		1.8	-			-			-	
3040025	2	1	0.40		-		0.2	-			-	0.2	1	RUDI2	
3040011	1	-	0.70		-		0.7	-			-			-	
3040000	3	-	16.50	5.5	-		5.5	-	5.5	-				-	
3040000	3	-	25.50	8.5	-		8.5	-	8.5	-				-	
3040000	4	35,136	28.80	7.2	-		7.2	3,877	SEJA CYSC4 GERO	7.2	30,519	CYSC4 SEJA GERO	7.2	740	GERO SEJA
3006300	1	-	4.10		-		4.1	-			-			-	
3006011	1	-	1.20		-		1.2	-			-			-	
3006000	1	-	7.80		-		7.8	-			-			-	
3000401	1	-	1.00		-		1	-			-			-	
3000400	1	-	2.20		-		2.2	-			-			-	
3000400	1	-	2.30		-		2.3	-			-			-	
3000395	1	-	0.20		-		0.2	-			-			-	
3000300	1	-	3.50		-		3.5	-			-			-	
3000260	1	-	0.70		-		0.7	-			-			-	

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
3000250	1	-	3.90		-		3.9	-			-			-	
3000220	1	-	2.80		-		2.8	-			-			-	
3000215	1	-	0.60		-		0.6	-			-			-	
3000200	2	-	3.00	1.5	-		1.5	-			-			-	
3000200	2	-	6.00	3	-		3	-			-			-	
3000200	2	-	7.00	3.5	-		3.5	-			-			-	
3000011	1	-	0.70		-		0.7	-			-			-	
3000000	2	-	2.86	1.43	-		1.43	-			-			-	
3000000	4	14,745	22.50	7.5	2,743	CYSC4	7.5	-		7.5	12,000	GERO RULA CYSC4	0.1	2	SEJA
3000000	3	867,800	33.90	11.3	-		11.3	-		11.3	867,800	CYSC4 GERO CIVU			-
2978085	1	-	1.10		-			-		1.1	-			-	
2978040	1	-	0.30		-			-		0.3	-			-	
2978035	1	-	0.10		-			-		0.1	-			-	
2978030	1	-	0.60		-			-		0.6	-			-	
2978030	1	-	0.70		-			-		0.7	-			-	
2978025	1	-	0.30		-			-		0.3	-			-	
2978025	1	-	0.80		-			-		0.8	-			-	
2978015	1	18	1.60		-			-		1.6	18	CYSC4		-	
2978011	1	-	0.40		-			-		0.4	-			-	
2978000	1	3,604	4.70		-			-		4.7	3,604	CYSC4 SEJA		-	
2932070	1	12	0.90		-		0.9	12	CYSC4		-			-	
2932050	1	-	0.30		-		0.3	-			-			-	
2932040	1	-	0.40		-		0.4	-			-			-	
2932035	1	-	0.20		-		0.2	-			-			-	
2932031	1	-	0.50		-		0.5	-			-			-	
2932030	1	-	1.30		-		1.3	-			-			-	
2932000	3	1,970	11.40	3.8	-		3.8	20	LEVU CYSC4	3.8	1,950	CYSC4		-	
2931200	1	-	2.50		-		2.5	-			-			-	
2931190	1	-	1.70		-		1.7	-			-			-	
2931000	1	1	11.90		-		11.9	1	SEJA		-			-	

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2929070	1	525	2.90	-	-	-	-	-	2.9	525	GERO RULA CYSC4	-	-	-	
2929000	1	-	2.20	-	-	-	-	-	2.2	-	-	-	-	-	
2929000	1	-	3.10	-	-	-	-	-	3.1	-	-	-	-	-	
2929000	1	-	4.40	-	-	-	-	-	4.4	-	-	-	-	-	
2923070	1	2	5.20	-	-	-	5.2	2	SEJA	-	-	-	-	-	
2923000	2	106	27.40	-	-	-	13.7	83	SEJA CIAR4 HIAU	13.7	23	CYSC4	-	-	
2922000	1	-	12.60	-	-	-	12.6	-	-	-	-	-	-	-	
2920210	1	-	0.20	-	-	-	0.2	-	-	-	-	-	-	-	
2920020	1	-	1.40	-	-	-	1.4	-	-	-	-	-	-	-	
2920000	1	-	1.40	-	-	-	1.4	-	-	-	-	-	-	-	
2920000	1	-	1.80	-	-	-	1.8	-	-	-	-	-	-	-	
2920000	1	-	5.70	-	-	-	5.7	-	-	-	-	-	-	-	
2918110	1	-	0.80	-	-	-	0.8	-	-	-	-	-	-	-	
2918100	1	-	3.30	-	-	-	3.3	-	-	-	-	-	-	-	
2918000	1	-	9.00	-	-	-	9	-	-	-	-	-	-	-	
2918000	3	2,315	11.00	5.5	-	-	5.5	765	SEJA CYSC4	-	-	-	5.5	1,550	CYSC4 SEJA
2912060	1	3	2.80	-	-	-	-	-	-	2.8	3	SEJA	-	-	
2903000	1	78	6.80	-	-	-	6.8	78	SEJA CYSC4	-	-	-	-	-	
2902375	1	-	0.80	-	-	-	0.8	-	-	-	-	-	-	-	
2902300	1	-	0.60	-	-	-	0.6	-	-	-	-	-	-	-	
2902000	1	2,500	1.10	-	-	-	-	-	-	1.1	2,500	CYSC4	-	-	
2902000	1	48	1.80	-	-	-	1.8	48	SEJA CYSC4	-	-	-	-	-	
2902000	1	-	2.50	-	-	-	2.5	-	-	-	-	-	-	-	
2900990	2	5,300	2.40	-	-	-	1.2	5,050	CYSC4	1.2	250	GERO	-	-	
2900950	1	-	0.10	-	-	-	0.1	-	-	-	-	-	-	-	
2900650	1	-	1.20	-	-	-	1.2	-	-	-	-	-	-	-	
2900540	1	-	2.00	-	-	-	2	-	-	-	-	-	-	-	
2900200	1	54	0.70	-	-	-	-	-	-	-	-	-	0.7	54	SEJA CYSC4

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2900070	1	-	0.40		-		0.4	-			-			-	
2900070	1	-	2.30		-		2.3	-			-			-	
2900015	1	-	0.10		-		0.1	-			-			-	
2900000	1	-	3.40		-		3.4	-			-			-	
2900000	1	-	3.70		-		3.7	-			-			-	
2900000	2	1,074	13.90		-		13.9	-			-		0.2	1,074	CYSC4 GERO
2900000	3	595,386	22.60		-		11.3	170	HIAU	11.3	11,700	CYSC4 HIAU GERO	0.1	583,516	HIAU GERO SEJA
2900000	4	52,092	24.00	6	8,286	POSA4 CYSC4 SEJA	6	27,406	SEJA CYSC4 CIAR4	6	14,775	SEJA CYSC4 GERO	6	1,625	SEJA CYSC4
2880050	3	247,264	0.30	0.1	1,860	GERO		-		0.1	3,900	GERO	0.1	241,504	GERO
2880000	4	8,700	5.43	1.81	2,100	GERO	1.81	-		1.81	6,600	SEJA		-	
2878123	1	-	0.20		-		0.2	-			-			-	
2878120	1	2,170	1.05		-		1.05	2,170	CYSC4		-			-	
2878110	1	-	0.90		-		0.9	-			-			-	
2878109	1	-	0.27		-		0.27	-			-			-	
2878108	1	-	0.13		-		0.13	-			-			-	
2878102	1	-	0.40		-		0.4	-			-			-	
2878100	1	-	1.59		-		1.59	-			-			-	
2878085	1	-	0.90		-		0.9	-			-			-	
2878080	1	-	1.40		-		1.4	-			-			-	
2878060	1	127	0.40		-		0.4	127	CYSC4		-			-	
2878050	2	-	0.60		-		0.6	-			-			-	
2878000	2	1,344	4.06		-		4.06	1,340	CYSC4		-		4.06	4	CYSC4
2877100	1	-	0.30		-		0.3	-			-			-	
2877052	1	-	0.29		-		0.29	-			-			-	
2877050	1	-	1.00		-		1	-			-			-	
2877050	1	-	1.65		-		1.65	-			-			-	
2877040	1	-	0.51		-		0.51	-			-			-	
2877040	1	-	0.78		-		0.78	-			-			-	
2877000	1	-	4.60		-		4.6	-			-			-	
2875090	1	-	0.10		-		0.1	-			-			-	
2875070	1	-	2.00		-		2	-			-			-	

