OSWB 2016 Grant Application Form
Grant Cycle 29-6 – Application Due Date: December 10, 2015

Project title: (Using 6 words or less give your project a descriptive title)
Willamette River Aquatic Weed Management, Phase 3
County or Counties project is located in:
Benton County

Type of Organization:

- ☒ Cooperative Weed Management Area
- ☐ Political Subdivision (not a state agency)
- ☐ Institute for Higher Education
- ☐ Soil & Water Conservation District
- ☐ Not-For-Profit Organization
- ☐ Private
- ☐ Tribe
- ☐ Watershed Council

OSWB dollars requested: $ 37,913

Total cost of project: $ 52,948

Name of Applicant or Organization: Benton County Cooperative Weed Management Area

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Project Manager for Applicant or Organization: Benton Soil and Water Conservation District

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Project Information

1.Weed Species: (List all state listed noxious weeds pertaining to this project. Use common name plus genus and species. If your project has more weeds than the allowable space please duplicate this table on a separate sheet and attach to this application)

*Habitat	**Method of treatment	*Weed species	Net/treatment acres	Gross/survey acres	Herbicide(s)	Define the timing of treatment
Wetland	*Bio-Control*	*Purple loosestrife, Lythrum salicaria*	*1*	*13*	*N/A*	*Late June*
Instream (Lake)	Herbicide	Yellow floating heart, Nymphoides peltata	0.5	16.5	Imazapyr, Glyphosate	June/July, and Sept./Oct.
Instream (River side-channels)	Herbicide	Uruguayan primrose-willow, Ludwigia hexapetala	7.5	12	Glyphosate	June/July, and Sept./Oct.
Instream	Manaul	Uruguayan primrose-willow, Ludwigia hexapetala	1	5	N/A	May/June

*Choose the primary habitat the weed exist – Upland, Riparian, Wetland, Instream, Estuary. It is recognized that some projects have mixed habitat types, chose only one habitat per weed per line. Habitats are described within the instructions. Use only state listed noxious weeds as described within the instructions Exhibit B.
**see question 5. below for designated treatment types

Total estimated project acreage: net: 9 gross: 33.5
(see appendix c with instructions for understanding calculation of your total project net/gross project acreage)

2. Project location: (directions to the site) Horseshoe Lake (Yellow floating heart site): From Hwy 20, head north onto NW N. Albany Rd, right onto NW Quarry Rd, left onto NW Cacade Heights Dr, and right onto NW Horseshoe Lake Cir. Parking area is on the right. Require landowner permission to park and walk down to lake.

Collins Bay (Ludwigia hexapetala site - 10.5 acres): Heading east on Hwy 20, take the first right after intersection of HWY 20 & Independence Hwy, onto private road. Park at bridge and walk along ag field edge towards Willamette River. Private road need permission to enter.

Wapato Cove (LUHE site - 1 acre): On the mainstem Willamette River downstream from Corvallis, 1 mile downstream from Tripp Greenway Island on river right. Accesible by boat, or by vehicle with landowner permission. From Hwy 34 head north on Riverside Dr. Turn left on Stellmacher Dr. and follow to river. Private road, need permission to enter.

Latitude: (Horseshoe Lake Site: W 123.114417), (Collins Bay Site: W 123.173014), (Wapato Cove Site: W 123.175548) Longitude: (Horseshoe Lake Site: N 44.661758), (Collins Bay Site: N 44.63495), (Wapato Cove Site: N 44.619181) (at least one lat/long reading is mandatory)

3. Does this project exist within a designated weed control district?
(Refer to ORS569.360)

☐Yes ☒No If Yes, provide district name:

4. Is this part of an established Cooperative Weed Management Area? ☒
Yes ☐No If yes provide name: Benton County Cooperative Weed Management Area

****5. Identify your integrated pest management methods:** (all activities must be directly related to the proposed project)**:**

☒Assessment/Management Plan Development
☐Biological control
☒Herbicide control
☐Mechanical control
☒Prevention
☐Other – Explain:
☒Education and outreach
☒Manual control
☒Monitoring
☒Restoration
☒Survey – Describe the method of survey planned: Survey Ludwigia populations by boat using GPS and record in shared database.

6. Have you consulted with ODA staff? ☒Yes ☐No

If yes who? Glenn Miller, Beth Meyers-Shenai and Tristen Berg

7. Is this a landowner reimbursement (cost share) project? ☐Yes ☒No

Remember to attach a list of landowners with acreage by weed species. Updated landowner lists are required with your progress reporting.

8. Project summary: In 200 words – give a statement about your overall project. Provide a summary in 200 words (1000 characters) or less describing what the project will accomplish and what problems will be addressed. The information you provide will be used for project review, OWEB reporting purposes and will be displayed to the general public.

The Willamette River Aquatic Weed Management Phase 3 (WRAWMP) is the continuation of a project started by Benton County CWMA in 2014 with Oregon State Weed Board (OSWB) funding. This project is proposed as an integrated approach to continue management and control of invasive aquatic plants on the Willamette River. The main focus of this project is the control of Ludwigia hexapetala (Uruguayan primrose-willow) and Nymphoides peltata (yellow floating heart): two aggressive, invasive aquatic plants that pose a threat to fish and wildlife habitat in fresh water systems. N. peltata is an A-listed Oregon State Noxious Weed. The project area spans the reach of the Willamette from Corvallis to Albany, and covers about 15 river miles. WRAWMP consists of three main components:

1. Management of aquatic weed species.

   a. A-rated Nymphoides peltata at Horseshoe Lake, North Albany.

   b. B-rated Ludwigia hexapetala in Collins Bay, and other river inlets.

   c. Restoration of Collins Bay

   d. Volunteer weed pulls for Ludwigia on the mainstem Willamette River.

2. Targeted community outreach consisting of 2 workshops and distribution of the Water Weeds Guide for Benton County.

3. Monitoring of treatment efficacy and water quality at project sites before and after treatments.

9. What are you proposing to do? Give an overview of the project (1,300 words which is approximately 8,000 characters) This should include: is this is an extension of a previously funded project if so, include details of past treatments such as successes and failures • estimated acreage for treatment • method of control • objectives • restoration component • how this project relates to other projects within the area. It is important be concise and keep this to the 1,300 word limit, but give the details outlined above, this portion is essential in the overall review process.

Was this project previously funded by OSWB? ☒Yes ☐No

If yes what year(s) and provide the grant number? In 2014 (2014-27-400), and 2015 (2015-28-501)

Proposal details:

The Willamette River Aquatic Weed Management Phase 3 (WRAWMP) is the continuation of an existing project to control key invasive aquatic plants to prevent further spread and reinfestation, restore habitat, monitor treatment efficacy, and perform outreach on the Willamette River. For this project the Benton County CWMA propose the following activities:

1. Management of Aquatic Weed Species:

One goal of this project component is to increase the quantity and quality of open water habitat in the Willamette River system through control of invasive aquatic weeds. Specifically, we will continue to reduce the ecological impacts of Ludwigia on the river system through reduction of spread and promotion of native plant recovery through restoration plantings. Another component of this project is to conduct a follow-up treatment and eventually eradicate yellow floating heart (N. peltata) from Horseshoe Lake, the only known population in Benton County.

a. Nymphoides peltata:

One component of this project is the continued control of A-rated N. peltata at Horseshoe Lake, North Albany. (Appendix A: Map of N. peltata treatment area and pictures). This population was treated during summer, 2014 and 2015 with OSWB funds. Though the population has decreased in cover by about 80%, further treatments are needed to eradicate these plants.

The focus of this project is to significantly reduce, and eventually eradicate, N. peltata from Horseshoe Lake and to prevent its spread to the nearby Willamette River. This population is the only known site in Benton County, making it a prime candidate for targeted removal.

We plan to use the most appropriate method to achieve effective plant suppression with minimal impact to the native community. Treatments will take place in June or July, with a second treatment taking place in August or September six to eight weeks after initial treatment. A mixture of 2-3% aquatic label glyphosate or imazapyr with 0.5% Agridex surfactant and dye will be used to treat the plants. Concurrent with our proposed treatment regimen, the Homeowners Association on the lake will have their detention pond, which drains

into the lake, inspected for N. peltata, and treated by a contracted professional if any plants are found.

b. Ludwigia hexapetala:

Continued control of B-rated L. hexapetala will occur in Collins Bay, a side-channel inlet of the Willamette River. This site was treated in summer 2014 and 2015 for Ludwigia by professional contractors. Based on results from previous treatments, we expect 70-80% mortality of the L. hexapetala population on this site.

Collins Bay is a river inlet connected to the mainstem of the Willamette River, the entirety of which is infested with Ludwigia (Appendix B: Maps and pictures of Ludwigia treament areas). This population was identified and mapped during an assessment of the floodplain along the Willamette River from Corvallis to Albany completed in 2013. In the final report based on this assessment, Ludwigia is identified as a priority for removal from the Willamette River system. Collins Bay is recommended for restoration due to the rarity of open marshland on the mainstem of the river, which is vital habitat for birds, fish, pond turtles, river otters and many other species. (Carex Working Group, Sept. 2013). Ludwigia is also identified as a priority for management in the Five-Year Action Plan for the Willamette Mainstem Cooperative, a group of landowners, natural resource specialists, and other stakeholders who are working to promote, facilitate, and foster long-term stewardship of Willamete River natural resources. (WMC 5-Yr Plan, 2014).

One new site targeted for control of L. hexapetala is a river inlet between Corvallis and Albany, which for the purpose of this application is called Wapato Cove (Appendix B: Maps and pictures of Ludwigia treatment areas). This 1 acre site has been identified during numerous river surveys and by the Willamette Aquatic Invasive Network as priority for control based on location in the river, presence of a significant native species (wapato), and the threat of spread of L. hexapetala to downstream locations.

Treatments for these sites will consist of herbicide application to thick mats of Ludwigia in open water and the shoreline. To minimize impacts to aquatic non-target plants, backpack sprayers will be used to treat infestations around native plant communities. Contracted applicators will be familiar with native species, and trained in techniques for selective application in aquatic ecosystems. An herbicide mixture of 2 to 3% aquatic label glyphosate and 1-2% surfactant (Agridex) will be used. Applications will take place in early summer, when about half of the plants have flowered, but seed capsules have not yet matured. A follow-up application will take place about six to eight weeks later.

c. Restoration plantings at Collins Bay:

Two seasons of treatments at Collins Bay have led to a significant reduction in Ludwigia cover. Some areas of the bay have greatly reduced plant cover to no plant cover. These areas (0.7 acres) would benefit from the planting of selected

native plants. See Question 10 Paragraph 3 for a list of proposed native species. (Appendix C: Collins Bay Restoration Areas map).

d. Volunteer weed pulls:

In 2016, BSWCD will host at least two volunteer weed pulls at locations where volunteers pulled Ludwigia previously between Corvallis and Albany (Appendix D: Map of Ludwigia sites for hand pulling between Corvallis and Albany). One objective of these volunteer events is to increase community awareness about the connection between river health and aquatic invasives. Another objective is to remove target invasives from the river in areas where they are just getting established (satellite populations) before these smaller populations become more significant. Ludwigia and other priority invasives will be manually harvested and secured in heavy duty plastic bags on individual watercrafts. The bags will be sealed and disposed of properly at the end of each pull event. To determine effectiveness of hand pulling, volunteer pull sites will be monitored at least once each year following weed pulls. The sites will be monitored using photo points and GPS mapping. Oregon State Parks Department and Willamette Riverkeeper will provide boats and assist with coordination, safety, and labor.

2. Targeted community outreach consisting of two workshops:

BSWCD will host at least two workshops on the Willamette River, with a target audience of river recreationists, natural resource managers, landowners, and volunteers. These workshops will contain information on native and invasive aquatic plant identification, and appropriate response and reporting techniques for priority aquatic weed species. During the workshops we will distribute the new Water Weed Guide for Benton County, developed during the first phase of this project (Benton County Water Weed Guide, BSWCD 2014).

3. Effectiveness and water quality monitoring:

Monitoring will consist of strategic photo-points throughout the area of infestation and GIS mapping of the pre- and post-treatment extent of Ludwigia. Ludwigia density will be mapped in Collins Bay. Monitoring will also include pre- and post-treatment surveys of native plant species and documentation of perceptible changes in plant species density.

We also propose to continue to conduct water quality monitoring to measure pre- and post-treatment changes in dissolved oxygen, specifc conductivity, pH, and temperature. We will hire a contracted professional to conduct water quality monitoring on at least two treatment sites, one untreated site, and an additional site without Ludwigia present for comparison. We will follow the monitoring plan developed during phase two of this project. The contractor will submit a report following the 2015 and 2016 field seasons. (Appendix E: Ludwigia Monitoring Plan for BSWCD, 2015).

