

Thurston County Noxious Weed Control Agreement #G1200010

FINAL PROJECT REPORT

FOR

Agreement Number: G1200010

Chehalis River *Egeria densa* Control

Prepared by:

Thurston County Noxious Weed Control Board

October 12, 2011

Project Start Date: July 1, 2011

End Date: October 12, 2011

PROJECT SUMMARY

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BACKGROUND

- Brazilian elodea was found in Thurston County in July of 1999 approximately 7 river miles from the first discovery near Plummer Lake in Lewis County. These infestations of Brazilian elodea were hand pulled and sites marked for follow up monitoring
- Years 2000 and 2001, additional hand pulling efforts were made in Thurston County.
- In 2002, a private diver was hired to assist with removing these infestations. Even with these additional efforts more sites were being found each year.
- In September 2003, an increase in the removal effort was necessary to address the rate of spread of Brazilian elodea in the river.
- In October 2003, a survey of Brazilian elodea infestations was conducted near the source to the heaviest infestations in Lewis County to the project site in Thurston County. Scattered plants and patches were found throughout the main stem of the Chehalis River from Plummer Lake at (River mile 67) to the Thurston County infestations at River mile 59.
- In 2004, Washington Department of Natural Resources agreed to sponsor a pilot project which used (diver dredging) to remove elodea from the Chehalis River in Thurston County. A pilot project using diver dredging to remove Brazilian elodea from the most seriously infested sites was performed from July 19, 2004 through July 29, 2004. Over seven thousand pounds of elodea was removed. Unfortunately much of this biomass returned the following years as no guidance on root removal was available at the time.
- In 2005, a follow up survey indicated many of the areas where biomass was removed did have significant re-growth. An expert from Portland State University was contacted for analysis and advice. Toni Pennington an ANS Research Assistant for the Environmental Science and Resources Center for Lakes & Reservoirs at PSU was consulted. Ms. Pennington observed the meticulous root removal process in 2005, her recommendations were:
 - Root removal must occur below the double node of the fibrous root ball for control to be achieved. This information was not available until August 2005. The 2005 project included the meticulous removal of all roots in an area of infestation in Lewis County. 1.5-2 acres of elodea was removed, 90%+ of the biomass and roots were removed in this area. No elodea has returned for nearly 6 consecutive years, in 2011 this area is free of Brazilian elodea.
- During 2006 through 2011, removal in the main stem of the Chehalis River included continuing this technique of removing the roots to the point of the double node.
- Also in 2006;
 - A Memorandum of Understanding for the Chehalis River Cooperative Weed Management Area was originally signed in 2006 and re-authorized late in 2010, the CRCWMA will continue through this agreement during the years of 2011 through 2017.
 - A Memorandum of Understanding between the Confederated Tribes and the Thurston County Noxious Weed Control Board was in effect 2006-2010.
 - A plan for the Chehalis River Weed Management Area was completed and accepted.
- In 2007 through 2009, Thurston County Noxious Weed Control and the Confederated Tribes of the Chehalis both received funding from several sources; the Department of Ecology, Washington State Salmon Recovery Board through the Nature Conservancy's project to enhance salmon bearing

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streams of the Chehalis River and U.S. Fish and Wildlife and Washington State Department of Natural Resources.

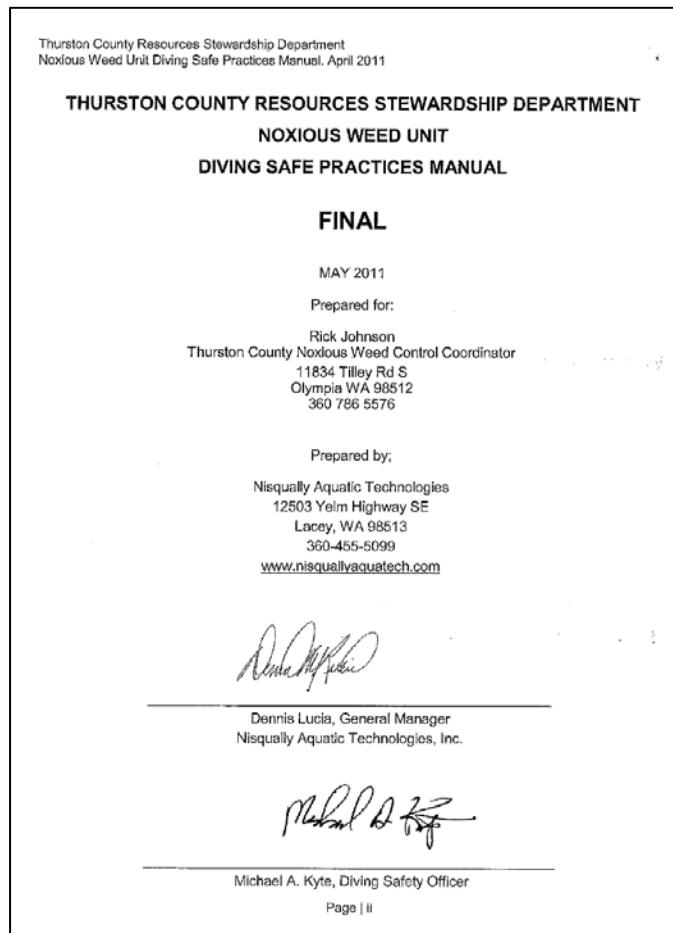
- In 2010 and 2011, Thurston County continued removal and expanded the scope of that project to 34 miles.