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2875020	1	6	0.50	-	-	0.5	6	CYSC4	-	-	-	-	-	-	
2875000	1	-	2.30	-	-	2.3	-	-	-	-	-	-	-	-	
2875000	1	30	3.60	-	-	3.6	30	CEJA	-	-	-	-	-	-	
2870230	1	18	1.41	-	-	-	-	-	-	-	-	1.41	18	SEJA	
2870110	1	729	0.30	-	-	0.3	729	CYSC4	-	-	-	-	-	-	
2870059	3	19,529	1.44	-	-	0.48	-	-	0.48	20	CEJA	0.48	19,509	CIAR4 CIVU SEJA CEJA CYSC4 GERO	
2870058	2	-	1.00	-	-	0.5	-	-	0.5	-	-	-	-	-	
2870056	2	14	1.40	-	-	0.7	10	CEJA SEJA	0.7	4	CEJA	-	-	-	
2870050	3	110	7.90	-	-	2.8	16	SEJA HYPE	2.8	-	-	2.3	94	SEJA	
2870030	3	78	5.10	-	-	1.7	4	CEJA CYSC4	1.7	39	SEJA CEJA	1.7	35	SEJA CEJA	
2870000	3	1,963	29.70	9.9	50	SEJA	-	-	9.9	101	SEJA CYSC4	9.9	1,812	SEJA GERO CYSC4	
2860120	1	-	1.60	-	-	1.6	-	-	-	-	-	-	-	-	
2860011	1	2,708	0.40	-	-	-	-	-	-	-	-	0.4	2,708	SEJA GERO	
2860000	4	54,000	49.45	16.15	-	-	16.15	-	16.15	50,500	GERO CIVU	1	3,500	CIVU	
2855100	2	-	2.40	-	-	1.2	-	-	1.2	-	-	-	-	-	
2855070	3	103	0.90	-	-	0.3	-	-	0.3	103	CEBI2 RULA	0.3	-	-	
2855070	2	3,418	2.60	-	-	1.3	1,127	SEJA CIAR4	-	-	-	1.3	2,291	CEBI2 GERO SEJA CYSC4	
2855032	2	1	1.60	-	-	0.8	-	-	0.8	1	RULA	-	-	-	
2855030	3	19,200	5.40	-	-	2.7	-	-	2.7	19,200	SEJA	-	-	-	

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2855000	3	51,701	5.40	-	-	2.7	6,156	CEJASEJ A	2.7	45,545	CEBI2 CYSC4 CIVU GERO SEJA	-	-	-	
2852150	1	25	1.29	-	-	-	-	-	1.29	25	CYSC4	-	-	-	
2852090	2	1,550	0.40	-	-	0.2	1,550	SEJA CIAR4	0.2	-	-	-	-	-	
2852000	3	45,331	5.40	-	-	2.7	5,550	SEJA CIAR4	2.7	39,781	SEJA CEJA RULA GERO	-	-	-	
2851090	2	-	1.20	-	-	0.6	-	-	0.6	-	-	-	-	-	
2851080	2	1,660	3.20	-	-	1.6	-	-	1.6	1,660	TAVU CYSC4 SEJA	-	-	-	
2851000	3	4,750	8.20	-	-	4.1	-	-	4.1	-	-	4.1	4,750	SEJA	
2850124	1	-	0.20	-	-	0.2	-	-	-	-	-	-	-	-	
2850120	1	-	2.80	-	-	2.8	-	-	-	-	-	-	-	-	
2850093	1	-	0.10	-	-	0.1	-	-	-	-	-	-	-	-	
2850090	1	-	1.02	-	-	1.02	-	-	-	-	-	-	-	-	
2850010	2	12	3.20	-	-	1.6	-	-	1.6	12	RULA	-	-	-	
2850000	4	61,544	22.20	7.4	-	7.4	35,889	GERO SEJA CYSC4	7.4	10,555	SEJA GERO RULA	7.4	15,100	SEJA GERO	
2845200	1	-	0.28	-	-	0.28	-	-	-	-	-	-	-	-	
2845150	1	-	0.20	-	-	0.2	-	-	-	-	-	-	-	-	
2845120	1	84	1.70	-	-	1.7	84	SEJA CYSC4	-	-	-	-	-	-	
2845090	2	12	1.00	-	-	0.5	11	SEJA	0.5	1	CYSC4	-	-	-	
2845073	1	-	0.90	-	-	0.9	-	-	-	-	-	-	-	-	
2845070	1	1,860	1.60	-	-	1.6	1,860	CYSC4	-	-	-	-	-	-	
2845040	1	160	0.30	-	-	0.3	160	SEJA	-	-	-	-	-	-	
2845000	1	5,204	4.60	-	-	4.6	5,204	SEJA	-	-	-	-	-	-	
2840150	1	1	0.64	-	-	0.64	1	SEJA	-	-	-	-	-	-	
2840130	1	-	1.10	-	-	1.1	-	-	-	-	-	-	-	-	

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2840120	1	-	0.73		-		0.73	-			-			-	
2840120	1	-	1.27		-		1.27	-			-			-	
2840084	1	-	0.25		-		0.25	-			-			-	
2840080	1	-	0.73		-		0.73	-			-			-	
2840080	1	1	0.89		-		0.89	1	RULA		-			-	
2840071	2	36	2.00		-		1	1	SEJA	1	35	BORAG		-	
2840070	2	5,753	3.54		-		1.77	3	SEJA	1.77	5,750	SEJA CYSC4		-	
2840034	1	-	1.44		-		1.44	-			-			-	
2840030	1	-	3.04		-		3.04	-			-			-	
2840000	3	10,010	10.80		-		5.4	9,085	CIAR4 SEJA CYSC4	5.4	925	SEJA		-	
2830034	1	-	0.33		-		0.33	-			-			-	
2830032	1	-	1.00		-		1	-			-			-	
2830030	1	-	1.80		-		1.8	-			-			-	
2830000	2	1,250	9.90		-		4.95	-		4.95	1,250	CEBI2		-	
2820000	1	-	4.00		-		4	-			-			-	
2810070	1	-	0.61		-		0.61	-			-			-	
2810000	3	10,190	8.02	4.01	-		4.01	10,190	SEJA CYSC4		-			-	
2800310	2	2,155	0.50		-			-		0.25	1,550	CYSC4	0.25	605	CYSC4
2800290	1	1	0.30		-			-			-		0.3	1	SEJA CYSC4
2800270	1	310	0.47		-			-			-		0.47	310	SEJA CYSC4
2800262	1	-	0.60		-		0.6	-			-			-	
2800260	1	-	1.20		-		1.2	-			-			-	
2800250	2	7	2.20		-		1.1	-			-		1.1	7	SEJA
2800240	1	-	0.80		-		0.8	-			-			-	
2800220	1	-	1.20		-		1.2	-			-			-	
2800210	1	-	0.40		-		0.4	-			-			-	
2800145	1	-	0.30		-		0.3	-			-			-	
2800060	1	-	1.10		-		1.1	-			-			-	
2800010	1	-	1.10		-		1.1	-			-			-	

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2800000	4	60,883	58.00	14.5	4,007	SEJA CIAR4 CYSC4 GERO	14.5	13,295	SEJA CYSC4 CIAR4	14.5	7,750	CIAR4 CIVU SEJA	14.5	35,831	SEJA CEJA
2750020	1	-	1.50	-	-	-	1.5	-	-	-	-	-	-	-	-
2750000	1	-	4.90	-	-	-	4.9	-	-	-	-	-	-	-	-
2740075	1	-	0.47	-	-	-	0.47	-	-	-	-	-	-	-	-
2740072	1	-	0.40	-	-	-	0.4	-	-	-	-	-	-	-	-
2740070	1	-	3.05	-	-	-	3.05	-	-	-	-	-	-	-	-
2740060	1	-	5.80	-	-	-	5.8	-	-	-	-	-	-	-	-
2740000	2	-	13.70	6.85	-	-	6.85	-	-	-	-	-	-	-	-
2730300	2	934	1.10	1.1	834	CYSC4	-	-	-	-	-	-	1.1	100	CYSC4
2730200	3	19,621	5.10	1.7	470	GERO SEJA	-	-	-	1.7	2,502	GERO SEJA	1.7	16,649	GERO SEJA CIVU
2730100	2	35	0.40	0.2	5	SEJA	-	-	-	0.2	30	SEJA	-	-	-
2730020	2	-	1.20	0.6	-	-	-	-	-	0.6	-	-	-	-	-
2730011	1	51	0.90	-	-	-	0.9	51	GERO	-	-	-	-	-	-
2730000	4	146,400	15.20	3.8	1,465	SEJA CYSC4	3.8	3,675	SEJA	3.8	140,020	SEJA TAVU	3.8	1,240	SEJA
2700140	1	-	1.20	-	-	-	1.2	-	-	-	-	-	-	-	-
2700100	1	-	4.60	-	-	-	4.6	-	-	-	-	-	-	-	-
2700090	1	-	1.99	-	-	-	1.99	-	-	-	-	-	-	-	-
2700000	3	4,201	34.80	11.6	1	TAVU	11.6	-	-	11.6	4,200	SEJA	-	-	-
2650090	1	-	1.68	-	-	-	1.68	-	-	-	-	-	-	-	-
2650050	1	-	0.90	-	-	-	-	-	-	0.9	-	-	-	-	-
2650000	2	2	15.00	-	-	-	7.5	2	ARM12	7.5	-	-	-	-	-
2620056	1	24	0.76	-	-	-	-	-	-	0.76	24	CEJA	-	-	-
2620053	1	-	1.30	-	-	-	-	-	-	1.3	-	-	-	-	-
2620051	1	-	0.89	-	-	-	-	-	-	0.89	-	-	-	-	-
2620050	1	-	2.80	-	-	-	-	-	-	2.8	-	-	-	-	-
2620043	1	-	0.70	-	-	-	0.7	-	-	-	-	-	-	-	-
2620030	1	-	9.70	-	-	-	9.7	-	-	-	-	-	-	-	-