10. Using a bulleted list: Explain the project goals and objectives.
(See Instructions section for specific guidance on goals and objectives writing)

• The primary goal of this project is to increase the quantity and quality of open aquatic habitat in the Willamette River system through control of invasive aquatic weeds. Specifically, we will continue to reduce the ecological impacts of Ludwigia on the river system through reduction of downstream spread through plant fragmentation and promote native plant recovery through restoration plantings. Sites targeted for control include Collins Bay, Wapato Cove, Upper Kiger Cove, and new, small populations of Ludwigia between Corvallis and Albany. We will reduce the populations of Ludwigia in the river using integrated techniques at strategic sites. Treatment methods include hand pulling and herbicide application using updated techniques and equipment (Inteli-spray system with tractor, boat, and hose & reel).

• Another goal of this project is to continue to control and eventually eradicate yellow floating heart (Nymphoides peltata) from Horseshoe Lake, the only known population in Benton County.

This project has five main objectives. The first objective is to continue restoration of Collins Bay. After the first two years of Ludwigia treatments, portions of Collins Bay are ready for replanting with native vegetation (0.7 acres). Based on native plants found on site, some of the native species best suited for Collins Bay include broadfruit bur-reed (Sparganium eurycarpum), wapato (Sagittaria latifolia), common rush (Juncus effusus), and softstem bulrush (Schoenoplectus tabernaemontani) (Appendix C: Collins Bay Restoration Areas map).

• The second objective of this project is to monitor site changes in response to treatment. We will use density mapping and photo-point monitoring techniques (Appendix F: Ludwigia Density Maps). These techniques will allow us to track changes in post-treatment distribution and abundance of Ludwigia and N. peltata, native plant distribution, and non-target impacts. We will also conduct water quality monitoring to record pre- and post-treatment differences in dissolved oxygen, temperature, pH, and specific conductivity on at least two treatment sites and two controls: one untreated site and one site without Ludwigia.

• The third objective of this project to reach at least 50 people through outreach activities including presentations, workshops and volunteer weed pulls. We will provide information on aquatic weed identification and proper early detection and rapid response techniques. Through volunteer weed pulls, Ludwigia will be removed from areas where it is just becoming established before it forms significant populations.

• The fourth objective of this project is to share treatment methodology and results with other land managers. All survey data collected for this project will be entered into iMapInvasives and WeedMapper to track treatments and map Ludwigia populations. Control techniques and efficacy of treatments will continue to be recorded and shared through meetings, presentations, and workshops.

• The fifth objective is to begin development of a long-term management plan for Collins Bay. This plan should include clear goals and objectives for this site and integrate work already accomplished with future restoration needs. The plan will also include a timeline for achieving restoration goals, and the associated actions needed to accomplish these goals.

11. Is the project part of an existing weed management plan?
☒Yes ☐No (if yes, provide the plan name, author & date published)
This project fits within the goals and management principles outlined in the Benton County CWMA Five-year Management Plan. Specifically, "projects [should be] designed using an ecosystem management approach based on an understanding of weed biology, weed ecology, and landscape level processes." (Benton County CWMA, 2012; pp. 2-4).

The control of Ludwigia on the Willamette River is listed as a priority in the Willamette Mainstem Cooperative 5-Year Action Plan. The first goal of this plan is to work with willing landowners to protect high quality and unique habitats through management and control of high priority invasive plant species, including water primrose (Ludwigia spp.) (WMC 5-Yr Plan, 2014; pg. 8).

Control of Ludwigia is also recommended in the "Willamette Mainstem Vegetative Habitat Survey and Assessment Final Report." This report was prepared by Carex Working Group based on invasive plant and habitat assessment and survey work completed in 2012 & 2013 on approximately 2,500 acres of riparian habitat on the Willamette River from Corvallis to Albany. This document was reviewed by the WMC steering committee members, and staff of Oregon Watershed Enhancement Board and Meyer Memorial Trust (Carex Working Group, Sept. 2013). The abridged version of this report can by found on the WMC webpage on the Benton SWCD website.

12. Are there additional partners? ☒Yes ☐No
Who are the additional partners and what are their roles and responsibilities?
Additional partners include Oregon Parks and Recreation Department (OPRD), Willamette Riverkeepers (WRK), Benton Soil and Water Conservation District (BSWCD), Portland State University Center for Lakes and Reservoirs (PSU), Oregon Department of Fish and Wildlife, Oregon Department of Agriculture Oregon State Weed Board (ODA), private landowners within the project area including the Horseshoe Lake Neighborhood Association (HLNA), the Willamette Mainstem Cooperative (WMC), and Willamette Aquatic Invasives Network (WAIN).

Glenn Miller, Integrated Weed Management Specialist with ODA, has been and will continue to provide in-kind support in the form of professional advice, site visits, and consultation on weed control activities. ODA provided photos and GIS shapefiles from aerial surveys for Ludwigia in the Willamette River system conducted during summer 2014. Further survey work is planned for summer 2016. This data has helped to assess the extent of Ludwigia populations in the Willamette River system, and is being utilized

in the formation of a management plan for this plant (currently being developed by the Willamette Aquatic Invasives Network).

OPRD staff, Scott Youngblood, will continue to participate in outreach activities related to this project. In the past OPRD has participated in similar projects by providing coordination and safety assistance during volunteer activities on the river. OPRD staff have helped control priority invasives on the Willamette. They will continue to provide these services in 2016 and in-kind funding in the form of staff time and equipment use.

WRK staff will continue to work with Benton SWCD to organize at least four river events, including two aquatic invasive workshops and two volunteer weed pulls. WRK will provide in-kind funding in the form of equipment use (boats, vans, and trailers). Some funds are requested in this grant proposal for WRK staff time and mileage, which will be dispursed under paid contract.

Staff from PSU Center for Lakes and Reservoirs will continue to participate, as they have for our previous workshops and volunteer events, by offering expertise on aquatic invasives, presentations, and sharing outreach materials.

The Oregon Department of Fish and Wildlife has conducted an electrofishing survey at one of the Ludwigia treatment sites to estimate fish species presence and population densities. ODFW staff will survey Collins Bay in 2016 to provide information on fish species currently inhabiting this site. The collection of several consecutive years of survey data will help us understand Ludwigia's effects on fish species composition and density.

Private landowners at Horseshoe Lake and Collins Bay will be partners in this project through site monitoring, regular contact with BSWCD, and outreach to neighbors in the area. The Horseshoe Lake Neighborhood Association will continue to monitor and treat N. peltata as necessary in a detention pond that drains into the lake. BSWCD will provide informational handouts about the project and weeds of concern to interested landowners.

Marvin Gilmour, a local farmer, has offered to provide native plant materials including seeds (common rush, softstem bulrush and bur-reed) and wapato bulbs for restoration plantings at Collins Bay. Other private landowners will contine to allow access to their properties for treatment of target species.

Both WMC and WAIN focus on management of invasive species on the mainstem of the Willamette River. The WMC is a group of landowners, organizations, volunteers, and other interested parties working towards shared long-term stewardship of Willamette River resources with a focus on the Corvallis to Albany river reach. The Willamette Aquatic Invasives Network, comprised of over 50 participating organizations, fosters collaboration to share information, expertise, technologies, scientific data, and best management practices and to develop strategies to protect aquatic resources and sestore riparian habitat in the Willamette River Basin (Cascade Pacific RC&D, WAIN

webpage, 2015). WRAWMP (this project) has benefited from the work and expertise of members of WAIN and the WMC. The BC CWMA will continue to coordinate and work with these groups to share information and lessons learned in the management of Ludwigia.

13. Which elements of the project will OSWB funds be used for? Be specific to activity and specific timing of the activity.
The Benton County CWMA is requesting OSWB funds for the following elements of this proposed project:

1. Salary and Wages:

Funding of BSWCD staff will be used for these tasks: project coordination and management (on-going), administration and oversight of all grant activities (on-going), coordination and facilitation of outreach activities (May-August 2016), information sharing and reporting (on-going), and beginning development of a long-term management plan for Collins Bay (Dec. 2016-February 2017).

2. Contracted Services:

Survey (June-July 2016) and monitoring (June-July and September-October 2016) to determine previous treatment effectiveness and post-treatment of Nymphoides on 0.5 acres of Horseshoe Lake as needed. Spot spray treatments will occur if plants are found during lake survey. Monitoring will take place approximately two weeks before and after treatment. If necessary, a follow-up treatment will occur between August-Sept.

Survey and monitoring of Collins Bay to determine treatment effectiveness and other site changes, and continued treatment of Ludwigia hexapetala on 11 acres. Concurrent with suvey and monitoring, treatment will occur between June-July depending on conditions, and consist of spot application of herbicide. Secondary control treatments will occur between Aug.-Sept. to spray remaining plants. Monitoring will take place before and after treatments and as needed.

Removal of Ludwigia at Wapato Cove (about 1 acre) will be an addition to this project. This site was identified during volunteer Ludwigia pulls in previous years (2014-2015). Ludwigia populations are now considered too dense to control through hand-pulling alone. Treatments will consist of spot spraying plants in June or July, with careful attention to avoid non-target plants. Manual removal of Ludwigia around native plant communities may be implemented by contractors or volunteers prior to spray treatment in May or June, depending on site conditions (Appendix B: Maps and pictures of Ludwigia treatments areas).

We will begin restoration plantings this year at Collins Bay. Funding is requested for contracted labor plant native wetland/riparian plants in areas of Collins Bay where Ludwigia has been removed. Plantings will occur during fall 2016. Plant materials will either be collected on-site or donated by local landowners from nearby properties. The

funding requested is mostly to cover costs for planting labor, since the majority of the plant materials can be acquired using volunteer labor and landowner donations.

Funding is requested for community outreach including two aquatic weed workshops for land managers, landowners, recreationists, volunteers, and other interested parties. These activities will be led by Benton SWCD staff in partnership with Willamette Riverkeeper and Oregon State Parks Department (OPRD). Workshops will be held in early summer, 2016. OSWB funds will pay for a portion of BSWCD and Riverkeeper staff time to coordinate these workshops. OPRD staff time, and much of the BSWCD staff time will be in-kind matching services.

OSWB funds are requested for coordination of at least two days of volunteer Ludwigia hand-pull activities on the Willamette from Corvallis to Albany. This effort will be led by Willamette Riverkeeper and Benton SWCD. Funds will cover BSWCD and Riverkeeper staff time for the coordination of these activities. The first weed pull event will take place in early summer (June), and will be followed-up with a pull later in the season (August).

Monitoring of project sites will include pre- and post-treatment photo points and aerial imagery mapping (using ODA survey images). Funding is requested for continued monitoring of water quality parameters, which include pre- and post-treatment measurements of dissolved oxygen, pH, temperature, oxygen reduction potential and specific conductivity at four sites with varying degrees of Ludwigia percent coverage. Also included in monitoring is density mapping of Ludwigia at three treatment sites. Pre-treatment data was collected in 2015, and post-treatment data will be collected in 2016 (Appendix F: Ludwigia Density Maps and Appendix G: Ludwigia Monitoring Plan for Benton Soil and Water Conservation District).

14. How does this project relate to other projects (BLM, USFS or local projects) completed or planned? Is the project related to work funded in part with another grant from OWEB (i.e. restoration, land acquisition, or technical assistance)? List the OWEB grant number and briefly describe the relationship to this proposal.

The Willamette River Aquatic Weed Management Phase 3 (WRAWMP) fits within the mission and guiding principles of the Willamette Mainstem Cooperative (WMC), a group of landowners, organizations, and volunteers who work together to improve stewardship of natural resources across all landownerships on the mainstem, with a focus area of Corvallis to Albany (WMC Programmatic Bylaws, 2012). Ludwigia is listed as a priority species for control in the Willamette River in the WMC 5-Year Action Plan (WMC 5-Yr Plan, 2014; pg. 8). WMC is funded by Meyer Memorial Trust, through the Willamette River Initiative program, with Benton SWCD providing leadership and fiscal management.

The Ludwigia sites proposed for treatment in this application were identified and mapped during a landscape scale invasive plant assessment of the floodplain along the Willamette River from Corvallis to Albany. The survey was conducted for the Willamette Mainstem Cooperative by Carex Working Group (CWG). In the final report submitted by

CWG, Ludwigia was identified as a priority for removal from the Willamette River system, and specifically Collins Bay due to the rarity of open marshland habitat on the Willamette (Carex Working Group, Sept. 2013).

Benton SWCD has a Five Year Strategic Plan (2015-2020). One of the goals of the Strategic Plan is to deliver programs that inspire stewardship. To fulfill this goal, BSWCD coordinates the WMC, which entails management and implementation of several projects that focus on control of Ludwigia hexapetala on the Willamette River. WRAWMP is one such project, funded through the ODA-OSWB. Another WMC project is funded through the Oregon Watershed Enhancement Board (OWEB) and Bonneville Power Administraiton (BPA). This four-year project includes the treatment of over four miles of side-channel/slough habitat and over 50 acres of floodplain habitat and gravel ponds heavily infested with Ludwigia. This project is located across the river from Wapato Cove, and less than 0.5 miles upstream from Collins Bay (Appendix B: Maps and pictures of Ludwigia treatment areas).