OBJECTIVE: The objective of this project was to complete biomass removal in all the previously infested areas of the Chehalis River from river mile 67 to 33.

PROJECT OVERVIEW:

The Elodea Removal project began in 2011 with the purchase of supplies and the hiring of a consultant to update our Safe Diving Practices Manual. This manual includes all the procedures, protocols, and safe diving practices followed when using divers to remove Brazilian elodea from the Chehalis River. The updated manual along with a health and safety manual was accepted by Washington State Labor and Industries this year. The following is a list of changes implemented through the newly adopted manual:

1. Compliance with WAC 296-37;
 - a. Standards for commercial diving operations
2. Designated safety officer;
 - a. Responsible for safety and training at all new sites and operations;
3. Guidelines for scuba; surface supply and snorkel survey projects
4. New diver qualifications;
 - a. Diver physicals
 - i. Dive specific criteria
 - b. Multiple logged dives
 - c. Oxygen administration training
5. Dive Team requirements;
 - a. Tender
 - b. Back up diver
 - c. Minimum 3 member dive team
6. Dive gear and equipment



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- a. 3 person pontoon required for navigation between remote locations on the Chehalis River where boat launches are not available.
 - b. All equipment, hoses, umbilicals, compressors, regulators, cylinders, valves etc. must be inspected and recorded
7. Additional warning signals (flags, and bouy) required
 8. Additional Communication systems (underwater PA) purchased
 9. Vessel requirements

One of the purchases necessary was the purchase of a 3 man small pontoon boat for diver dredge operations. A photograph of the new pontoon boat appears below. The larger pontoon replaces the two man equipment that was necessary due very limited access in many of the Brazilian elodea infested areas. The earlier projects equipment could only be used in areas with good access and in slower deeper sections of the Chehalis River which occur near Fort Borst Park in Lewis County and Prather Road in Thurston County. At Prather a crane was used to lower the larger equipment into and out of the river in 2006, 07, and 08. These areas continue to be nearly free of Brazilian elodea.



Access points are 7-10 miles apart in the project area so this was an important hurdle to clear to be able to provide full removal of *Egeria* in all areas of the infestation.

During 2011, 34 miles of the main stem were cleared of all known Brazilian elodea, making the third consecutive season for total removal of the infestation.

The following is the 2011 overview by the DPIC (designated person in charge) of the dive team Dan Reynoldson:

Project area is main stem and side channels of the Chehalis River from Plummer Lake (River mile 67) to Porter (River mile 33).

August 24, 2011; 54 pounds of Brazilian elodea removed. Plummer Lake to the first riffle: Launch is public at Fort Borst Park behind the ball fields. Most of the plants are along the right shore about 100 meters downstream from the boat launch to where the water gets shallow. In the fast running shallows there are some plants. At the bottom of the first riffle there are plants in the back flow on the left hand side. There is a small side channel on the left side of the main stem and this is where the majority of the Brazilian elodea removal was performed in this section.

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August 25, 2011; 67 pounds of Brazilian elodea removed from the second section of the project. This location is from the first riffle to the Galvin Bridge. There are a few plants on both sides of the river. There is a small slough before the bridge on the right side which continues to have a fair amount of Brazilian elodea.

August 29, 2011; 17 pounds of Brazilian elodea removed in the riffle area upstream of the Galvin Road Bridge in Lewis County.

August 30, 2011; 300 of Brazilian elodea removed from a slough on the east side of the River upstream from the Galvin Road Bridge. This is heaviest infestation in the entire River system.

August 31, 2011; 33 pounds of Brazilian elodea removed from this section which is downstream from the Galvin Road Bridge.