Appendix A: Roads Surveyed/Treated, continued

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				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2620000	3	39,464	34.86				11.62	15,287	SEJA CIVU CYSC4 GERO	11.62	10	RULA	2.0	24,167	SEJA CYSC4 GERO CIVU
2610200	4	3,454	6.40	1.6	680	CYSC4	1.6	124	CYSC4 SEJA HEHE	1.6	150	HEHE RUDI GERO	1.6	2,500	CYSC4
2610040	1	3,000	0.40										0.4	3,000	SEJA
2610000	1	50	0.50										0.5	50	CYSC4
2610000	4	6,520	16.40	4.1			4.1	61	SEJA	4.1	2,531	GERO SEJA CYSC4 RULA	4.1	3,928	SEJA CIVU CIAR4 GERO CYSC4
2530000	1	-	5.70	5.7											
2527000	1	-	1.20				1.2								
2510070	1	1,600	0.10	0.1	1,600	GERO									
2510000	1	-	0.20				0.2								
2510000	1	-	1.80				1.8								
2510000	1	45	4.60				4.6	45	SEJA						
2500000	1	-	0.20				0.2								
2500000	1	-	0.98				0.98								
2500000	1	-	1.20				1.2								
2500000	1	-	1.32				1.32								
2500000	1	-	1.46				1.46								
2500000	1	-	4.16				4.16								
2500000	1	-	4.54				4.54								
2480000	1	-	0.91				0.91								
2480000	1	-	1.54				1.54								
2480000	1	-	5.27				5.27								
2471022	1	-	0.42				0.42								
2471020	1	-	0.88				0.88								
2471013	1	-	2.60				2.6								
2471000	1	-	0.15				0.15								
2471000	1	-	0.23				0.23								
2471000	1	-	0.70				0.7								
2471000	1	-	0.76				0.76								

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2471000	1	-	1.97	-	-	-	1.97	-	-	-	-	-	-	-	-
2469022	1	-	0.59	-	-	-	0.59	-	-	-	-	-	-	-	-
2469022	1	-	0.63	-	-	-	0.63	-	-	-	-	-	-	-	-
2469000	1	-	0.10	-	-	-	0.1	-	-	-	-	-	-	-	-
2469000	1	-	0.54	-	-	-	0.54	-	-	-	-	-	-	-	-
2469000	1	-	0.63	-	-	-	0.63	-	-	-	-	-	-	-	-
2469000	1	-	0.67	-	-	-	0.67	-	-	-	-	-	-	-	-
2469000	1	-	0.80	-	-	-	0.8	-	-	-	-	-	-	-	-
2469000	1	-	1.46	-	-	-	1.46	-	-	-	-	-	-	-	-
2469000	1	-	1.96	-	-	-	1.96	-	-	-	-	-	-	-	-
2464000	1	-	0.15	-	-	-	0.15	-	-	-	-	-	-	-	-
2464000	1	-	0.65	-	-	-	0.65	-	-	-	-	-	-	-	-
2464000	1	-	0.90	-	-	-	0.9	-	-	-	-	-	-	-	-
2464000	1	-	5.00	-	-	-	5	-	-	-	-	-	-	-	-
2451115	1	-	0.32	-	-	-	0.32	-	-	-	-	-	-	-	-
2451100	1	-	1.50	-	-	-	1.5	-	-	-	-	-	-	-	-
2451100	1	-	4.70	-	-	-	4.7	-	-	-	-	-	-	-	-
2451020	1	-	0.40	-	-	-	0.4	-	-	-	-	-	-	-	-
2451017	1	-	0.30	-	-	-	0.3	-	-	-	-	-	-	-	-
2451000	1	-	0.03	-	-	-	0.03	-	-	-	-	-	-	-	-
2451000	1	-	0.67	-	-	-	0.67	-	-	-	-	-	-	-	-
2451000	1	-	0.84	-	-	-	0.84	-	-	-	-	-	-	-	-
2451000	1	-	0.90	-	-	-	0.9	-	-	-	-	-	-	-	-
2451000	1	-	1.20	-	-	-	1.2	-	-	-	-	-	-	-	-
2451000	1	-	1.42	-	-	-	1.42	-	-	-	-	-	-	-	-
2451000	1	-	1.59	-	-	-	1.59	-	-	-	-	-	-	-	-
2441200	1	-	3.47	-	-	-	3.47	-	-	-	-	-	-	-	-
2421000	1	-	0.13	-	-	-	0.13	-	-	-	-	-	-	-	-
2421000	1	-	0.19	-	-	-	0.19	-	-	-	-	-	-	-	-
2421000	1	-	0.19	-	-	-	0.19	-	-	-	-	-	-	-	-
2421000	1	-	1.95	-	-	-	1.95	-	-	-	-	-	-	-	-
2421000	1	-	2.08	-	-	-	2.08	-	-	-	-	-	-	-	-
2419014	1	-	1.00	-	-	-	1	-	-	-	-	-	-	-	-
2419000	1	-	0.31	-	-	-	0.31	-	-	-	-	-	-	-	-
2419000	1	-	1.24	-	-	-	1.24	-	-	-	-	-	-	-	-
2419000	1	-	2.53	-	-	-	2.53	-	-	-	-	-	-	-	-
2419000	1	-	2.66	-	-	-	2.66	-	-	-	-	-	-	-	-

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2419000	1	-	3.44	-	-	-	3.44	-	-	-	-	-	-	-	-
2401100	1	-	0.12	-	-	-	0.12	-	-	-	-	-	-	-	-
2401033	1	-	1.08	-	-	-	1.08	-	-	-	-	-	-	-	-
2401012	1	-	0.15	-	-	-	0.15	-	-	-	-	-	-	-	-
2401000	1	-	0.59	-	-	-	0.59	-	-	-	-	-	-	-	-
2401000	1	-	1.07	-	-	-	1.07	-	-	-	-	-	-	-	-
2401000	1	-	1.21	-	-	-	1.21	-	-	-	-	-	-	-	-
2401000	1	-	1.81	-	-	-	1.81	-	-	-	-	-	-	-	-
2401000	1	-	1.85	-	-	-	1.85	-	-	-	-	-	-	-	-
2401000	1	-	2.38	-	-	-	2.38	-	-	-	-	-	-	-	-
2401000	1	-	3.19	-	-	-	3.19	-	-	-	-	-	-	-	-
2361700	1	-	0.69	-	-	-	0.69	-	-	-	-	-	-	-	-
2361210	1	-	2.76	-	-	-	2.76	-	-	-	-	-	-	-	-
2361200	1	-	0.67	-	-	-	0.67	-	-	-	-	-	-	-	-
2361000	1	-	0.50	-	-	-	0.5	-	-	-	-	-	-	-	-
2361000	1	-	0.90	-	-	-	0.9	-	-	-	-	-	-	-	-
2361000	1	-	1.00	-	-	-	1	-	-	-	-	-	-	-	-
2361000	1	-	3.50	-	-	-	3.5	-	-	-	-	-	-	-	-
2353140	1	-	0.10	-	-	-	0.1	-	-	-	-	-	-	-	-
2353140	1	-	0.30	-	-	-	0.3	-	-	-	-	-	-	-	-
2353140	1	-	0.50	-	-	-	0.5	-	-	-	-	-	-	-	-
2353140	1	-	0.60	-	-	-	0.6	-	-	-	-	-	-	-	-
2353100	1	-	0.60	-	-	-	0.6	-	-	-	-	-	-	-	-
2340088	1	-	0.96	-	-	-	0.96	-	-	-	-	-	-	-	-
2340080	1	-	0.70	-	-	-	0.7	-	-	-	-	-	-	-	-
2340000	1	-	0.46	-	-	-	0.46	-	-	-	-	-	-	-	-
2340000	1	-	0.73	-	-	-	0.73	-	-	-	-	-	-	-	-
2340000	1	-	1.11	-	-	-	1.11	-	-	-	-	-	-	-	-
2300000	1	-	0.12	-	-	-	0.12	-	-	-	-	-	-	-	-
2300000	1	-	0.26	-	-	-	0.26	-	-	-	-	-	-	-	-
2300000	1	-	4.88	-	-	-	4.88	-	-	-	-	-	-	-	-
2300000	1	-	7.47	-	-	-	7.47	-	-	-	-	-	-	-	-
2190240	1	-	0.30	-	-	-	0.3	-	-	-	-	-	-	-	-
2190220	1	251	0.00	-	-	-	-	-	-	-	-	-	0.23	251	POCU6 COTON
2190170	1	-	1.59	-	-	-	1.59	-	-	-	-	-	-	-	-
2190000	1	-	1.49	-	-	-	1.49	-	-	-	-	-	-	-	-