Ludwigia is currently being controlled at several other locations on the Willamette River. One of the larger projects is being implemented by City of Eugene, which has been working on Ludwigia hexapetala control since 2011 at the Delta Ponds Natural Area. City of Eugene developed the Invasive Ludwigia hexapetala Management Plan for the Delta Ponds Natural Area. Delta Ponds Natural Area is a series of gravel extraction ponds recently reconnected to the Willamette River. This 5-year plan outlines the systematic treatment of Ludwigia hexapetala in the Delta Ponds integrating manual and herbicide control methods. WRAWMP proposes to apply successfully implemented techniques for Ludwigia control, as outlined in the Management Plan by City of Eugene.

The Delta Ponds Natural Area is located upstream from the WRAWMP project area. The WRAWMP project manager has consulted with several experts working on the Delta Ponds Invasive Ludwigia Control Project. Individuals consulted include: Lauri Holts, Resources Coordinator with the City of Eugene; Dr. Brenda Grewell, Delta Ponds project consultant and ecologist with USDA-Agricultural Research Service Exotic & Invasive Weeds Research Unit; Glenn Miller, Integrated Weed Management Specialist with the Oregon Department of Agriculture; Mark Systma, Associate Vice President for Research, Research & Strategic Partnerships at Portland State University; and Matthew Mellenthin, Delta Ponds Ludwigia control contractor with Integrated Resource Management (also current control contractor for WRAWMP).

Calapooia Watershed Council in collaboration with Benton SWCD is proposing to remove Ludwigia hexapetala from the side-channel system running through Bowers Rock State Park. If funded, this would be a component of a new OWEB - Focused Investment Partnership grant, and be accomplished prior to side-channel reconnection construction also being proposed on this site (Appendix B: Maps and pictures of Ludwigia treatments areas).

The Long Tom Watershed Council is currently working with the OSWB to remove Ludwigia hexapetala from several locations on the Long Tom River, upstream of the

WRAWMP project area. They started work in summer 2015 and plan to continue in 2016.

In summer 2015, Willamete Riverkeeper, in partnership with Willamette Aquatic Invasive Network partners, conducted a survey of the Willamete River from north of Eugene to Salem to map Ludwigia on the river. Portland State University conducted similar surveys on the river around the Portland area in 2015. ODA conducted aerial surveys of the upper Willamette to map Ludwigia in 2014, and plans to continue mapping in 2016. The data sets from these surveys have been entered into various databases and have been shared with the appropriate partners, who are using this information to develop plans, set priorities, and apply for funding to strategically manage this species. Benton SWCD is one of the groups who has partipated in these surveys and is currently utilizing the resulting data.

15. How does this project fit into the statewide and/or local weed management objectives? Identify the county weed listing priority if known.
Oregon State's Noxious Weed Control Strategic Plan outlines ten objectives and associated strategies for implementation. WRAWMP meets the first eight of these as follows:

• Objective One: Leadership and Organization - Strategy One: Provide consistent statewide and local leadership and organization.

The Benton County CWMA provides local leadership and organization to groups, agencies, and landowners related to invasive plant issues around the county. The Benton County CWMA Management Plan outlines management principles for CWMA activities that align with this project such as; "projects are designed using an ecosystem management approach based on an understanding of weed biology, weed ecology, and landscape level processes." (Benton County CWMA, 2012).

The BC CWMA is coordinated by Benton County Soil and Water Conservation District. Benton SWCD's current Executive Director has over 30 years of experience managing aquatic invasive species programs and is committed to dedicating the resources necessary to address long-term management needs of this program (WRAWMP) in Benton County (within budget restraints). This will increase the likelihood of long-term success.

• Objective Two: Cooperative Partnerships - Strategy Two: Develop and expand partnerships.

The Benton County CWMA is made up of a broad partnership of agencies, organizations, and landowners. Benton SWCD provides fiscal oversight and coordination of the Benton County CWMA. Benton SWCD has a strong history of developing partnerships and collaborating with other agencies, organizations, and landowners to complete projects and develop programs for the stewardship of natural resources. Another partnership that will be involved in the planning and implementation

of this project is the Willamette Mainstem Cooperative, which is supported by a group of stakeholders who represent local agencies and landowners.

For this project Benton County CWMA and Benton SWCD will work with Willamette Riverkeeper, Oregon State Parks and Recreation Department, and other partners to implement workshops, volunteer events, and survey work. Benton SWCD also plans to work closely with Portland State Univeristy Center for Lakes and Reservoirs, Oregon Department of Fish and Wildlife, and other interested groups to ensure that it is meeting Ludwigia control objectives while minimizing impacts to local fish and wildlife species.

• Objective Three: Planning and Prioritizing - Strategy Three: Develop and maintain noxious weed lists and plans.

The Benton County CWMA has developed and maintains an invasive plant list for Benton County. This list is regularly reviewed and updated by members of the CWMA EDRR Action Team. Ludwigia hexapetala is a B-rated weed on the Oregon state noxious weed list and a B-rated weed on the Benton County invasive plant list, and is targeted for outreach and data collection, both of which would be fulfilled through this project. Nymphoides peltata is an A-rated noxious weed by the state of Oregon and A-rated in Benton County as well. It is targeted for ODA response and immediate removal.

The species and sites proposed for treatment in this application have been carefully considered and chosen based on survey data and recommendations from several specialists and land managers who operate on the mainstem Willamette River.

• Objective Four: Education and Awareness - Strategy Four: Provide education and awareness.

For this project Benton SWCD in partnership with Willamette Riverkeeper will provide community outreach to land managers, land owners, and the general public through a series of aquatic weed workshops, volunteer weed pulls, and project site tours on the Willamette River. For these events, we will discuss the benefits of identifying, reporting, and removing invasive plant populations before they spread. The objectives for these workshops are to educate targeted audiences on the identification of aquatic invasive plants, the impact on wildlife, humans and native plant communities and the methods for timely response relative to the species of concern. Benton SWCD will develop outreach materials and distribute them to workshop participants and landowners within the project area.

An objective of these events is to increase public awareness of aquatic invasives and provide tools to members of the community to make informed decisions for management of aquatic weeds.

• Objective Five: Integrated Weed Management (IWM) - Strategy Five: Continue to support and advocate the principles of IWM.

The Benton County CWMA is dedicated to using tested, integrated approaches in weed management. This project is supportive of integrated weed management principles in the use of manual and chemical control of Ludwigia on the mainstem and at each project site. For each site, all appropriate methods for treatment will be thoroughly analyzed and considered based on resources available and existing conditions.

• Objective Six: Early Detection and Control of New Invaders - Strategy Six: Implement early detection and control.

This project includes early detection and control of new invaders as a key element: we plan to control the only known Nymphoides peltata population in Benton County.

Several experts have indicated that the invasive Ludwigia in the upper reaches of the Willamette River are currently at a level where early detection of new populations and control of established populations can still be effective in significantly reducing, and eventually removing, the plants from the river system.

• Objective Seven: Noxious Weed Information System and Data Collection - Strategy Seven: Upgrade Noxious Weed Information System.

Through the survey and mapping of project sites using GPS technologies, we can contribute to existing state weed information systems such as the Oregon Invasives Hotline and IMap Invasives. Data collected during the course of this project can be made available for reference by other land management agencies, to inform the development of other projects or management plans.

• Objective Eight: Monitoring and Evaluation - Strategy Eight: Monitor noxious weed projects to evaluate effectiveness.

Regular monitoring will be integrated into this project to determine the short and long-term effectiveness of control activities. Photo-points will be strategically placed at each site to collect information before and after each treatment occurs. Populations will be mapped and updated throughout the duration of the project and in subsequent years as funding allows. Sites will also be monitored for changes in water quality parameters over time, and population density will continue to be mapped on at least three sites.

16. How will restoration be a part of your project? If restoration is not a component of this project please explain.

An objective of this project is to start restoration work at Collins Bay, which has had two consecutive years of Ludwigia treatments. There are several areas that would benefit from replanting (0.7 acres). These areas, from which the majority of the Ludwigia has been removed, are located in the eastern portion of the project site. Seasonally disconnected from the river, these areas have shallow water and are exposed during the summer months. After surveying the site and considering native plants growing in similar habitats, we have selected the following species for replanting: broadfruit bur-

reed (Sparganium eurycarpum), wapato (Sagittaria latifolia), common rush (Juncus effusus), and softstem bulrush (Schoenoplectus tabernaemontani). (Appendix C: Collins Bay Restoration Areas map).

Other areas treated during this project will be assessed for restoration potential as treatments continue. However, most of the other proposed treatment areas are inundated with water year-round, so they are less likely to be candidates for planting activities, since one of our goals is to increase open water habitat.

17. Does this project protect a high priority species or habitat? Please give a brief description of the species or habitat/land use designation for this project.
1. Anchor Habitat for Anadromous Fish: Collins Bay is within the areas identified in OWEB's Willamette River Habitat Protection and Restoration Program 2010-2015 Habitat Technical Team Proposal as part of the priority anchor habitats for anadromous fish along the Willamette River mainstem (Oregon Watershed Enhancement Board, 2010). Collins Bay is also within Oregon Dept. of Fish and Wildlife designated essential salmon habitat (ODFW, 2011).

2. Open Water Marsh Habitat: Collins Bay was also listed as a special habitat by Carex Working Group during the 2012-1013 invasive plant and habitat assessment by stating that the open water marsh habitat was rarely encountered during survey work and that the site is worth noting for preservation/restoration work. They also recommended the use of integrated methods to remove Ludwigia along the Willamette mainstem to reclaim infested habitats and prevent further spread (Carex Working Group, Sept. 2013).

3. Western Pond Turtles: Western pond turtles are considered a sensitive species by the State of Oregon and are one of the strategy species listed in the Oregon Conservation Strategy (OR Dept. of Fish and Wildlife 2006). While there are no official surveys on record, property owners Stanley and Louise Snyder spoke of the pond turtles and large fish once found in Collins Bay. They have not witnessed the presence of any pond turtles or large fish in the inlet since Ludwigia has become pervasive. Other landowners from properties nearby have corroborated the Snyder's account of the progression of Ludwigia and subsequent changes to the river.

Western pond turtles require open water habitat with native emergent vegetation to feed, bask, reproduce, and hide from predators. Infestations of aquatic weeds, such as Ludwigia, result in thick vegetation mats that limit movement of aquatic and semi-aquatic species, such as turtles, amphibians, fish, waterfowl and mammals, severely limiting their ability to navigate, feed, and reproduce. In addition, these dense mats of vegetation die off at the end of the growing season and the process of decay can drastically reduce dissolved oxygen in the water. These areas of low dissolved oxygen may create a barrier for the movement of aquatic organisms through a waterway, or cause the fatality of aquatic organisms that can become trapped in areas without sufficient dissolved oxygen. Furthermore, the thick mats of vegetation formed by

Ludwigia capture sediment, potentially altering the floodplain capacity and side-channel characteristics of waterways such as Collins Bay.

4. Wapato (Sagittaria latifolia), also known as broadleaf arrowhead, is considered a significant native plant for its cultural value. This plant was once widely harvested by Native Americans in the Willamette Valley, such as the Kalapuyan people. It has an edible, potato-like tuber, which is valued for its high nutritional value. Many species of ducks, mammals, and other wildlife also feed on the leaves and tubers of these plants, and all parts are considered edible. All sites proposed for treatment in this project contain wapato, with significant populations in Collins Bay and Wapato Cove. The Willamette Aquatic Invasive Network considers wapato to be an indicator of high quality habitats, and are recording habitats containing wapato during surveys.

18. Salmon/Steelhead Populations Targeted and Expected Benefits to Salmon/Steelhead

The information provided will be used by OWEB to better meet federal and state reporting requirements. Completion of this section is required but will not be used to evaluate this application for funding.

☐ This project is NOT specifically designed to benefit salmon or steelhead.

- If you check this box do not answer supplemental question 18(A)

Targeted Salmon/Steelhead Populations: Select one or more of the salmon ESUs (Evolutionary Significant Unit) or steelhead DPSs (Distinct Population Segment) that the project will address/benefit. Additional information on the designation and location of the salmon/steelhead populations can be found at http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Maps/Index.cfm

	Chinook Salmon (Oncorhynchus tshawytscha)		**Coho Salmon (O. kisutch)**
☐	Deschutes River summer/fall-run ESU	☐	Lower Columbia River ESU
☐	Lower Columbia River ESU	☐	Oregon Coast ESU
☐	Mid-Columbia River spring-run ESU	☐	Southern Oregon/Northern California ESU
☐	Oregon Coast ESU		
☐	Snake River Fall-run ESU		**Steelhead (O. mykiss)**
☐	Snake River Spring/Summer-run ESU	☐	Klamath Mountains Province DPS
☐	Southern Oregon and Northern California Coastal ESU	☐	Lower Columbia River DPS
☐	Upper Klamath-Trinity Rivers ESU	☐	Middle Columbia River DPS
☒	Upper Willamette River ESU	☐	Oregon Coast DPS
		☐	Snake River Basin DPS
	Chum Salmon (O. keta)	☐	Washington Coast DPS (SW Washington)
☐	Columbia River ESU	☒	Upper Willamette River DPS
☐	Pacific Coast ESU	☐	Steelhead/Trout unidentified DPS

18(A). Expected Benefits: Write a brief description of the goals and purpose of the project and how it is expected to benefit salmon/steelhead habitat.