September 1, 2011; 52 pounds of Brazilian elodea removed. This section starts near the Galvin Road Bridge to confluence of Lincoln Creek into the Chehalis very near the Lewis/Thurston County line. The launch is from private property in the Galvin area just off Union Street. A few plants are found on both sides of the river most about a quarter to a half mile on the right. A large patch of elodea and parrot feather infests the Lincoln creek slough. Pull out is at end of Sheridan road in Lewis County. Ten pounds of parrotfeather was also removed from this area.

September 6, 2011; 30 pounds of Brazilian elodea removed and 250 pounds of parrotfeather removed from the confluence of Lincoln creek to the main stem of the Chehalis River.

September 7, 2011; 21 pounds of Brazilian elodea removed just downstream of the Lincoln creek confluence through to the Prather Road bridge area. Two parrotfeather plants removed from this section.

September 8, 2011; 58 pounds of Brazilian elodea removed downstream from the Prather Road Bridge. Small patches are found and removed from to James road, a few plants along both sides of river, very little detected compared to previous years.

September 12, 2011; 61 pounds of Brazilian elodea removed from Prather Road Bridge to Independence. This is a very long trip and it is difficult to survey and remove half way the first day. Mostly of the infestations is on the right hand side of the main channel. Downstream from James road there is a long stretch at Independence.

September 13, 2011; 91 pounds of Brazilian elodea removed from the long straight stretch, from Scatter Creek to just past the Independence Bridge. Brazilian elodea scattered on the right side of the main stem, with only a couple of plants found and removed at the Independence Road Bridge.

September 14, 2011, 13 individual plants of Brazilian elodea removed Independence Road Bridge to Black River, very few plants, locations have changed each year.

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September 16, 2011; 45 pounds of Brazilian elodea removed just past the Black River confluence to the Chehalis River main stem. Launch for this section is on the Chehalis Tribal land off Howanut Road in Grays Harbor County.

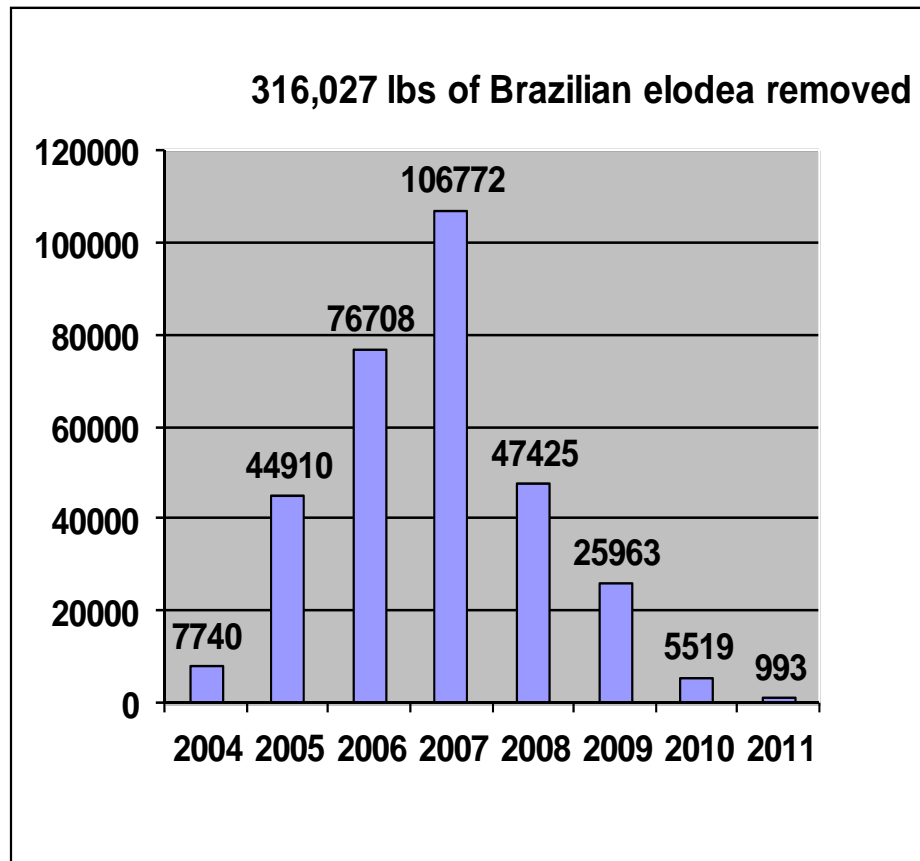
September 19, 2011; 4.5 pounds of Brazilian elodea removed two large areas of parrotfeather in this section (unable to remove one is nearly 5 acres solid) from the Chehalis Tribal land boat launch to Oakville. Boat engine died, took in for repairs, unable to repair needs replacement.