Appendix A: Roads Surveyed/Treated, continued

ROAD	# of Years Visited	Total # of Weeds Removed '02 - '05	Total Miles Surveyed '02 - '05	2002			2003			2004			2005		
				Miles Surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed	Miles surveyed	Total # of Weeds Removed	Weed Species Removed
2190000	1	-	1.70		-		1.7	-			-			-	
2190000	1	-	2.41		-		2.41	-			-			-	
2190000	2	-	8.44	4.22	-		4.22	-			-			-	
2180000	2	-	2.52	1.26	-		1.26	-			-			-	
2180000	1	-	4.24		-		4.24	-			-			-	
2180000	1	-	4.60		-		4.6	-			-			-	
2170020	1	-	4.28		-		4.28	-			-			-	
2170000	1	-	8.24		-		8.24	-			-			-	
2160000	1	-	4.70	4.7	-			-			-			-	
2160000	2	-	11.60	5.8	-		5.8	-			-			-	
2140000	1	-	1.70		-		1.7	-			-			-	
2140000	1	-	3.10		-		3.1	-			-			-	
2140000	1	-	7.20		-		7.2	-			-			-	
2120000	1	-	1.20		-		1.2	-			-			-	
2100000	1	-	2.84		-		2.84	-			-			-	
2100000	2	-	3.40	1.7	-		1.7	-			-			-	
2100000	2	50	7.40	3.7	50	SEJA	3.7	-			-			-	
TOTALS		2,562,778	1249.79	192.48	40,107	0	701.76	191,257		264.92	1,290,774		112.75	1,040,655	

Note: Roads may be listed more than once as they may be broken up into specific lengths. Ex: From Hwy to Forest boundary, or from Forest boundary to Campground, etc.

Appendix B: Roads Surveyed/Treated, 2002-2005, SUMMARY

	2002	2003	2004	2005	TOTAL
Miles of Roads Surveyed/Treated	192	702	265	113	1,272
Acres Surveyed/Treated	233	851	321	137	1,542
# of Weeks of WCC crew time	4	4	8	4	20
# of Weeds Removed by Field Crew	736	886	11,716	51,775	65,113
# of Weeds Removed by WCC Crew	31,085	87,623	1,166,200	880,655	2,165,563
# of Weeds Removed by Chain gang	8,286	102,748	112,858	108,225	332,117
TOTAL # of Weeds Removed	40,107	191,257	1,290,774	1,040,655	2,562,793

Appendix C: Control Sites in 2005

This table shows where control work was done in 2005. Our protocols for determining control priorities are:

1. Is this a priority site (or special request) for the Forest Service?
2. Has this site been controlled previously? (If so, we want to continue controlling the site.)
3. Is this a new infestation?
4. Is the site a trailhead?
5. Is the site a campground?

FS Road	Location Description	Task/Weed(s)	FS Priority	Has had prior control	New infestation	Trailhead	Campground
2065	Cooper-Ranch Rd.	Scotch broom		Y			
2065	Cooper-Ranch Rd.	Tansy ragwort		Y			
2065	Cooper-Ranch Rd.	Herb robert			Y		
2610.000	Dosewallips Rd.	Bull thistle, Scotch broom, Tansy ragwort		Y			
2610.040	Dosewallips Rd.	Tansy ragwort		Y			
2610.200	Seal Rock CG	Scotch broom		Y		Y	
2620.000	Rocky Brook Rd.	Tansy ragwort, Scotch broom, herb Robert, Bull thistle		Y			
2730.000	Mt. Walker	Tansy, Common Tansy		Y			
2730.200	Falls View Campground	Herb Robert		Y			Y
2730.200	Falls View Campground	Herb Robert		Y			Y
2800.000		Tansy ragwort		Y	Y		
2800.000		Meadow knapweed			Y		
2800.000		Tansy ragwort		Y			
2800.250		Tansy ragwort					
2800.270		Scotch broom, Tansy ragwort					
2800.290		Tansy ragwort					
2855.070	Off Woods Rd.	Tansy		Y			
2855.070	Off Woods Rd.	Herb Robert		Y			
2855.070	Off Woods Rd.	Spotted knapweed		Y			
2860.000	Gold Creek extension	Scotch broom					
2860.000	Gold Creek extension	Bull thistle					

Appendix C: Control Sites in 2005, continued

FS Road	Location Description	Task/Weed(s)	FS Priority	Has had prior control	New infestation	Trailhead	Campground
2860.011	East Crossing CG	Herb Robert, tansy			Y		Y
2870.000		Scotch broom		Y			
2870.000		Herb Robert		Y			
2870.000	Off Lost Mtn. Rd.	Tansy ragwort					
2870.030	Off Lost Mtn. Rd.	Scotch broom, meadow knapweed, Tansy ragwort		Y			
2870.050	Off Lost Mtn. Rd.	Scotch broom, meadow knapweed, Tansy ragwort		Y			
2870.059	Off Lost Mtn. Rd.	Scotch broom, meadow knapweed		Y			
2870.059	Cranberry Bog	Scotch broom, Tansy ragwort, Meadow knapweed	Y	Y			
2878.000		Scotch broom					
2880.050	Dungeness Forks Campground	Herb Robert	Y	Y			Y
2900.000	at MP 36	Orange hawkweed	Y	Y			
2900.000	West end	Tansy		Y			
2900.000	West end	Tansy		Y			
2900.000	MP 36.3ish	Herb Robert			Y		
2900.200	West end	Initial survey, Scotch broom, tansy					
2900.220	West end	Initial survey					
3000.000		Tansy, herb Robert					
3040.000	from Hwy 112 to 3068000	Tansy ragwort		Y			
3068.000	Off 3040, above Snider	Scotch broom and tansy clean-up	Y	Y			
3068.050	Off 3040, above Snider	Verify clean	Y	Y			
3068.150	Off 3040, above Snider	Verify clean	Y	Y			
3068.190	Off 3040, above Snider	Verify clean	Y	Y			
3068.200	Off 3040, above Snider	Scotch broom	Y	Y			
2730.300	Quilcene Ranger Station	Scotch broom					
Schmith Knob		Scotch broom, clean-up	Y	Y			

Appendix C: Control Sites in 2005, continued

FS Road	Location Description	Task/Weed(s)	FS Priority	Has had prior control	New infestation	Trailhead	Campground
SFCRBA	(South Fork Calawah River Botanical Area)	Canada thistle, Scotch broom, Herb Robert	Y				
3040.800	Snider Work Center	Herb Robert		Y			
3040.800	Snider Work Center	Knotweed	Y	Y			

Appendix D: Weed Species Reported, 2002-2005



Herb Robert (*Geranium robertianum*)

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

Common Name	Botanical Name	Plant Code
Borage	<i>Borago officinalis</i>	BORAG
Bull thistle	<i>Cirsium vulgare</i>	CIVU
Canada thistle	<i>Cirsium arvense</i>	CIAR4
Common burdock	<i>Arctium minus</i>	ARM12
Common tansy	<i>Tanacetum vulgare</i>	TAVU
Common toadflax	<i>Linaria vulgaris</i>	LIVU2
English holly	<i>Ilex aquifolium</i>	ILAQ80
English ivy	<i>Hedera helix</i>	HEHE
Evergreen blackberry	<i>Rubus laciniatus</i>	RULA
Everlasting peavine	<i>Lathrus latifolius</i>	LALA4
Giant knotweed	<i>Polygonum sachalinense</i>	POSA4
Herb Robert	<i>Geranium Robertianum</i>	GERO
Himalayan blackberry	<i>Rubus discolor</i>	RUDI
Japanese knotweed	<i>Polygonum cuspidatum</i>	POCU6
Meadow knapweed	<i>Centaurea jacea x nigra</i>	CEJA
Orange hawkweed	<i>Hieracium aurantiacum</i>	HIAU
Oxeye daisy	<i>Leucanthemum vulgare</i>	LEVU
Purple loosestrife	<i>Lythrum salicaria</i>	LYSA2
Reed canary grass	<i>Phalaris arundinacea</i>	PHAR3
Rockspray cotoneaster	<i>Cotoneaster</i>	COTON
Scotch broom	<i>Cytisus scoparius</i>	CYSC4
Spotted knapweed	<i>Centaurea biebersteinii</i>	CEBI2
St. Johnswort	<i>Hypericum perforatum</i>	HYPE
Tansy ragwort	<i>Senecio jacobaea</i>	SEJA
Wild Carrot	<i>Daucus carota</i>	DACA6
Wild Chervil	<i>Anthriscus sylvestris</i>	ANSY
Yellow hawkweed	<i>Hieracium caespitosum</i>	HICA10

Appendix E: Control Recommendations

By Weed Species

Control Recommendations Protocol:

1. These control recommendations are based on best management practices for our local forest.
2. The overall system burden of invasive plant species needs to be reduced before manual and mechanical methods become feasible in many cases.
3. Greater emphasis needs to be placed on prevention and early detection, continued surveys, early intervention, and incorporation of weed control into Forest Service projects such as road decommissioning, restoration, and routine road maintenance.
4. Effective noxious weed control depends on a combination of factors: plant biology, level of infestation, and location. These control recommendations reflect a consideration of Olympic National Forest conditions with currently available data.
5. For additional control recommendations, see [Common Control Measures for Invasive Plants of the Pacific Northwest Region](#). (A NFS publication.)