One goal of this project is to remove aquatic invasive plants from side-channels, ponds, and sloughs within the Willamette River system. Aquatic weeds such as Ludwigia act as sediment traps, and can fill in open water habitat and side-channel systems over time. These plants reduce the amount of available dissolved oxygen in the water with the rapid growth and decay of large biomasses. Removal of these weeds will improve water quality and reduce habitat degradation caused by these plants, thus improving habitat for fish and other wildlife (Sears et. al., 2006).

19. How will success be determined? What elements will be monitored/evaluated and by whom, how often and for how long?

Monitoring and evaluation of this project is currently being led by Benton SWCD, with the aid of contracted professionals, and will continue for as long as needed, provided funding is available. To determine success for this project photo-points which have already been established, will continue to be used for monitoring purposes. Data on the extent of native and invasive plants present at each site will be recorded and mapped. Each plot will be monitored to evaluate the response of the plant communities to each treatment method. Monitoring will take place before and after each treatment, and

annually after that to assess the extent of Ludwigia and Nymphoides at each waterbody. Success will be determined by comparing the post-treatment distribution and abundance of Ludwigia, Nymphoides, and native plants to pre-treatment abundance and distribution. We will also measure and record water quality parameters and compare pre-and post-treatment findings with those found on other sites containing Ludwigia that have not been treated. This will help us to determine the water quality impacts of controlling dense to sparse Ludwigia populations. Mapping of Ludwigia population density will be continued in Collins Bay in 2016 to better determine post-treatment changes.

This project includes the third year of treatment for Ludwigia at Collins Bay and Nymphoides at Horseshoe Lake. Collins Bay is expected to require several years of treatment to adequately reduce plant densities to levels where the habitat can stabilize and native species regain the competitive advantage. Nymphoides at Horseshoe Lake has been reduced significantly (80-85%), though it still requires monitoring and re-treatment to achieve eradication. The first year was the most intensive for control work on all sites. With the reduction in plant densities, treatments now require less labor and time, which means yearly maintanance should continue to decrease in cost.

20. What is the long term plan for this project? Who will maintain the project after the grant and for how long?

Benton SWCD will develop a long-term management plan for Collins Bay, which will include at least a five-year plan for restoration, maintanance, monitoring, and funding options. Other sites will eventually be included as part of this management plan, or as part of a larger plan for invasives management on the Willamette River, which is being developed by WAIN. Benton SWCD will continue to maintain these projects for as long as funding can be obtained. Many funding and maintenance options will be (or have been) considered, including discussion with landowners on the contributions they are willing and able to make. As indicated earlier, current Benton SWCD leadership is committed to the long-term success of this project. To the extent budgets allow, the organization is dedicated to continuing its role in providing the expertise and oversight of an aquatic invasive plant management program in Benton County.

RACIAL AND ETHNIC IMPACT STATEMENT

This form is used for informational purposes only and must be included with the grant application.

Chapter 600 of the 2013 Oregon Laws require applicants to include with each grant application a racial and ethnic impact statement. The statement provides information as to the disproportionate or unique impact the proposed policies or programs may have on minority persons[1] in the State of Oregon if the grant is awarded to a corporation or other legal entity other than natural persons. "Minority persons" are defined in SB 463 (2013 Regular Session) as women, persons with disabilities (as defined in ORS 174.107), African-Americans, Hispanics, Asians or Pacific Islanders, American Indians and Alaskan Natives.

1. ☐ The proposed grant project policies or programs could have a disproportionate or unique positive impact on the following minority persons:

Indicate all that apply:

_____ Women
_____ Persons with Disabilities
_____ African-Americans
_____ Hispanics
_____ Asians or Pacific Islanders
_____ Alaskan Natives
_____ American Indians

2. ☐ The proposed grant project policies or programs could have a disproportionate or unique negative impact on the following minority persons:

Indicate all that apply:

_____ Women
_____ Persons with Disabilities
_____ African-Americans
_____ Hispanics
_____ Asians or Pacific Islanders
_____ Alaskan Natives
_____ American Indians

3. X The proposed grant project policies or programs will have no disproportionate or unique impact on minority persons.

If you checked numbers 1 or 2 above, on a separate sheet of paper, provide the rationale for the existence of policies or programs having a disproportionate or unique impact on minority persons in this state. Further provide evidence of consultation with representative(s) of the affected minority persons.

I HEREBY CERTIFY on this 8 day of December, 2015, the information contained on this form and any attachment is complete and accurate to the best of my knowledge.

Signature Holly Grosson

Printed Name: Holly Grosson

Title Executive Director

Project Partners

List agencies/organizations from which funding is anticipated for the proposed project.

The Oregon State Weed Board requires 25% match for projects, however if you concerns with this requirement please contact Tristen Berg, ODA Grant Program Coordinator at 503-986-4622.

Show all anticipated funding sources, and indicate the dollar value for cash and in-kind contributions. Be sure to provide a dollar value for each funding source. For all funding please provide within the "use of contribution" column exactly what the cash/in-kind will be used for, this helps the OSWB gain a better understanding of the roles and responsibilities the partners will have with the project. Check the appropriate box to denote if the funding status is secured or pending. In the Amount/Value Column, provide a total dollar amount or value for each funding source. Match should be directly related to the noxious weed project. OWEB funding is no longer eligible for match toward OSWB grants, SWCD and Watershed Councils must provide proof that their match is from a source other than OWEB.

NOTE: If your project is selected for funding your organization will be asked to provide signatures for 25% match as a component of agreement procedures.

Funding Source (Name the Partner)	Use of Contribution	Cash	In-kind	Secured (x)	Pending (x)	Amount/Value
Sample Agency	*GIS mapping, and ATV use*		*$2,500*	*X*		*$2,500*
OSWB	**Planning and project coordination for aquatic invasives control, restoration planting, survey, monitoring (WQ and effectiveness), and targeted outreach**	$37,913.00	N/A	☐	☒	$37,913.00
Oregon Dept. of Agriculture	**Project consultation, aeiral and boat survey and data interpretation**	N/A	$1,425.00	☒	☐	$1,425.00
Willamette Riverkeeper	**Use of equipment (canoes, paddling equip., dry bags, trailer, and other equip.)**	$	$640.00	☒	☐	$640.00
Oregon State Parks Department	**Restoration work parties, monitoring and outreach**	$	$2,500.00	☒	☐	$2,500.00
Marvin Gilmour	**Plant materials for restoration planting, and labor for seed harvest/processing**	$	$3,336.00	☒	☐	$3,336.00
Benton Soil and Water Conservation District	**Project coordination, consultation and planning; travel and supplies & materials**	$	$7,134.00	☒	☐	$7,134.00

		$	$	☐	☐	$
		$	$	☐	☐	$
		$	$	☐	☐	$
		$	$	☐	☐	$
		$	$	☐	☐	$
		$	$	☐	☐	$
		$	$	☐	☐	$
Total Estimated Funds (add all amounts in the far-right Column):	(The total should equal the total cost of the project on page 1 of the application)					*$52,948.00
Have any conditions been placed on matching funds that may affect completion? ☐ Yes ☒ No If Yes , Explain:						

NOTICE of Grant Award Conditions

☒ If this proposal is funded, you will be required to:

- Sign a Grant Agreement containing the terms and conditions for the project implementation, release of funds, and documentation of completion.
- Payments will be made only for work started after the effective date of the grant agreement, unless special conditions have been placed by ODA/OWEB.

☒ Before ODA/OWEB releases the Grant Agreement, you will be required to:

- Resolve any and all outstanding issues from your previous grants with ODA/OWEB.

☒ Upon signing the Grant Agreement, you will be required to:

- Certify in the Grant Agreement that prior to starting work on private land, you have or will obtain cooperative agreements with the private landowner(s). Exhibit D of the ODA/OWEB Grant Agreement may also require you to submit copies of those agreements to ODA/OWEB prior to the release of funds.
- Agree that monitoring information resulting from projects are public domain.
- Determine what permits and licenses are required.

☒ Before ODA/OWEB releases any payments, you will be required to:

- Document that 25% match funding has been secured.
- Submit an OWEB Metrics Form.
- Submit copies of all applicable permits and licenses from local, state, or federal agencies or governing bodies, or certify that permits and licenses not needed.

☒ Upon completing the project, you will be required to:

- Submit a Project Completion Report as required in the Grant Agreement, including maps, and photos. OGMS Online Project Completion Reporting can be completed at http://apps.wrd.state.or.us/apps/oweb/fiscal/default.aspx.
- Submit your Oregon Watershed Restoration Inventory report(s) electronically at http://apps.wrd.state.or.us/apps/oweb/owrio/default.aspx. New weed site data will be pulled from OWRI to meet Weedmapper requirements.

Initial each category and be sure this page is submitted along with your completed proposal.

CERTIFICATION:

I certify that this application is a true and accurate representation of the proposed project and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements (***see Application Instructions***) of an OSWB/OWEB grant and are prepared to implement the project if awarded. **I have read and initialed the NOTICE of Grant Award Conditions**

Applicant Signature: Holly Crosson Date: 12/8/15

Print Name: Holly Crosson Title: Executive Director

Co-Applicant Signature: _____ Date: _____

Print Name: _____ Agency: _____

All appendices are housed within the application instructions section and can be downloaded at:
http://www.oregon.gov/ODA/programs/Weeds/Pages/GrantProgram.aspx

Mandatory attachments:

- **Oregon State Weed Board Project Budget.**
- **Project Partner Form.**
- **Racial and Ethnic Statement.**
- **Maps highlighting specific area of project activities.**
- **Photos (please use the same photo points you will use on interim progress reporting and project completion reports should this project be awarded).**
- **For landowner reimbursement projects – landowner list with acreages listed by weed species.**

Oregon State Weed Board Project Budget

)RTANT: Read the application instructions and OWEB July 2015 Budget Categories Definitions and Policy Docu

Add additional lines, if necessary. All costs must be directly associated with project

Totals automatically round to the nearest dollar

A	B	C	D	E	F	G
Itemize projected costs under each of the following categories:	**Unit Number**	**Unit Cost**	**OWEB Funds**	**Cash Match**	**In-Kind Match**	**Total Costs**
	(e.g., # of hours)	(e.g., hourly rate)				(add columns D, E, F)
SALARIES, WAGES AND BENEFITS. List position titles, include only costs of employees charged to this grant.						
Project Coordination	320 hrs	$30	4,380		5,220	**9,600**
Staff Assistance	40 hrs	$42			1,680	**1,680**
		SUBTOTAL (1)	4,380		6,900	**11,280**
CONTRACTED SERVICES. Labor, supplies, and materials to be provided by *non-staff* for project implementation.						
Aquatic veg. control w/ Intelli-spray and tractor (IRM contract)	8 hrs	$65.85	527			**527**
Aquatic veg. control w/ backpacks (IRM contract)	128 hrs	$47.16	6,036			**6,036**
Restoration planting (IRM contract)	72 hrs	$47.16	3,396			**3,396**
Restoration work parties, community outreach, and ecological monitoring (Willamette Riverkeeper contract)	98 hrs	$50/$70	5,900			**5,900**
Mileage reimbursement (Willamette Riverkeeper, Portland)	1118 miles	$0.57	637			**637**
Canoes, paddling equip., dry bags, trailer, & other equip. (Willamette Riverkeeper)	32 units	$20			640	**640**
Second year of Water quality monitoring (pre and post treatment) and Ludwigia density mapping (Mosaic Ecology contract)	216 hrs	$35/$70	13,020			**13,020**
Mileage reimbursement (Mosaic Ecology, Portland)	1000	$0.57	570			**570**
Project consultation, river survey (aerial and boat), and data interpretation (ODA, Glenn Miller)	3 days	$475			1,425	**1,425**
Restoration work parties, monitoring and outreach (Oregon State Parks Dept., Scott Youngblood)	5 days	$500			2,500	**2,500**
Plant materials for restoration planting; wapato, bur-reed, common rush, & softstem bulrush (local farmer, Marvin Gilmour)	3lbs seed; 1,000 bulbs	various			2,696	**2,696**
Processing seed and havesting bulbs (Marvin Gilmour)	16 hrs	$40			640	**640**
		SUBTOTAL (2)	30,086	0	7,901	**37,987**
TRAVEL. Mileage, per diem, lodging, etc. Must use current State of Oregon rates.						
Mileage for project (BSWCD staff)	410	0.57			234	**234**
						0
		SUBTOTAL (3)	0	0	234	**234**
MATERIALS/SUPPLIES. Refers to items that are "used up" in the course of the project. Costs to OSWB/OWEB must be directly related to the implementation of this grant.						
						0