September 20, 2011; 9 pounds of Brazilian elodea removed, 70 pounds of parrotfeather removed this section is downstream from the boat launch in Oakville on Elma Gate road just west of Oakville.

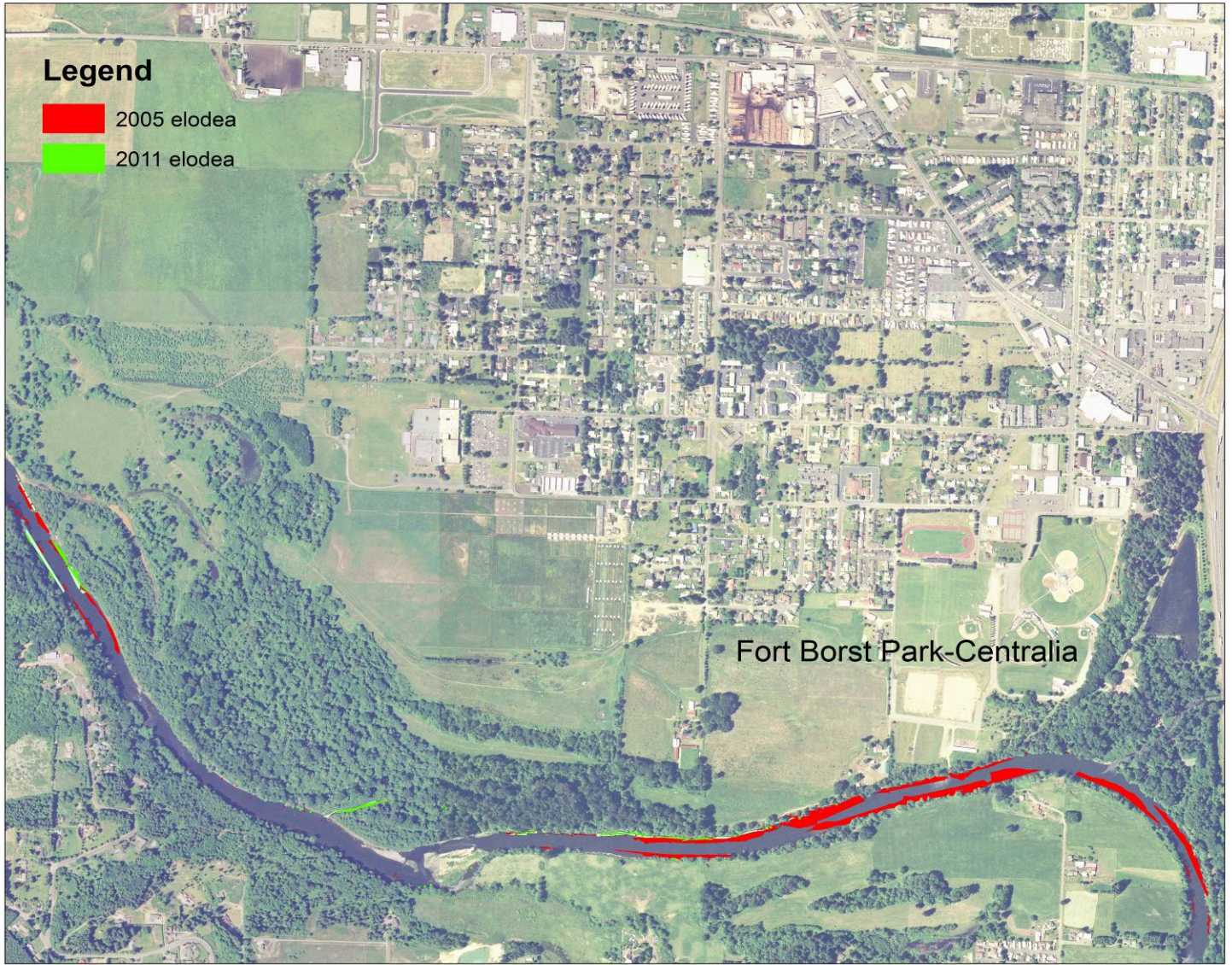
September 21, 2011; no Brazilian elodea removed, 100 pounds of parrotfeather removed Oakville to Porter.

September 22, 2011; 72 pounds of Brazilian elodea removed, from Borst Park area, targeting roots of previously removed plants.