Plant Code	Common Name	Botanical Name	Control Recommendation
BORAG	Borage	<i>Borago officinalis</i>	Minimal occurrence; spot herbicide application with glyphosate or a selective herbicide
CIVU	Bull thistle	<i>Cirsium vulgare</i>	Where minimal occurrence, manual removal; spot herbicide application to rosettes by early spring or contact herbicide may be used before seeds are formed
CIAR4	Canada thistle	<i>Cirsium arvense</i>	Manual removal has limited effectiveness and is best applied to very early infestations; spot herbicide application with glyphosate at bud to full bloom; foliar application of a selective herbicide throughout the summer
ARM12	Common burdock	<i>Arctium minus</i>	Where minimal occurrence, manual removal; spot herbicide application to rosettes by early spring; contact herbicide may be used before seeds are formed
TAVU	Common tansy	<i>Tanacetum vulgare</i>	Spot herbicide application
LIVU2	Common toadflax	<i>Linaria vulgaris</i>	Manual removal; spot herbicide application
ILAQ80	English holly	<i>Ilex aquifolium</i>	Manual removal; cut stump herbicide treatment
HEHE	English ivy	<i>Hedera helix</i>	Manual removal; cut stump herbicide treatment; foliar application with 2% glyphosate (and a surfactant)
RULA	Evergreen blackberry	<i>Rubus laciniatus</i>	Treat cut stump with glyphosate
LALA4	Everlasting peavine	<i>Lathrus latifolius</i>	Foliar application with clopyralid
GERO	Herb Robert	<i>Geranium robertianum</i>	Manual removal for small infestations; spot selective herbicide; foam/steam application as new control information becomes available
RUDI	Himalayan blackberry	<i>Rubus discolor</i>	Treat cut stump with glyphosate or foliar application as appropriate to site
	Knotweed species	<i>Polygonum spp.</i>	Injection with glyphosate; and/or foliar application of glyphosate 2-4%
CEJA	Meadow knapweed	<i>Centaurea jacea x nigra</i>	Foliar herbicide application - clopyralid preferred

Appendix E: Control Recommendations, continued

Plant Code	Common Name	Botanical Name	Control Recommendation
HIAU	Orange hawkweed	<i>Hieracium aurantiacum</i>	Spot spray with clopyralid in late spring or summer; possible manual removal for small infestations
LEVU	Oxeye daisy	<i>Leucanthemum vulgare</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Control options are available should this species otherwise become a resource management issue.
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	<i>Phalaris arundinacea</i>	Glyphosate at 2% with surfactant in mid-June and mid-Sept.
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; cut stump treatment with glyphosate; or foliar herbicide application for very large infestations
CEBI2	Spotted knapweed	<i>Centaurea biebersteinii</i>	Manual removal before plants go to seed; spot herbicide application with clopyralid
HYPE	St. Johnswort	<i>Hypericum perforatum</i>	Pervasive. Preventative control should be incorporated into restoration and maintenance projects. Control options are available should this species otherwise become a resource management issue.
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 by April/May of 2 nd year.
DACA6	Wild Carrot	<i>Daucus carota</i>	Manual removal; spot herbicide application
ANSY	Wild Chervil	<i>Anthriscus sylvestris</i>	Manual removal; spot herbicide application

Appendix F: Control Recommendations by Site

This table lists sites where control measures *other than the ones recommended for the weed species (Appendix E)* are advised:

Road ID	Weed	Treatment Recommendation	District	Township	Range	Section	Rationale
2480000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Hood Canal South	24	3	32	Most effective treatment method due to terrain
2610200	English Ivy	Pull, or Herbicide (Glyphosate or Triclopyr) to cut stump	Hood Canal North	26	2	26	Herbicide may be most effective method
2700000	Herb Robert	Steam treatment; Glyphosate	Hood Canal North	27	2	33	May be most effective for size of infestation
2700090	Canada thistle	Herbicide; Foliar; Glyphosate, or Clopyralid	Hood Canal North	27	2	29	Continuous infestation over long distances
2700100	Canada thistle	Herbicide; Foliar; Glyphosate, or Clopyralid	Hood Canal North	27	2	30	Continuous infestation over long distances
2740060	Canada thistle	Herbicide; Foliar; Glyphosate, or Clopyralid	Hood Canal North	27	3	36	Continuous infestation over long distances
2740070	Canada thistle	Herbicide; Foliar; Glyphosate, or Clopyralid	Hood Canal North	27	3	30	Continuous infestation over long distances
2750020	Canada thistle	Herbicide; Foliar; Glyphosate, or Clopyralid	Hood Canal North	27	2	19	Continuous infestation over long distances
2800010	Herb Robert	Steam treatment; Glyphosate	Hood Canal North	28	2	33	May be most effective for size of infestation
2820000	Canada thistle	Herbicide; Foliar; Glyphosate, or Clopyralid	Hood Canal North	28	3	24	Continuous infestation over long distances
2830000	Meadow knapweed	Herbicide; Foliar; Clopyralid	Hood Canal North	28	3	9	Convenient to treat along with spotted knapweed nearby
2830000	Spotted knapweed	Herbicide; Foliar; Clopyralid	Hood Canal North	28	3	10	Large infestation, too large to be dealt with manually
2840071	Tansy ragwort	Herbicide foliar (Clopyralid); safety gear recommended	Hood Canal North	29	3	34	Due to steep terrain
2870059	Herb Robert	Steam treatment; Glyphosate	Hood Canal North	29	3	30	May be most effective for size of infestation

Appendix F: Control Recommendations by Site, continued

Road ID	Weed	Treatment Recommendation	District	Township	Range	Section	Rationale
2875000	Meadow knapweed	Herbicide; Foliar; Clopyralid	Hood Canal North	29	4	28	Large infestation in an area used by dirt bikes, too large to be dealt with manually; small pond at bottom; very little other vegetation
2880050	Herb Robert	Steam treatment; Glyphosate	Pacific North	29	3	30	Dungeness Forks Campground - campground is being kept clean by manual removal, but infestation on the trail south out of the campground is so extensive that herbicide will probably be necessary
2900000	Orange hawkweed	Remove manually	Pacific North	29	11	2	Continuation of previous efforts - and having good results!
2900000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	29	11	2	Most effective treatment method due to terrain
2900000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	28	12	4	Most effective treatment method due to terrain
2902000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	29	12	18	Most effective treatment method due to terrain
2903000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	29	12	20	Most effective treatment method due to terrain
2922000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	29	10	30	Most effective treatment method due to terrain
2922000	Herb Robert	Steam treatment; Glyphosate	Pacific North	29	11	15	May be most effective for size of infestation
2923000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	28	12	2	Most effective treatment method due to terrain
2932000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	28	12	5	Most effective treatment method due to terrain
3000000	Herb Robert	Steam treatment; Glyphosate	Pacific North	30	11	11	May be most effective for size of infestation

Appendix F: Control Recommendations by Site, continued

Road ID	Weed	Treatment Recommendation	District	Township	Range	Section	Rationale
3000000	Herb Robert	Steam treatment; Glyphosate	Pacific North	30	11	19	May be most effective for size of infestation
3000000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific South	24	12	16	Most effective treatment method due to terrain
3000200	Herb Robert	Steam treatment; Glyphosate	Pacific North	30	11	2	May be most effective for size of infestation
3000200	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	30	11	10	Most effective treatment method due to terrain
3000250	Herb Robert	Steam treatment; Glyphosate	Pacific North	30	11	3	May be most effective for size of infestation
3040000	Scotch broom	Glyphosate applied to cut stump; climbing gear recommended	Pacific North	30	11	20	Most effective treatment method due to terrain
3100300	Herb Robert	Steam treatment; Glyphosate	Pacific North	30	12	9	May be most effective for size of infestation

Appendix G: WCC Work Summary



We provided training for the WCC crew including plant identification and removal techniques. Tools were loaned to the crew and reporting forms were provided. Weeds removed were counted for a period of time (for ½ an hour, for example) and then totals were extrapolated from those counts.