A	B	C	D	E	F	G
Itemize projected costs under each of the following categories:	**Unit Number**	**Unit Cost**	**OWEB Funds**	**Cash Match**	**In-Kind Match**	**Total Costs**
	(e.g., # of hours)	(e.g., hourly rate)				(add columns D, E, F)
		SUBTOTAL (4)	0	0	0	**0**
EQUIPMENT/SOFTWARE. List portable equipment costing **$300** or more per unit. Must remain property of a governmental entity, tribe, watershed council, SWCD, institution of higher learning or school district.						
						0
						0
		SUBTOTAL (5)	0	0	0	**0**
OTHER. Example grantee or landowner equipment rental						
						0
						0
		SUBTOTAL (6)	0	0	0	**0**
[Add all subtotals, (1-6) above] CATEGORY TOTALS (7)			34,466	0	15,035	**49,501**
GRANT ADMIN. Not to exceed **10% of Category Totals (7) Funds.** See the current Budget Categories Definitions document at http://www.oregon.gov/OWEB/Pages/forms_linked.aspx# for eligible costs. Indicate which billing method will be used for this grant by checking one appropriate box. If no admin is being claimed fill in $0.						
☒ Grant Administration 10% ☐ No Grant Administration	10%	34,466	3,447			**3,447**
		SUBTOTAL (8)	**3,447**	**0**	**0**	**3,447**

GRANT BUDGET TOTAL ***Totals automatically round to the nearest dollar**

GRAND BUDGET TOTAL Add Totals (7), and (8)]	**37,913**	**0**	**15,035**	**52,948**

* The totals for these two columns must mirror the match totals provided on the Match Funding form..

References

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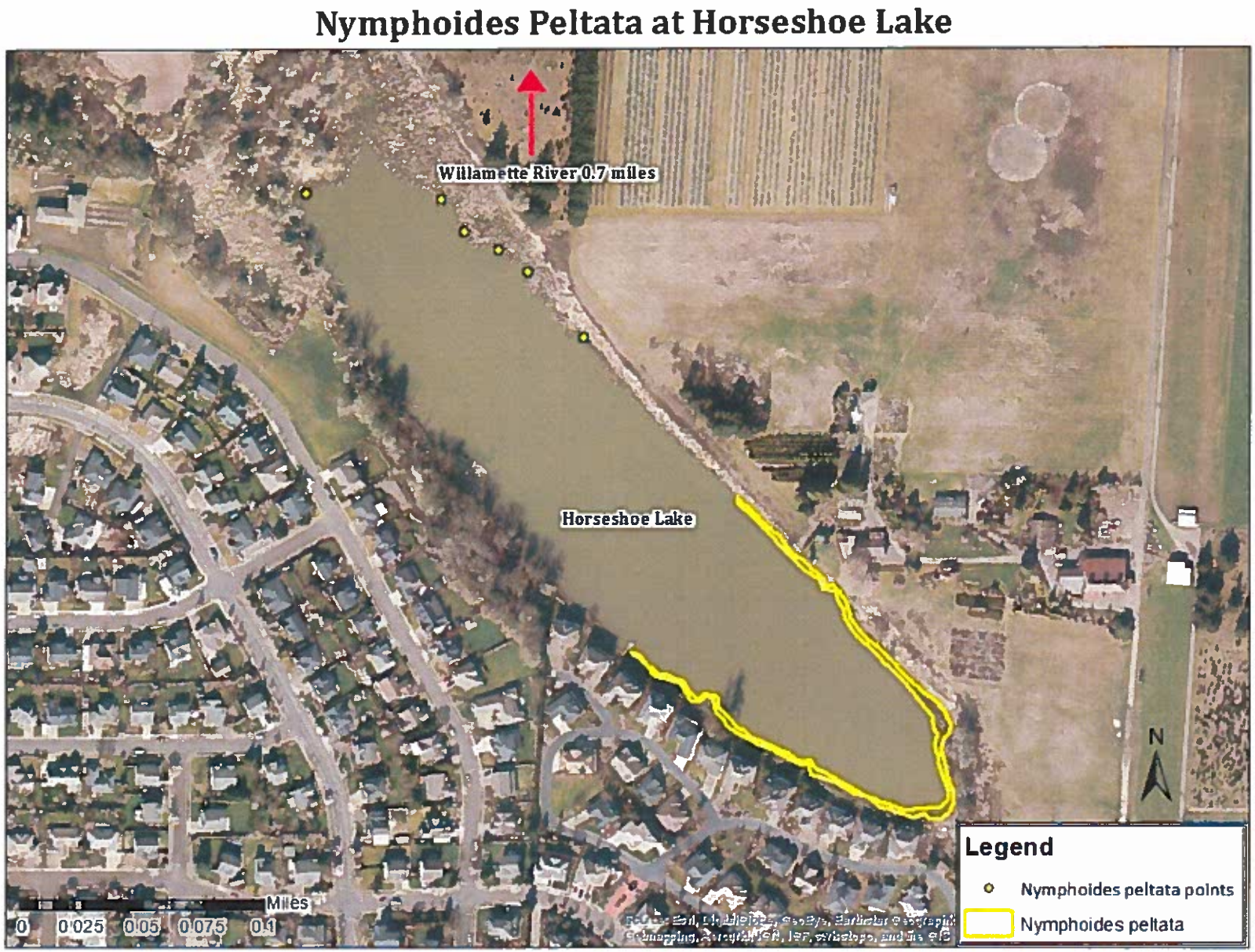
http://www.bentonswcd.org/assets/Willamette-Mainstem-Cooperative-Bylaws.pdf

Appendix A: Maps and Pictures of *Nymphoides peltata* Treatment Area



Map 1: Location of yellow floating heart (*Nymphoides peltata*) on Horseshoe Lake. Points mark small populations or single plants.

Appendix A *(continued)*: Maps and Pictures of *Nymphoides peltata* Treatment Area

Photo Monitoring at Horseshoe Lake: Yellow Floating Heart (*Nymphoides peltata*)

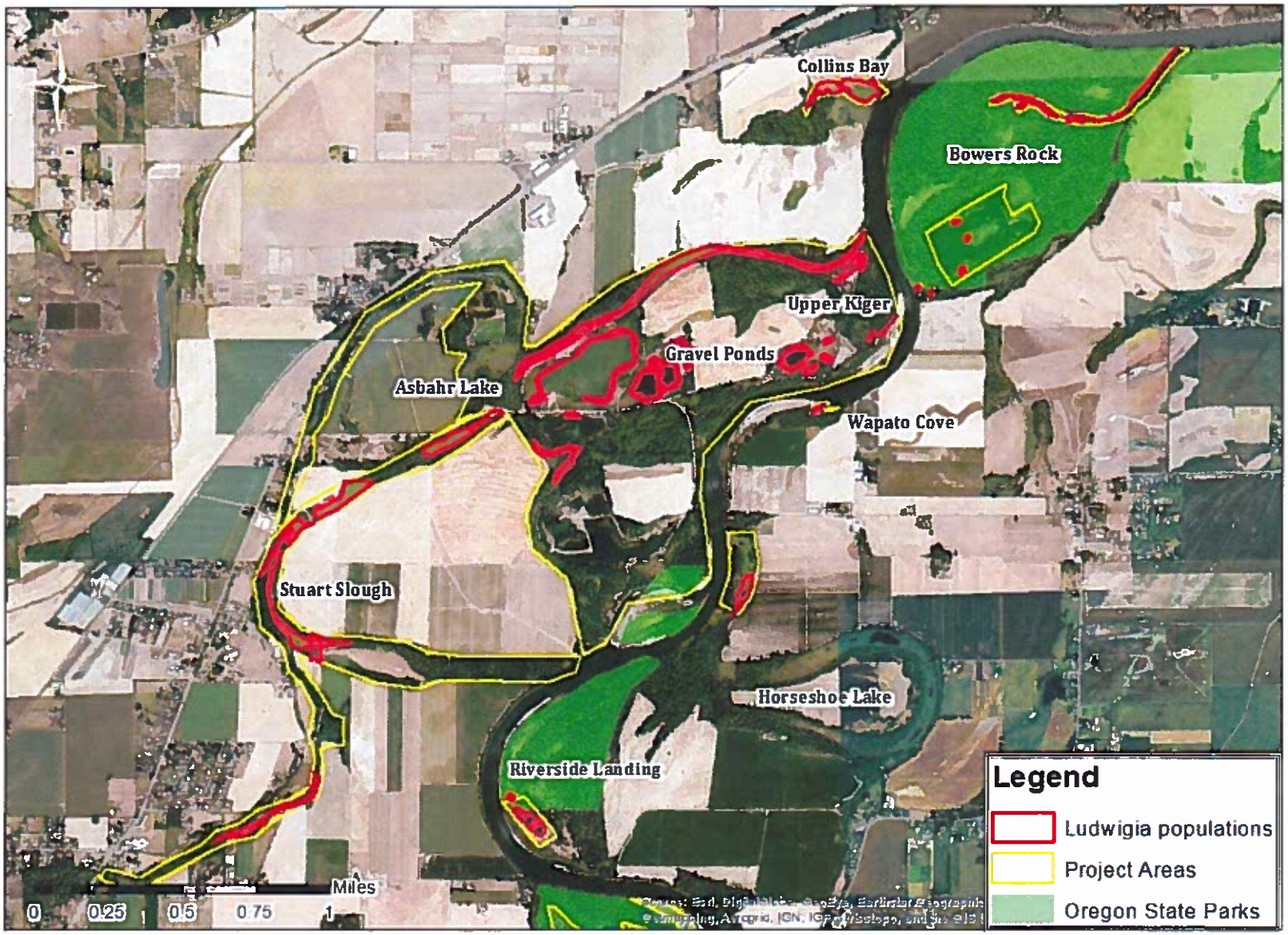
Follow-up treatment of Yellow floating heart at Horseshoe Lake - July, 2015

After follow-up treatment - August, 2015

Yellow floating heart, Horseshoe Lk. - June, 2014

After initial treatment - Aug., 2014

Appendix B: Maps and Pictures of *Ludwigia* Treatment Areas



Map 2: Location of invasive water primrose species (*Ludwigia* ssp.) on the Willamette River between Corvallis and Albany.

Appendix B *(continued)*: Maps and Pictures of *Ludwigia* Treatment Areas

Photo Plot Monitoring at Collins Bay: Before and After *Ludwigia* Treatments

Photo Plot 3— July 7, 2014, before treatment

Photo Plot 3— Sept. 9, 2015, after second year of treatment

Photo Plot 4— July 7, 2014, before treatment

Photo Plot 4— Aug. 10, 2015, after second year of treatment

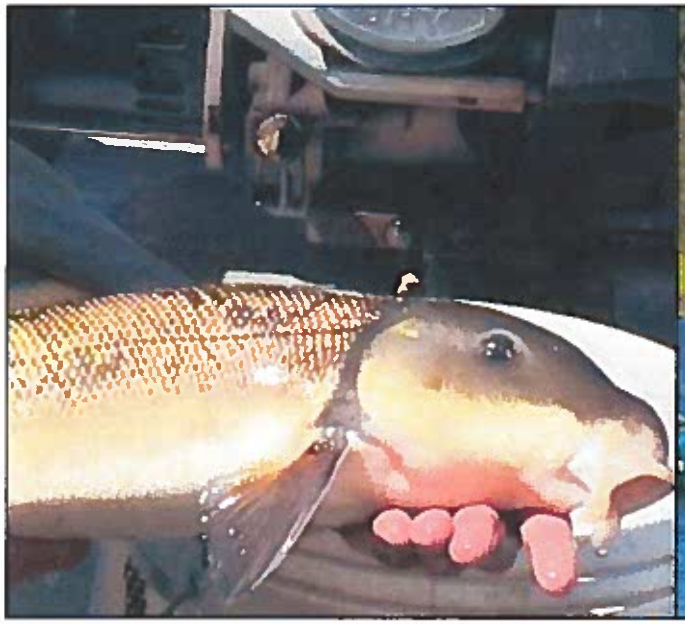
Appendix B *(continued)*: Maps and Pictures of *Ludwigia* Treatment Areas

Willamette River Aquatic Weed Management Project Pictures

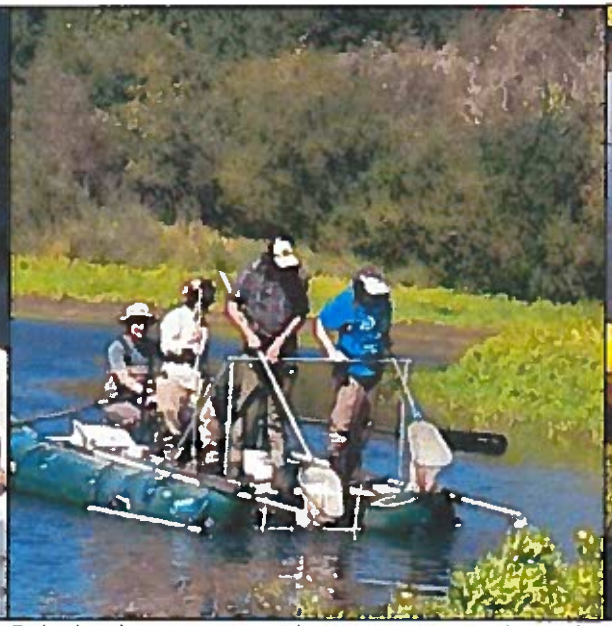
Volunteer aquatic weed pull on the Willamette between Corvallis & Albany, June 20, 2015.