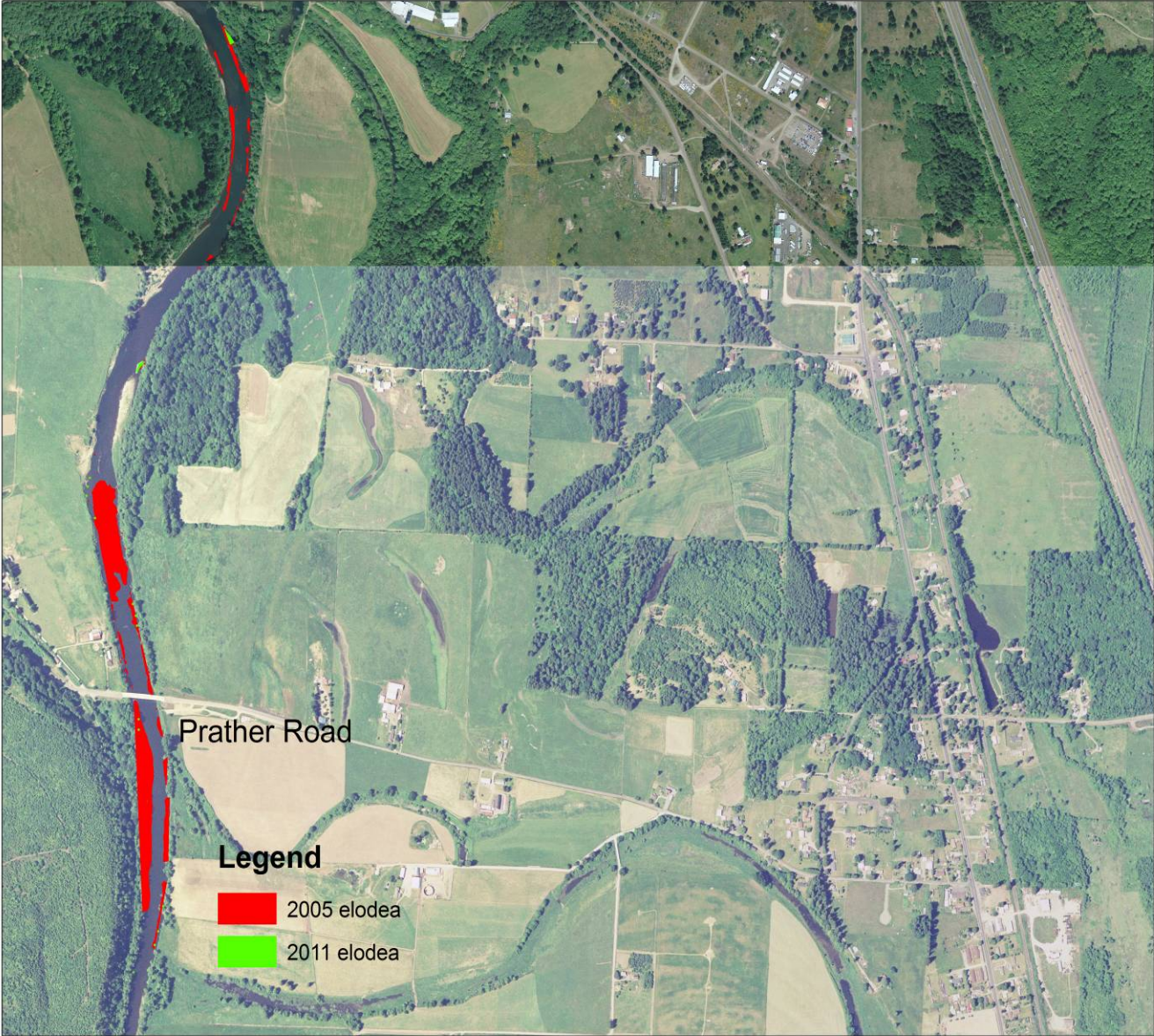
September 28th, 2011, 78 pounds of Brazilian elodea removed near Borst Park targeting roots of previously removed plants.