Work locations were chosen based on:

- Forest Service Priorities
- Ease of site access
- Tasks too big for the Clallam County field technicians were assigned to the WCC crews
- “Do-ability” of the task – its important for the crew to have a sense of accomplishment and valuable contribution to the overall project

Site comments from Julie Holder, WCC crew Supervisor, are included at the end of each road listed.

Road/Location	Weed Species	Date Work Performed	# of Hours*	# of Crew	Total Hours	Prior treatment?	# of Plants Removed
BY DATE							
2620.000 Rocky Brook Rd.	Tansy ragwort	6/27/2005	40	5	200	Y	12,650
2620.000 Rocky Brook Rd.	Scotch broom	6/27/2005				Y	11,325
2620.000 Rocky Brook Rd.	Herb Robert	6/27/2005					130
2620.000 Rocky Brook Rd.	Bull thistle	6/27/2005				Y	62
These numbers represent the totals that were found along the entire stretch of road with the exception of Scotch Broom. At mile marker 10.8 – 11.2 (Dosewallips end) is a healthy Scotch broom patch consisting mainly of young plants; however there are older stocks as well. The estimated number there is over 20,000.							
2880.050 Dungeness Forks Campground	Herb Robert	7/5/2005	30	5	150	Y	241,504
Though growth is expected to recur every year, the Herb Robert in the campground is manageable. Total eradication was not a problem in the campground due to the concentration of the weed towards the back of the campground. The problem that will proceed is the trail that follows the river heading out from the parking lot. It was this trail and surrounding areas that total elimination was not achieved. As the numbers listed above show an increase at the trail and trail head, they are merely the beginning of what remains on location as the trail continues.							
2870.059 above Cranberry Bog	Scotch broom	7/11/2005	30	5	150	Y	14,725
2870.059 above Cranberry Bog	Bull thistle	7/11/2005				Y	192
2870.059 above Cranberry Bog	Canada thistle	7/11/2005				Y	3,157
2870.059 above Cranberry Bog	Tansy ragwort	7/11/2005				Y	1
2870.059 above Cranberry Bog	Meadow knapweed	7/11/2005				Y	24
2870.059 above Cranberry Bog	Herb Robert	7/11/2005				Y	715

Appendix G: WCC Work Summary, continued

Road/Location	Weed Species	Date Work Performed	# of Hours*	# of Crew	Total Hours	Prior treatment?	# of Plants Removed
Overall, road #2870 – 059 was not overly infested. The majority of the Scotch Broom was located at the end of the road and was mainly old growth with some stalks as thick as 6" in diameter. Due to the debris being left on site, there are now three very large piles that may cause concern to some. As far as the other species found, Herb Robert and Meadow Knapweed were isolated events occurring in only one location each.							
2610.000 Dosewallips Rd.	Tansy ragwort	7/14/2005	10	5	50	Y	350
2610.000 Dosewallips Rd.	Bull thistle	7/14/2005				Y	114
2610.000 Dosewallips Rd.	Canada thistle	7/14/2005				Y	413
2610.000 Dosewallips Rd.	Herb Robert	7/14/2005				Y	2,498
2610.000 Dosewallips Rd.	Scotch broom	7/14/2005				Y	553
Starting at the wash out and working back towards Brinnon, the numbers above represent what was found over two miles. The Tansy Ragwort, Bull Thistle, and Canadian Thistle were fully removed from these two miles. The Scotch Broom was also removed up to the ending point where a large patch begins. It is the Herb Robert that unfortunately still remains on location. In these two miles there are two large patches: one towards the horse corral, the other around mile 1. The 2498 that were pulled were mainly from one location just before mile 1 and that section was completely cleared.							
2730.200 Falls View Campground	Herb Robert	7/18/2005	10	5	50	Y	10,610
2730.200 Falls View Campground	Tansy ragwort	7/18/2005				Y	28
2730.200 Falls View Campground	Bull thistle	7/18/2005				Y	11
2900.000 North end	Herb Robert	7/19/2005	15	5	75		579,840
2900.000 North end	Tansy ragwort	7/19/2005				Y	20
Snider Work Center	Japanese knotweed	7/20/2005	5	5	25	Y	709
2900.000 South Calawah Botanical Area	Herb Robert	7/21/2005	10	5	50		1,024
TOTALS - 4 wks (less one holiday)			150		750		880,655
* includes travel time							

BY WEED							
2610.000 Dosewallips Rd.	Bull thistle	7/14/2005					114
2620.000 Rocky Brook Rd.	Bull thistle	6/27/2005					62
2730.200 Falls View Campground	Bull thistle	7/18/2005					11
2870.059 above Cranberry Bog	Bull thistle	7/11/2005					192
Subtotal: Bull thistle							379
2610.000 Dosewallips Rd.	Canada thistle	7/14/2005					413
2870.059 above Cranberry Bog	Canada thistle	7/11/2005					3,157
Subtotal: Canada thistle							3,570

Appendix G: WCC Work Summary, continued

Road/Location	Weed Species	Date Work Performed	# of Hours*	# of Crew	Total Hours	Prior treatment?	# of Plants Removed
2610.000 Dosewallips Rd.	Herb Robert	7/14/2005					2,498
2620.000 Rocky Brook Rd.	Herb Robert	6/27/2005					130
2730.200 Falls View Campground	Herb Robert	7/18/2005	10	5	50		10,610
2870.059 above Cranberry Bog	Herb Robert	7/11/2005					715
2880.050 Dungeness Forks Campground	Herb Robert	7/5/2005	30	5	150		241,504
2900.000 North end	Herb Robert	7/19/2005	15	5	75		579,840
2900.000 South Calawah Botanical Area	Herb Robert	7/21/2005	10	5	50		1,024
Subtotal: Herb Robert							836,321
Snider Work Center	Japanese knotweed	7/20/2005	5	5	25		709
Subtotal: Japanese knotweed							709
2870.059 above Cranberry Bog	Meadow knapweed	7/11/2005					24
Subtotal: Meadow knapweed							24
2610.000 Dosewallips Rd.	Scotch broom	7/14/2005					553
2620.000 Rocky Brook Rd.	Scotch broom	6/27/2005					11,325
2870.059 above Cranberry Bog	Scotch broom	7/11/2005	30	5	150		14,725
Subtotal: Scotch broom							26,603
2610.000 Dosewallips Rd.	Tansy ragwort	7/14/2005	10	5	50		350
2620.000 Rocky Brook Rd.	Tansy ragwort	6/27/2005	40	5	200		12,650
2730.200 Falls View Campground	Tansy ragwort	7/18/2005					28
2870.059 above Cranberry Bog	Tansy ragwort	7/11/2005					1
2900.000 North end	Tansy ragwort	7/19/2005					20
Subtotal: Tansy ragwort							13,049
TOTAL							880,655

Appendix H: WCC Potential Projects for 2006

As of this report date, there is no funding for WCC work on this project in 2006. The table below outlines what could be accomplished should funding become available.

Estimating the amount of time a noxious weed control site will require is difficult. Our protocol for developing this list was:

1. We used the time required for the WCC to complete 2005 tasks as a basis for estimating future tasks.
2. The only control method being used is manual control.
3. Unless otherwise noted, we assumed that the weeds are evenly distributed throughout the infestation.
4. All weeds can be manually removed at the same rate.
5. The site infestation is too big for the 2-person survey team to handle.
6. The site is accessible.
7. The task is "do-able" – there is likelihood of success, eradication may be possible.
8. The priority of these sites will be determined by: the 2006 Forest Service Priorities list; sites that have been treated previously; new infestations.

Note: The use of herbicides will greatly reduce the crew-hours needed to perform these control tasks. Some infestations are too big for even a 5-person crew to tackle manually.

FS Road	Location Description	Weed(s)	Protocol Categories					Comments	5-man crew days required
			FS Priority	Has had prior control	New Infestation	Trailhead	Campground		
2065	Cooper-Ranch Road	Scotch broom; Tansy ragwort; Herb Robert		Y					2
2610.000	Dosewallips Rd.	Bull thistle, Scotch broom, Tansy ragwort, Herb Robert; Evergreen blackberry		Y				Entire road; Herb Robert infestations will only be controlled with herbicide	2
2620.000	Rocky Brook Rd.	Tansy ragwort, Scotch broom		Y				Entire road	3
2620.000	Rocky Brook Rd.	Herb Robert		Y				At milepost 9.5	2
2730.000	Mt. Walker	Tansy, Common Tansy		Y		Y			1
2730.200	Falls View Campground	Herb Robert		Y			Y		1
2730.300	Quilcene Ranger Station	Scotch broom		Y					2
2850.000		Tansy ragwort		Y					1

Appendix H: WCC Potential Projects for 2006, continued

FS Road	Location Description	Weed(s)	Protocol Categories					Comments	5-man crew days required
			FS Priority	Has had prior control	New Infestation	Trailhead	Campground		
2852.000		Tansy ragwort		Y					
2870.059	Above cranberry bog	Scotch broom, Tansy ragwort, Meadow knapweed, Bull thistle, Herb Robert	Y	Y				Scotch broom, all removed in 2005, is concentrated at end of spur	1
2880.050	Dungeness Forks Campground	Herb Robert	Y	Y			Y		3
2900.000	MP 36.3ish	Herb Robert		Y	Y				2
2902.000	Pit	Scotch broom		Y					1
SFCRBA	(South Fork Calawah River Botanical Area)	Herb Robert	Y	Y					1
								Crew Days	22
								Weeks	5.5

Appendix I: Clallam Co. Sheriff's/Road Dept. Chain Gang Work Summary



In 2005, the Chain gang continued its excellent effort to control noxious weeds on Clallam Co. National Forest lands. Their participation in this project is important for its success.