Talking about aquatic weeds. Aquatic weed pull & workshop, June 25, 2015.

Contract crew using an Intelli-spray system to treat *Ludwigia* by boat. July 15, 2015.



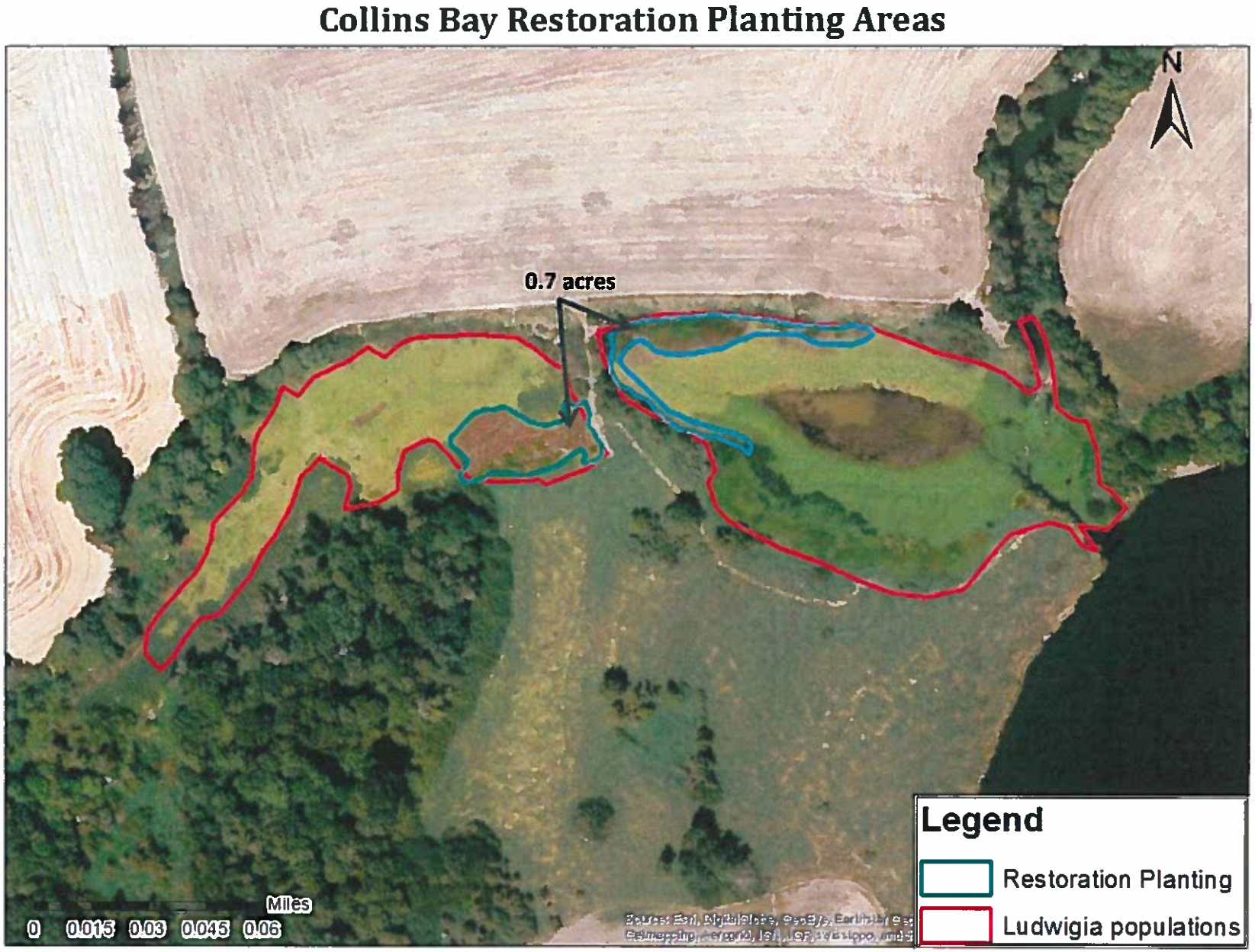
Largescale sucker found during fish shocking survey (only Willamette native found).



Fish shocking survey with ODFW in gravel pond with *Ludwigia* on the Willamette for pre-treatment monitoring. July 28, 2015.

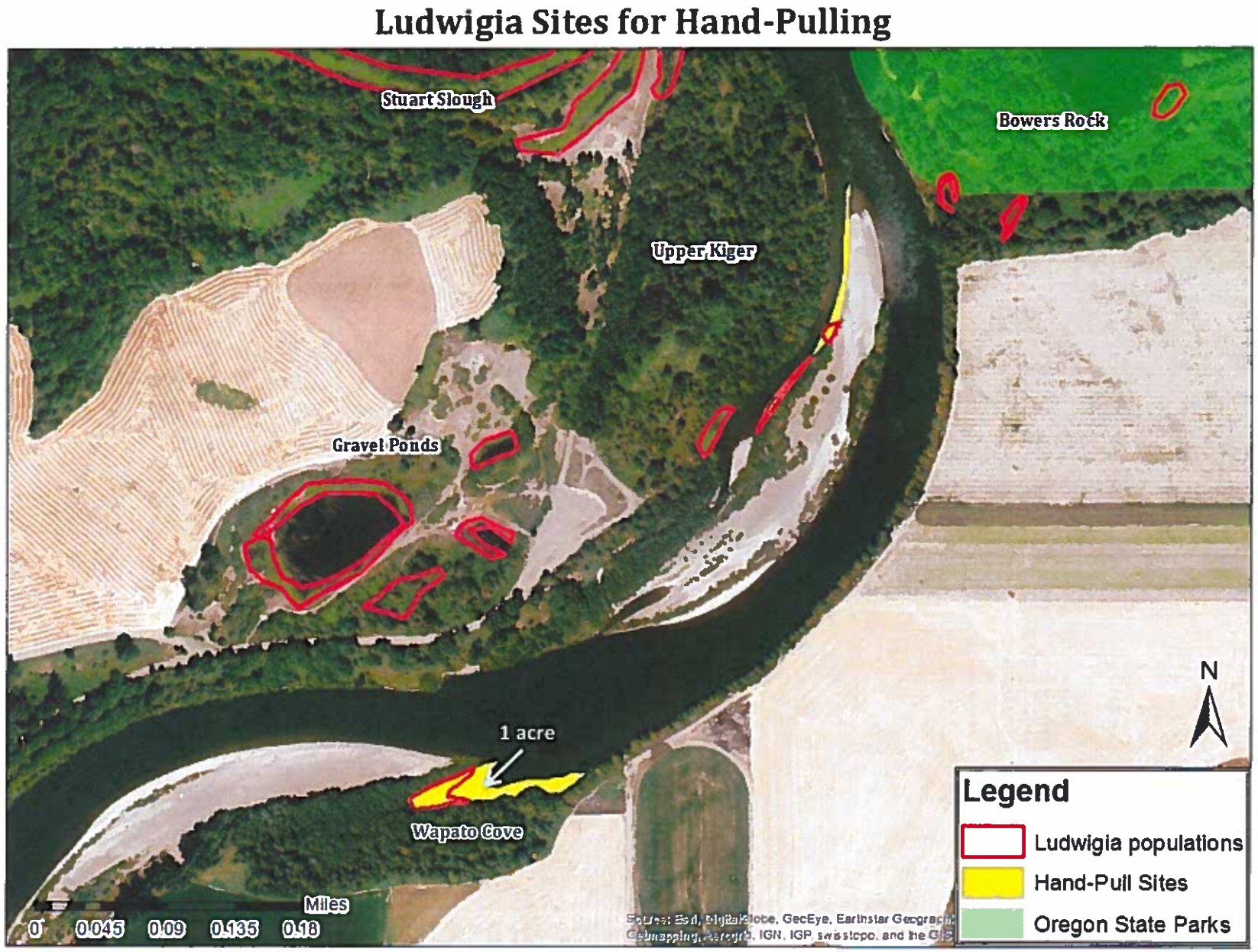
Water quality monitoring in Willamette gravel pond after *Ludwigia* treatment. August, 2015.

Appendix C: Collins Bay Restoration Areas Map



Map 3: Areas for proposed restoration planting at Collins Bay.

Appendix D: Map of *Ludwigia* Sites for Hand Pulling



Map 4: Sites for hand-pulling *Ludwigia* including Wapato Cove and Upper Kiger side-channel.

Ludwigia Monitoring Plan for Benton Soil and Water Conservation District

Created by Mosaic Ecology LLC
June 29, 2015
Contact: Alex Staunch, restoration technician
Stau9723@gmail.com, 585.315.6926

Overview

In connection with the on-going control of *Ludwigia* spp. within the Willamette River system of Benton County, Oregon, a long-term monitoring program will be established within the Stuart Slough Project Area. Data collection in 2015 will create baseline measurements for water quality and *Ludwigia* abundance within four bodies of water. Monitoring locations were selected to represent the diverse environments and varied water body types that are targeted for *Ludwigia* control (gravel pit, slough, oxbow, bay). Water quality monitoring will assess impacts of large scale eradication efforts on water chemistry (dissolved oxygen, pH, temperature, conductivity) and mapping will show annual shifts in range and density of large *Ludwigia* infestations. Monitoring will begin on July 1, 2015 and the written report will be completed by 2/1/2016. The proposed monitoring plan for 2015 is meant to generate data that can be replicated and compared to future years' monitoring within the project area.

Benton SWCD Project Prescription (Appendix I)

Monitoring Goals

1. Assess impact to water quality of large masses of decaying *Ludwigia* in response to control.
2. Measure pre-treatment *Ludwigia* range and density values to allow annual comparisons.
3. Create and improve repeatable methods in order to duplicate data collection for following years.

Monitoring Sites

A total of 4* locations were selected within the project area to provide detailed information regarding water quality and shifts in *Ludwigia* abundance (Appendix II). Sites represent some of the diverse water body types that have been targeted for control. Baseline water quality and GPS data will be collected within the Oxbow, Stuart Slough and Gravel Pit sites where control has yet to be administered. The Oxbow site is targeted for removal in 2016 or 2017, thus will act as a control for *Ludwigia* infested waterbodies. The Collins Bay site experienced chemical control in 2014 and will be mapped in 2015 to provide an estimate of current *Ludwigia* abundance. The 2014 Collins Bay infestation will be estimated, from previous site notes and picture monitoring to produce a comparison that can be produced this coming year.