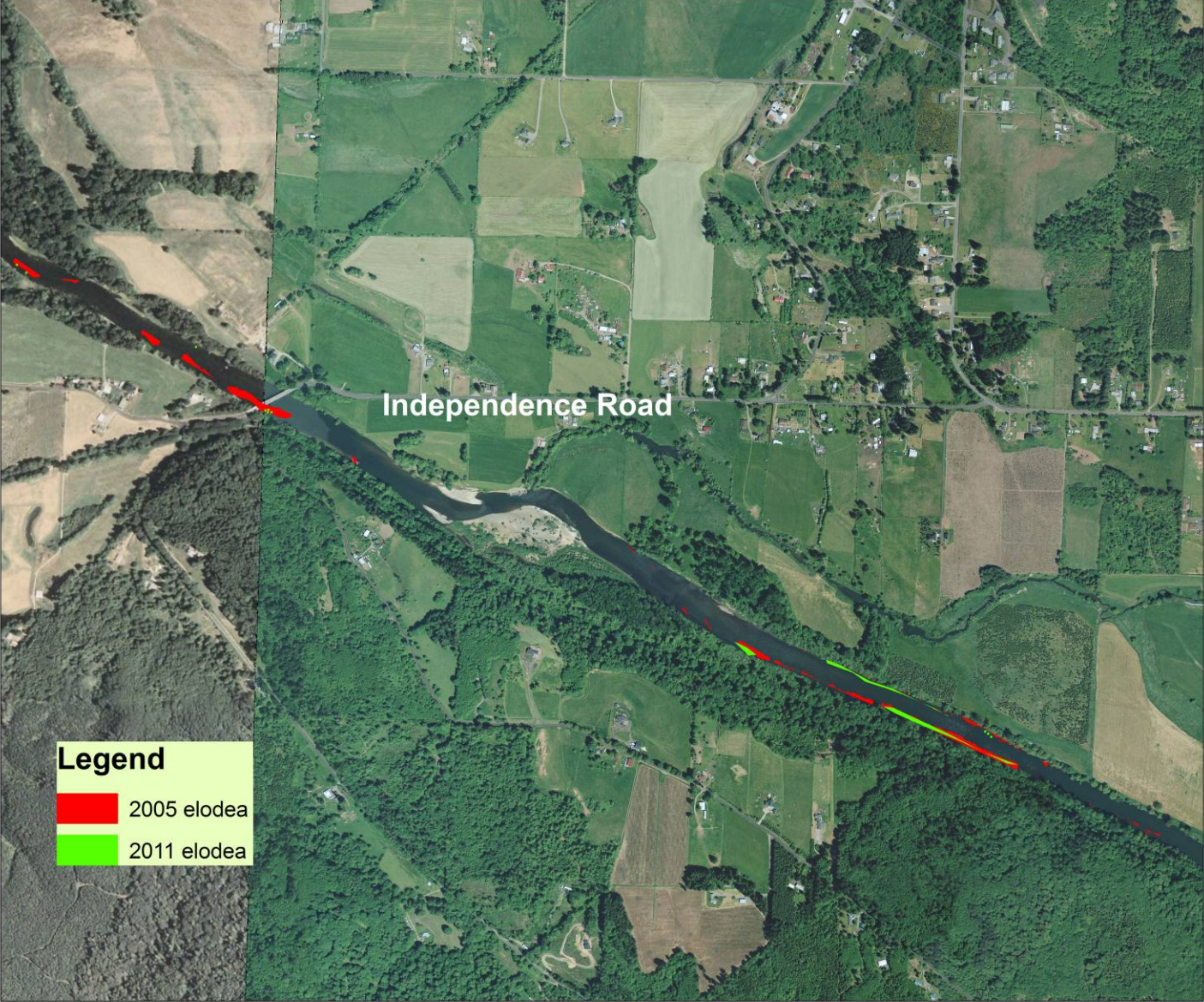


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PLANT SURVEYS AND MAPS