Weed	Date Work Done W/E	Road	# of Plants Removed
Scotch broom	4/22/05	2918.000	1,175
Tansy ragwort	4/22/05	2918.000	75
Herb Robert	4/29/05	Snider Work Center	25,000
Herb Robert	5/20/05	2850.010	13,000
Tansy ragwort	5/20/05	2850.000 & 2850.010	2,100
Tansy ragwort	5/20/05	2851.000 & 2851.080	750
Tansy ragwort	6/3/05	2851.000 & 2852.000	4,000
Herb Robert	6/3/05	Snider Work Center	25,000
Tansy ragwort	6/24/05	2800.000	5,500
Tansy ragwort	7/1/05	2900.000	1,125
Scotch broom	7/22/05	2870.000	950
Tansy ragwort	7/28/05	2800.000	10,750
Tansy ragwort	8/5/05	2918.000	300
Tansy ragwort	8/12/05	2800.000	18,000
Tansy ragwort	8/25/05	2900.000	300
Scotch broom	9/29/05	2900.000	200
Knotweed	9/29/05	Snider Work Center	See individual site documentation
TOTAL			108,225

BY WEED			
Herb Robert	4/29/05	Snider Work Center	25,000
Herb Robert	5/20/05	2850.010	13,000
Herb Robert	6/3/05	Snider Work Center	25,000
Sub-total			63,000
Knotweed	9/29/05	Snider Work Center	See individual site documentation
Sub-total			
Scotch broom	4/22/05	2918.000	1,175
Scotch broom	7/22/05	2870.000	950

Appendix I: Chain gang work, continued

Weed	Date Work Done W/E	Road	# of Plants Removed
Scotch broom	9/29/05	2900.000	200
Sub-total			2,325
Tansy ragwort	4/22/05	2918.000	75
Tansy ragwort	5/20/05	2850.000 & 2850.010	2,100
Tansy ragwort	5/20/05	2851.000 & 2851.080	750
Tansy ragwort	6/3/05	2851.000 & 2852.000	4,000
Tansy ragwort	6/24/05	2800.000	5,500
Tansy ragwort	7/1/05	2900.000	1,125
Tansy ragwort	7/28/05	2800.000	10,750
Tansy ragwort	8/5/05	2918.000	300
Tansy ragwort	8/12/05	2800.000	18,000
Tansy ragwort	8/25/05	2900.000	300
Sub-total			42,900
TOTAL			108,225

Appendix J: Orange Hawkweed Control Test Plot

Date: September 25th, 2003
 Location: F.S. 2900 at milepost 36, east side of the road beneath the milepost marker.
 Conditions: Clear skies, sunny, 60-65 degrees Fahrenheit.

Objective: To see if non-chemical control techniques could effectively control Orange hawkweed in a roadside setting.

Procedure: Experimental area was divided into 6 plots of roughly equal size using wooden pegs and surveyor's tape. These plots were numbered 1-6 (see figure 1). Plots 1 & 4 were left as controls, with no treatment. Plots 2 & 5 were raked aggressively to remove about 50 percent of the Orange hawkweed and other plants from the plots and expose bare soil. Plot 2 was raked with a 3 tined cultivator, which dug more deeply than the garden rake used for plot 5. Plots 5 & 6 were fertilized by hand-broadcasting a granular plant food fertilizer. The fertilizer was Cenex Plant Food 21-7-14-9 (N, P, K, and S, respectively). Plots 2, 3, 5, & 6 were then top-seeded with a mixture of certified weed-free annual rye seed and locally gathered pearly everlasting and fireweed seeds/flowers, (95 % annual rye, approximately 5% pearly everlasting and fireweed).

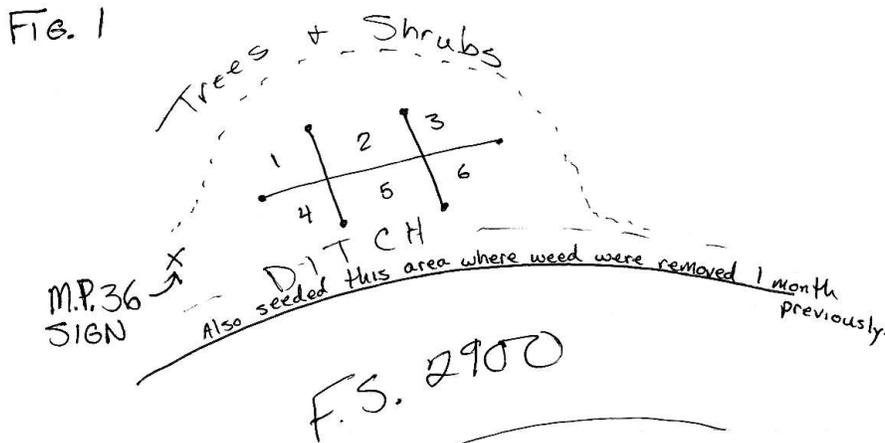


TABLE 1

PLOT	TREATMENT(S)
1	None (Control)
2	Seed, Rake
3	Seed
4	None (Control)
5	Seed, Rake, Fertilize
6	Seed, Fertilize

Appendix J: Orange Hawkweed Control Test Plot, continued

2004 follow-up:

April 8th, 2004: The first visit of the season found that none of the plants were flowering. The plot boundaries were relocated, and the experimental plots were visually inspected to compare Orange hawkweed densities. For some reason, the control plots were not included in this comparison. I believe this was an error. The experimental plots were ranked according to the density of the hawkweed regrowth. A rank of 1 indicates the least amount of hawkweed, and 4 indicates the most hawkweed. The results are summarized below.

- Plot 1- control, not evaluated
- Plot 2- seeded, raked in 2003, ranked 3
- Plot 3- seeded in 2003, ranked 4 (most hawkweed)
- Plot 4- control, not evaluated
- Plot 5- seeded, raked, fertilized in 2003, ranked 1 (least hawkweed)
- Plot 6- seeded, fertilized in 2003, ranked 2 but almost a 1

Conclusions: Plot 6 showed almost the same degree of hawkweed suppression as in Plot 5, without the extensive ground disturbance and investment of labor. For this reason, we felt that the practice of raking before seeding and fertilizing was unnecessary. The fertilized plots showed thicker rye growth than the unfertilized plots, and greater control of the hawkweed. The significant suppression of the hawkweed by the rye in plots 5 & 6 indicated to us that revegetation is a crucial component of weed control. Desirable non-invasive vegetation limits the spread of noxious weeds by competing for resources like light, water, and nutrients, while simultaneously occupying potential weed establishment sites.



May & June, 2004: We revisited the site 3-4 times to check on the progress of the hawkweed. In late May, we began to see blossoms forming. By early June we began to remove any flower heads to prevent seed spread. We decided that the experiment had run its course, and it was time to apply what we had learned to the whole area, if possible.

Appendix J: Orange Hawkweed Control Test Plot, continued

On June 16th: We pulled as many outlying plants as we could from the margins of the infested area. We then reseeded the entire area with noxious weed-free annual rye seed from Royal Brand premium seed. This was the last visit to this site in 2004.



Around this time, concerned that our attempts would suppress but not control the hawkweed, we began to research the idea of smothering the hawkweed under a thick layer of woodchips or mulch. We recommend more research to develop a truly integrated vegetation management plan to eradicate this weed site, and prevent any further spread of orange hawkweed within this area. Additional funding may be required.

2005 Follow-up:

- May 18, 2005: First look at the site in 2005. Hmmmm. Looks much better, but will need some control work this year. Estimate 2 hours/2 people to remove all plants.
- July 12, 2005: Three field technicians spent 3 hours removing all plants found – approximately 3,600. Dug underneath plants in an attempt to remove all roots.
- Sept. 13, 2005: Returned to collect plant samples for a Univ. of Montana student doing a research project. The site looks great! Was difficult to find samples. Removed all found (20).
- Conclusions: Treatment follow-up in 2006 is imperative to maintain control achieved thus far. Our success at controlling the orange hawkweed at this site is due to: size of infestation (small), ease of access, soil type (loose forest duff), good follow-up (essential!).