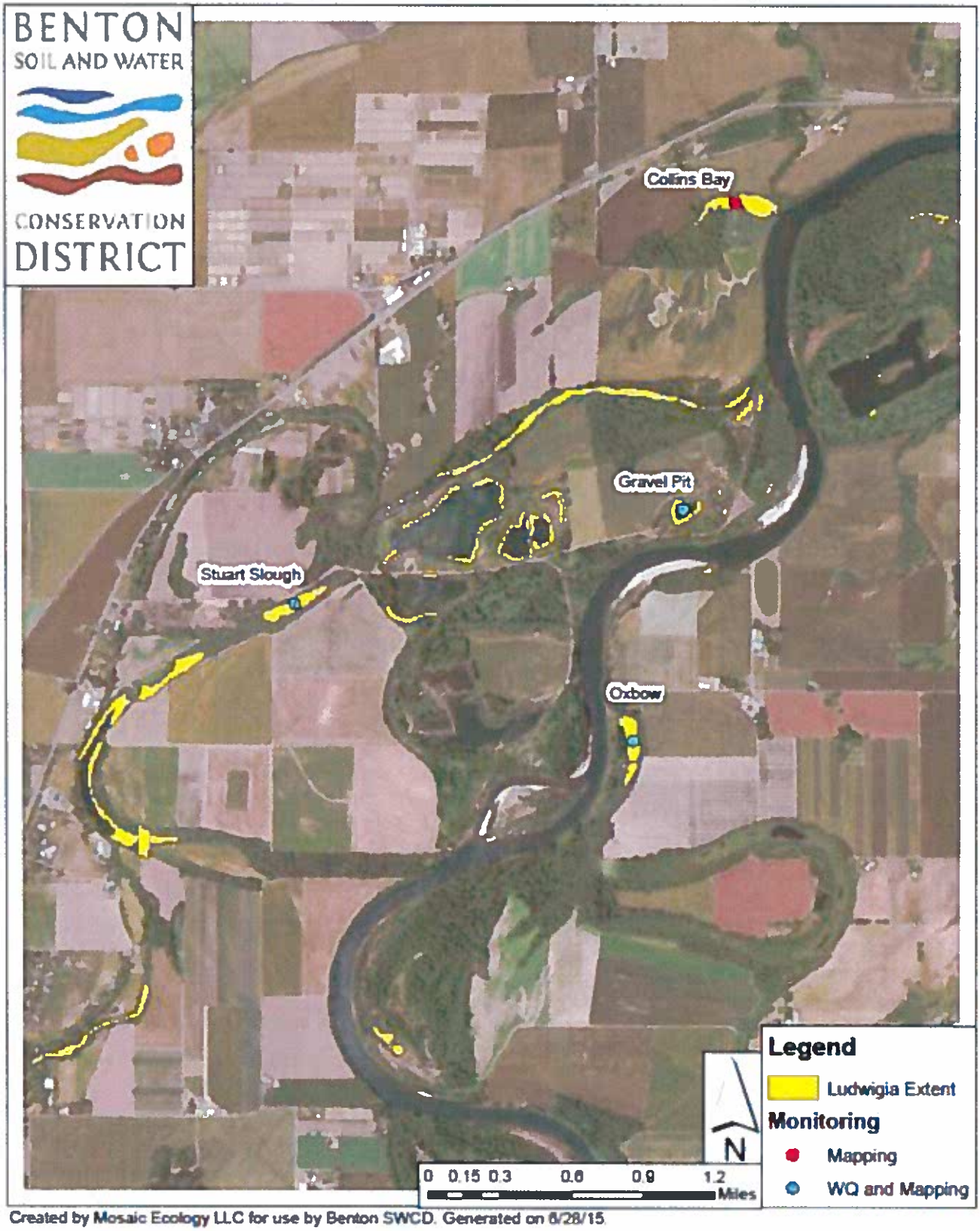
* *Number of sites may be adjusted in accordance with time and funding.*

Methods Summary: *Detailed data collection methods available upon request.*

Range & Density Mapping: The 4 target locations will be mapped by hand-held GPS instruments to create cover classes and quantify total infestation acreage. Methods and deliverables will be similar to those used for the Blue Heron Wetland Restoration Project (Appendix III). Cover classes will be generated to represent Sparse (<5%), Moderate (5 – 50%) and Heavy (>50%) cover classes. Polygons will be generated by tracing infestation densities by foot and watercraft.

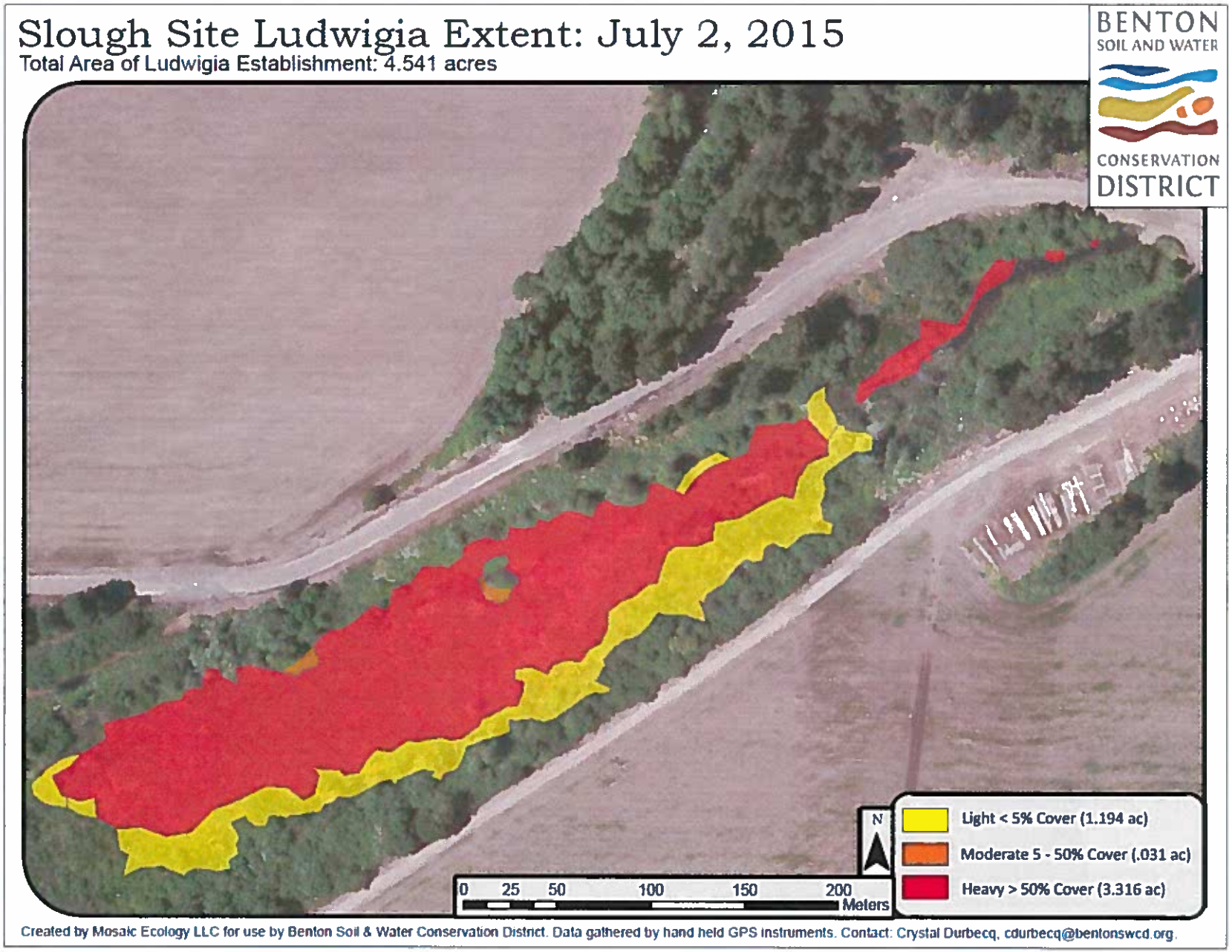
Water Quality: Data will be collected by hand, using YSI Professional Pro Plus Multiparameter Water Quality Meter (https://www.ysi.com/proplus). The instrument was retrofitted with additional probes to collect the variables of dissolved oxygen, temperature, pH and conductivity. All 4 variables will be collected at a minimum of 4 points within each location. At each site, depth and average percent cover of *Ludwigia* within a 5 foot radius will be assessed. At each point, sub-surface samples will be collected directly below the water surface, within the *Ludwigia* biomass and directly below the floating mass (or 6 inches above bottom).