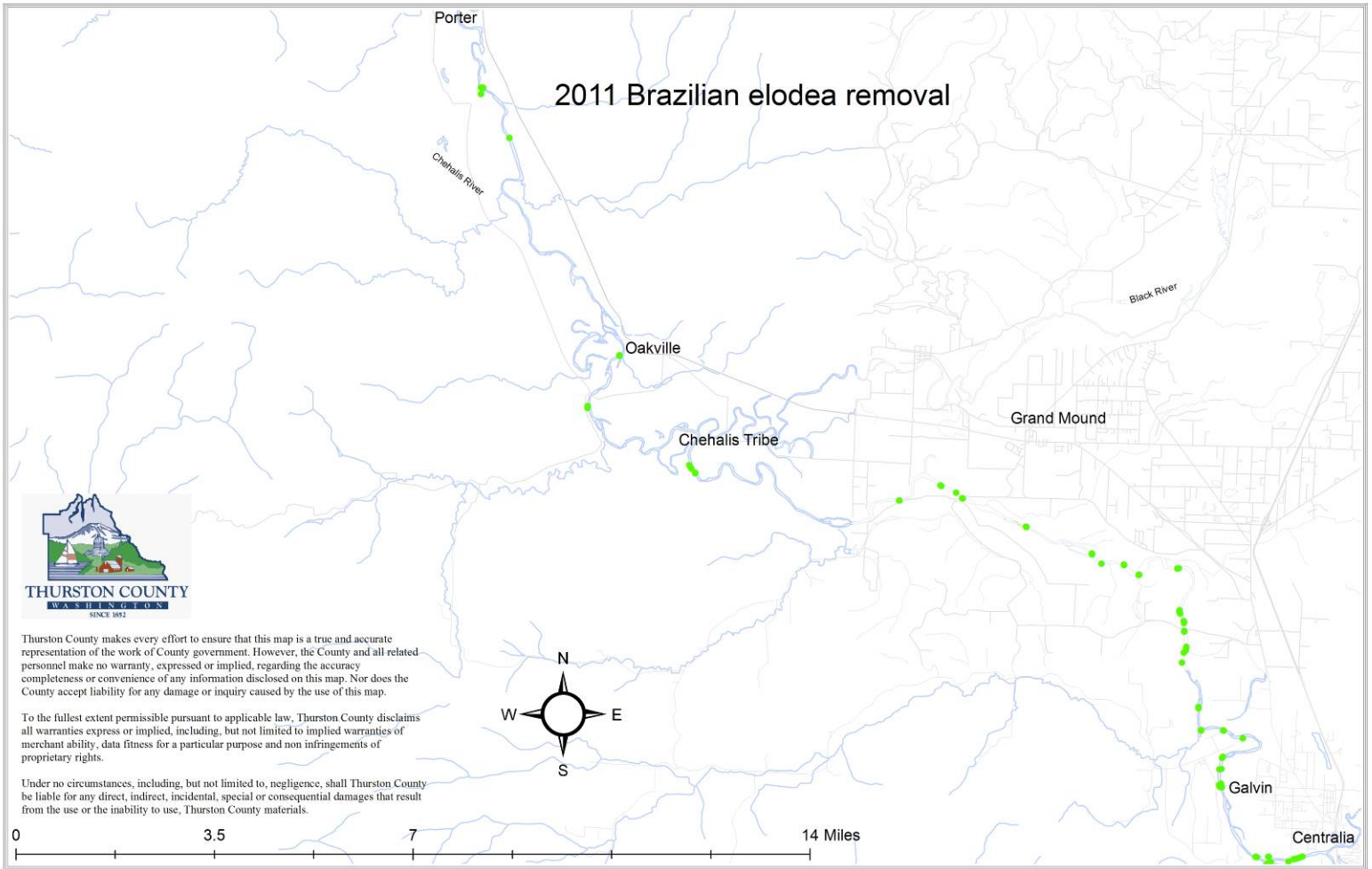


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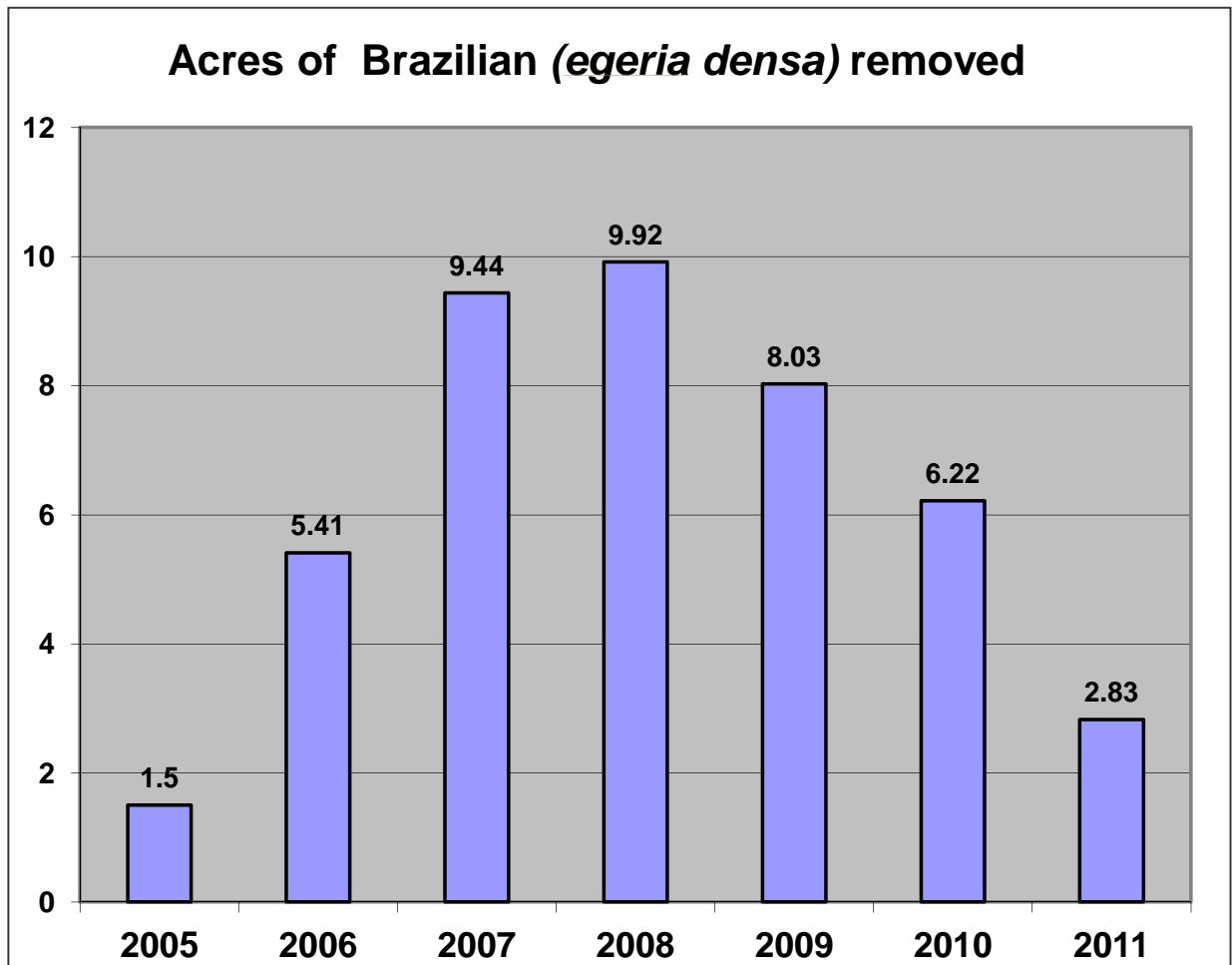