Appendix K: WA State Noxious Weed List

Noxious weeds are non-native plants introduced to Washington through human actions. Because of their aggressive growth and lack of natural enemies in the state, these species can be highly destructive, competitive or difficult to control. These exotic species can reduce crop yields, destroy native plant and animal habitat, damage recreational opportunities, clog waterways, lower land values and poison people and livestock.

To help protect the state's resources, the Washington State Noxious Weed Control Board adopts a State Noxious Weed List each year. This list categorizes weeds into three major classes - A, B & C -according to the seriousness of the threat they pose to the state or a region of the state.

Class A Weeds: Non-native species with a limited distribution in Washington. Preventing new infestations and eradicating existing infestations is the highest priority. **Eradication is required by law.**

<u>Common name</u>	<u>Scientific name</u>
Bean-caper, Syrian	<i>Zygophyllum fabago</i>
Blueweed, Texas	<i>Helianthus ciliaris</i>
Broom, Spanish	<i>Spartium junceum</i>
Buffalobur	<i>Solanum rostratum</i>
Clary, Meadow	<i>Salvia pratensis</i>
Cordgrass, Denseflower	<i>Spartina densiflora</i>
Cordgrass, Salt meadow	<i>Spartina patens</i>
Crupina, Common	<i>Crupina vulgaris</i>
Flax, Spurge	<i>Thymelaea passerina</i>
Four o'clock, Wild	<i>Mirabilis nyctaginea</i>
Goatsrue	<i>Galega officinalis</i>
Hawkweed, Yellow devil	<i>Hieracium floribundum</i>
Hogweed, Giant	<i>Heracleum mantegazzianum</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>
Lawnweed	<i>Soliva sessilis</i>
Mustard, Garlic	<i>Alliaria petiolata</i>
Nightshade, Silverleaf	<i>Solanum elaeagnifolium</i>
Sage, Clary	<i>Salvia sclarea</i>
Sage, Mediterranean	<i>Salvia aethiopsis</i>
Spurge, Eggleaf	<i>Euphorbia oblongata</i>
Starthistle, Purple	<i>Centaurea calcitrapa</i>
Thistle, Italian	<i>Carduus pycnocephalus</i>
Thistle, Milk	<i>Silybum marianum</i>
Thistle, Slenderflower	<i>Carduus tenuiflorus</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Woad, Dyers	<i>Isatis tinctoria</i>

Appendix K: WA State Noxious Weed List, continued

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.

<u>Common name</u>	<u>Scientific name</u>	<u>Common name</u>	<u>Scientific name</u>
Alyssum, Hoary	<i>Berteroa incana</i>	Knapweed, Spotted	<i>Centaurea biebersteinii</i>
Arrowhead, Grass-leaved	<i>Sagittaria graminea</i>	Knotweed, Bohemian	<i>Polygonum bohemicum</i>
Blackgrass	<i>Alopecurus myosuroides</i>	Knotweed, Giant	<i>Polygonum sachalinense</i>
Blueweed	<i>Echium vulgare</i>	Knotweed, Himalayan	<i>Polygonum polystachyum</i>
Broom, Scotch	<i>Cytisus scoparius</i>	Knotweed, Japanese	<i>Polygonum cuspidatum</i>
Bryony, White	<i>Bryonia alba</i>	Kochia	<i>Kochia scoparia</i>
Bugloss, Annual	<i>Anchusa arvensis</i>	Lepyrodiclis	<i>Lepyrodiclis holosteoides</i>
Bugloss, Common	<i>Anchusa officinalis</i>	Loosestrife, Garden	<i>Lysimachia vulgaris</i>
Camelthorn	<i>Alhagi maurorum</i>	Loosestrife, Purple	<i>Lythrum salicaria</i>
Carrot, Wild	<i>Daucus carota</i>	Loosestrife, Wand	<i>Lythrum virgatum</i>
Catsear, Common	<i>Hypochaeris radicata</i>	Nutsedge, Yellow	<i>Cyperus esculentus</i>
Chervil, Wild	<i>Anthriscus sylvestris</i>	Parrotfeather	<i>Myriophyllum aquaticum</i>
Cinquefoil, Sulfur	<i>Potentilla recta</i>	Pepperweed, Perennial	<i>Lepidium latifolium</i>
Cordgrass, Common	<i>Spartina anglica</i>	Primrose, Water	<i>Ludwigia hexapetala</i>
Cordgrass, Smooth	<i>Spartina alterniflora</i>	Puncturevine	<i>Tribulus terrestris</i>
Daisy, Oxeye	<i>Leucanthemum vulgare</i>	Ragwort, Tansy	<i>Senecio jacobaea</i>
Elodea, Brazilian	<i>Egeria densa</i>	Saltcedar	<i>Tamarix ramosissima</i>
Fanwort	<i>Cabomba caroliniana</i>	Sandbur, Longspine	<i>Cenchrus longispinus</i>
Fieldcress, Austrian	<i>Rorippa austriaca</i>	Skeletonweed, Rush	<i>Chondrilla juncea</i>
Floating heart, Yellow	<i>Nymphoides peltata</i>	Sowthistle, Perennial	<i>Sonchus arvensis</i> ssp. <i>arvensis</i>
Gorse	<i>Ulex europaeus</i>	Spurge, Leafy	<i>Euphorbia esula</i>
Hawkweed, Mouseear	<i>Hieracium pilosella</i>	Spurge, Myrtle	<i>Euphorbia myrsinites</i>
Hawkweed, Orange	<i>Hieracium aurantiacum</i>	Starthistle, Yellow	<i>Centaurea solstitialis</i>
Hawkweed, Oxtongue	<i>Picris hieracioides</i>	Swainsonpea	<i>Sphaerophysa salsula</i>
Hawkweed, Polar	<i>Hieracium atratum</i>	Thistle, Musk	<i>Carduus nutans</i>
Hawkweed, Queen-devil	<i>Hieracium glomeratum</i>	Thistle, Plumeless	<i>Carduus acanthoides</i>
Hawkweed, Smooth	<i>Hieracium laevigatum</i>	Thistle, Scotch	<i>Onopordum acanthium</i>
Hawkweed, Yellow	<i>Hieracium caespitosum</i>	Toadflax, Dalmatian	<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>
Hedgeparsley	<i>Torilis arvensis</i>	Watermilfoil, Eurasian	<i>Myriophyllum spicatum</i>
Helmet, Policeman's	<i>Impatiens glandulifera</i>		
Herb Robert	<i>Geranium Robertianum</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>		
Knapweed, Russian	<i>Acroptilon repens</i>		

Appendix K: WA State Noxious Weed List, continued

Class C Weeds: Non-native weeds found in Washington. Many of these species are widespread in the state. Long-term programs of suppression and control are a county option, depending upon local threats and the feasibility of control in local areas.

<u>Common name</u>	<u>Scientific name</u>
Babysbreath	<i>Gypsophila paniculata</i>
Bindweed, Field	<i>Convolvulus arvensis</i>
Butterfly bush	<i>Buddleia davidii</i>
Canarygrass, Reed	<i>Phalaris arundinacea</i>
Cockle, White	<i>Silene latifolia</i> ssp. <i>alba</i>
Cocklebur, Spiny	<i>Xanthium spinosum</i>
Cress, Hoary	<i>Cardaria draba</i>
Dodder, Smoothseed alfalfa	<i>Cuscuta approximata</i>
Goatgrass, Jointed	<i>Aegilops cylindrica</i>
Groundsel, Common	<i>Senecio vulgaris</i>
Hawkweed spp.	Non-native <i>Hieracium</i> species except those listed as Class A or Class B
Henbane, Black	<i>Hyoscyamus niger</i>
Iris, Yellow flag	<i>Iris pseudocorus</i>
Ivy, English	4 cultivars only <i>Hedera hibernica</i> 'Hibernica' <i>Hedera helix</i> 'Baltica' <i>Hedera helix</i> 'Pittsburgh' <i>Hedera helix</i> 'Star'
Mayweed, Scentless	<i>Matricaria perforata</i>
Old man's beard	<i>Clematis vitalba</i>
Poison-hemlock	<i>Conium maculatum</i>
Reed, Common	<i>Phragmites australis</i> (Non-native genotypes)
Rye, Cereal	<i>Secale cereale</i>
Spikeweed	<i>Hemizonia pungens</i>
Spurge, Myrtle	<i>Euphorbia myrsinites</i>
St. Johnswort, Common	<i>Hypericum perforatum</i>
Tansy, Common	<i>Tanacetum vulgare</i>
Thistle, Bull	<i>Cirsium vulgare</i>
Thistle, Canada	<i>Cirsium arvense</i>
Toadflax, Yellow	<i>Linaria vulgaris</i>
Water lily, Fragrant	<i>Nymphaea odorata</i>
Whitetop, Hairy	<i>Cardaria pubescens</i>
Willowherb, Hairy	<i>Epilobium hirsutum</i>
Wormwood, Absinth	<i>Artemisia absinthium</i>

A cooperative project between:



Clallam County
Noxious Weed Control Board



Jefferson County
Noxious Weed Control Board



Olympic National Forest