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Control methods:

Manual removal by divers was utilized on all infestations for the first time since 2003. Each year since 2004 mechanical removal was required due to the thousands of pounds of biomass infesting the Chehalis River. Finally, in 2011 we were able to remove all plants manually without the need to diver dredge. The following chart demonstrates the reduction in size of the infestation since 2005.

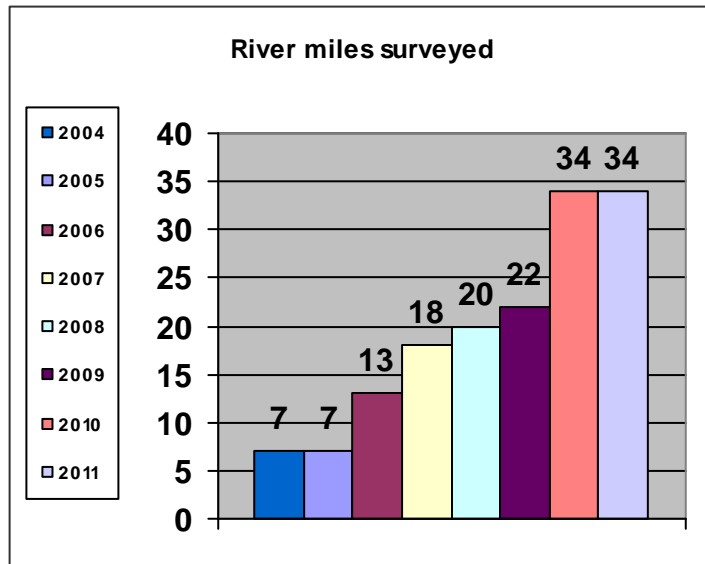


Monitoring:

Efficacy is determined by the amount of area and biomass removed from the project area annually and comparing it to the previous years' total, and the # of river miles surveyed.

OVERALL PROJECT RESULTS: The size of the Brazilian elodea infestation 2011 compared to the size of the original infestation in 2005 demonstrates a 91% reduction.

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PROPOSED MANAGEMENT FOR FUTURE YEARS:

U.S. Fish and Wildlife awarded an additional \$23,283 for this project 2011-2013. Survey and control of this very invasive noxious weed will continue with the eventual goal of eradicating Brazilian elodea from the Chehalis River.

DOE	Hours
Rick Johnson	39
Angela Celestine	24
Mary Jo Seery	5
Dan Reynoldson	106.75
Will Crowson	30.5
Dive Team	182
Subtotal	387.25
USFW	
Rick Johnson	12
Dan Reynoldson	102.25
Will Crowson	19.59
Dive Team	158
Subtotal	291.84
Total Hours of project	679.09