BSWCD Ludwigia Control Monitoring: 2015

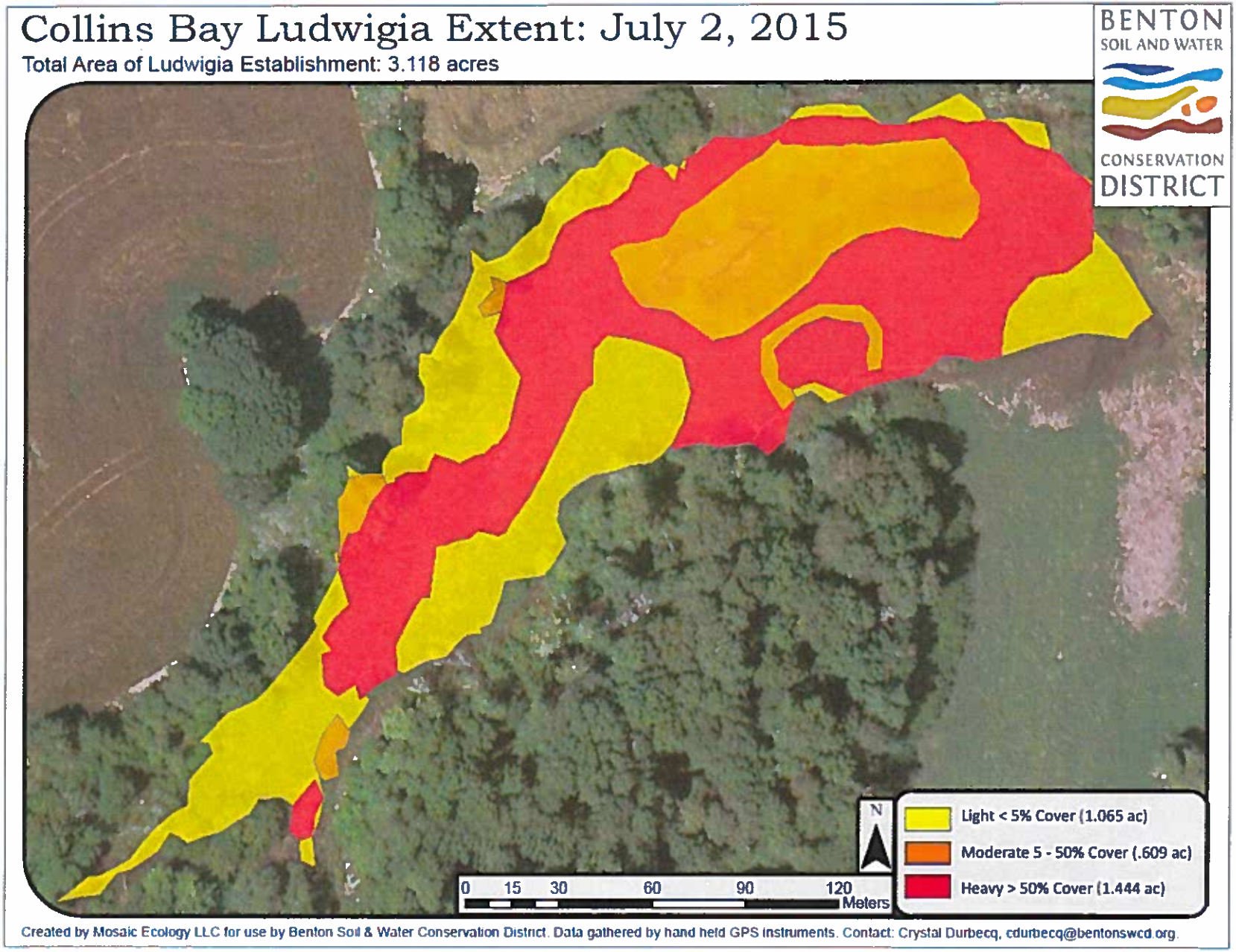


Created by Mosaic Ecology LLC for use by Benton SWCD. Generated on 6/28/15

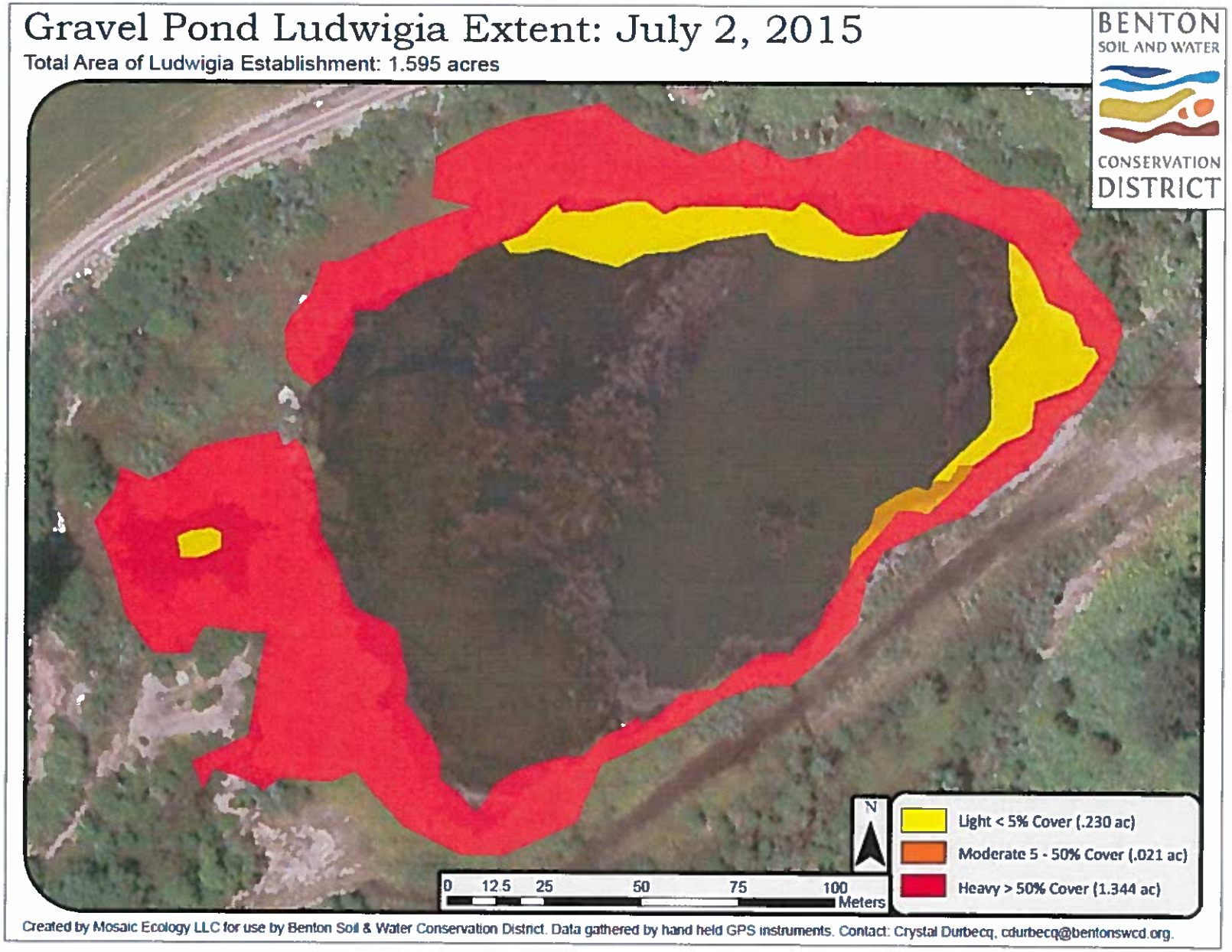
Appendix F: *Ludwigia* Density Maps



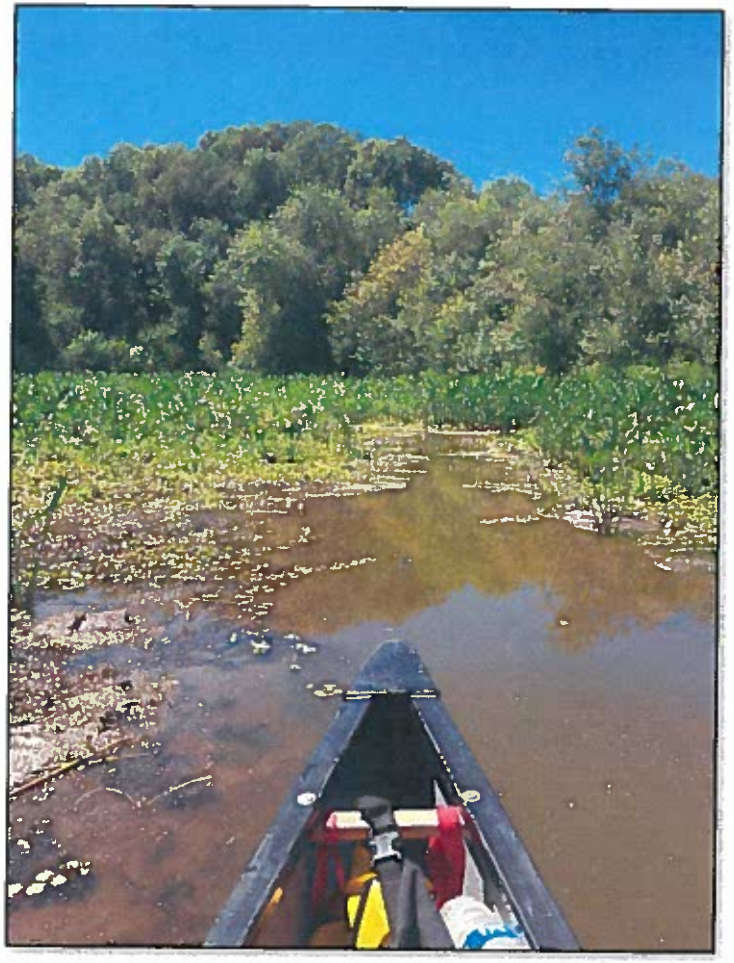
Appendix F *(continued)*: *Ludwigia* Density Maps



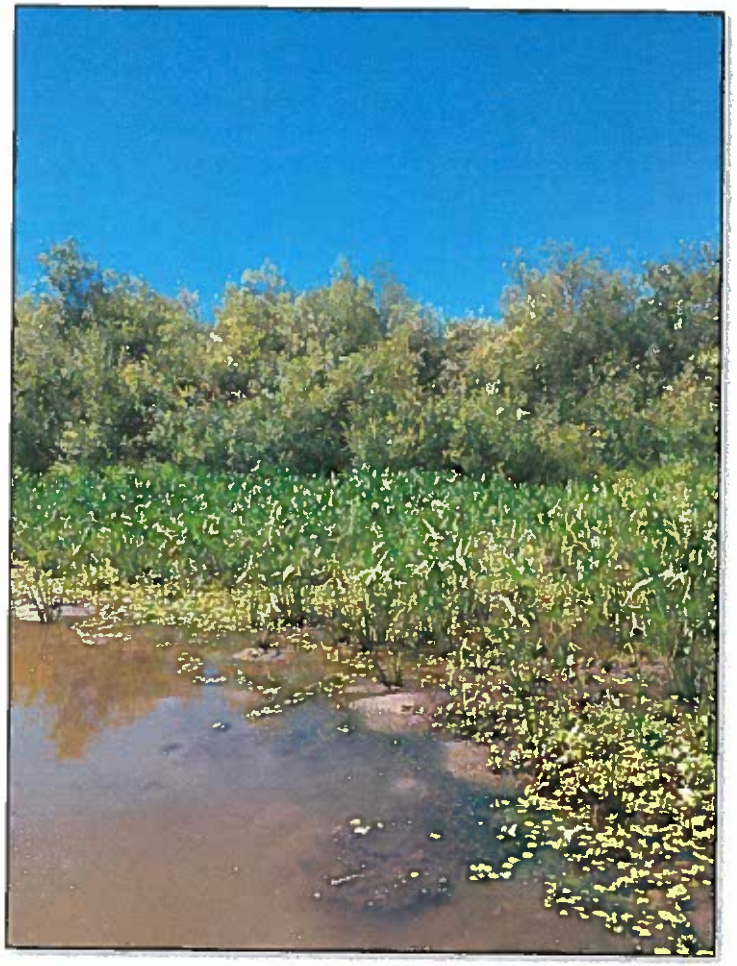
Appendix F *(continued)*: *Ludwigia* Density Maps



Appendix D: Pictures of Wapato Cove

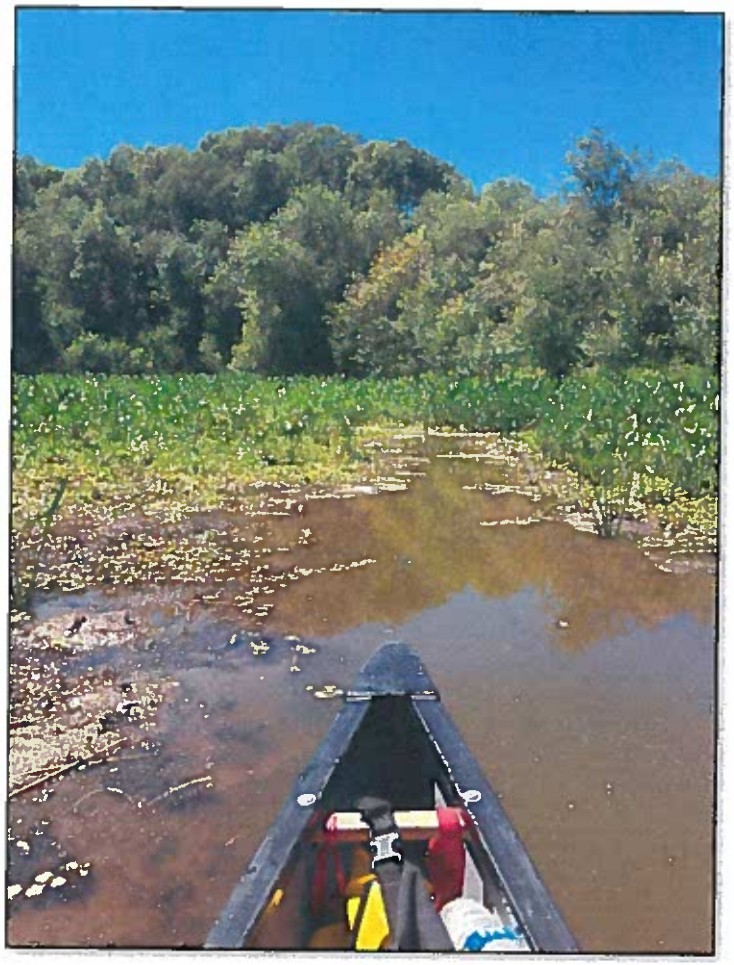


Wapato Cove on the Willamette River facing west. *Ludwigia hexapetala* mixed with wapato. June 11, 2015.

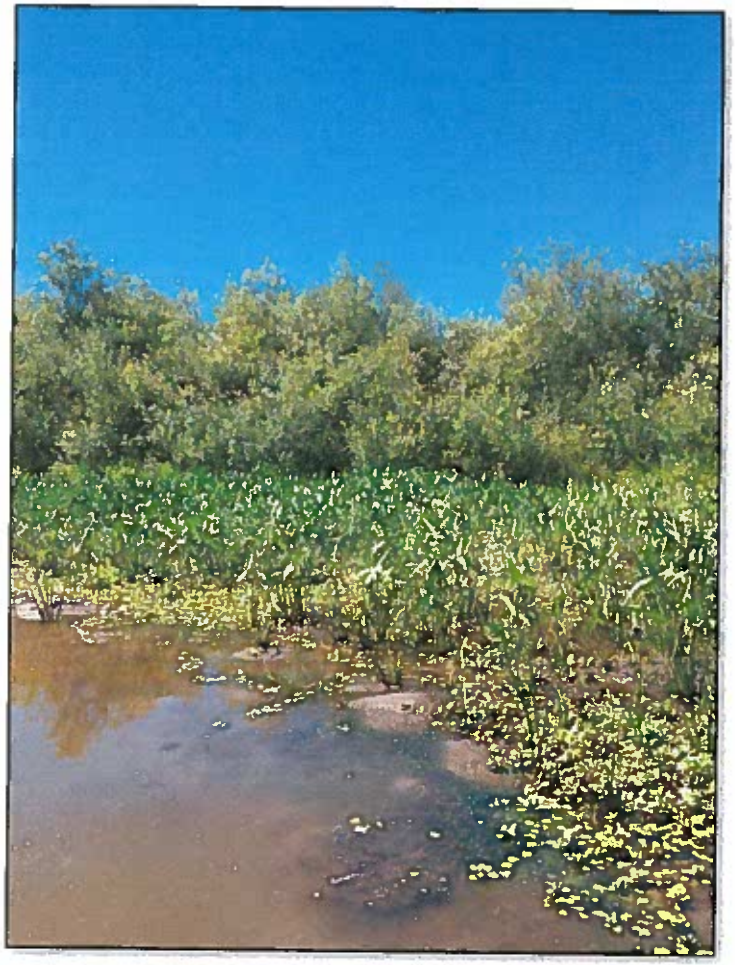


Wapato Cove on the Willamette River facing northwest. *Ludwigia hexapetala* mixed with wapato. June 11, 2015.

Appendix D: Pictures of Wapato Cove



Wapato Cove on the Willamette River facing west.
Ludwigia hexapetala mixed with wapato. June 11, 2015.



Wapato Cove on the Willamette River facing northwest.
Ludwigia hexapetala mixed with wapato. June 11, 2015.

Oregon
Kate Brown, Governor

Parks and Recreation Department
Southern Willamette Mgmt Unit
570 N Moss St
Lowell, OR 97452
541 937-1173

Oregon State Weed Board
635 Capital St. NE
Salem, Oregon 97301-2532

November 19, 2015

Subject: Support for the BC CWMA OSWB application entitled "*Willamette River Aquatic Weed Management Phase 3*"

Dear Oregon State Weed Board Grant Review Team Members,

I am writing to express the Oregon Department of Parks & Recreation's (OPRD) support for the Benton County Cooperative Weed Management Area's (BC CWMA) grant proposal for aquatic weed management. Partnerships between private and public landowners, local and state agencies, and non-profit conservation organizations have formed in recent years to address critical habitat needs along the Corvallis to Albany Reach of the Willamette. The Willamette Mainstem Cooperative (WMC) is one such partnership and has conducted a landscape scale weed assessment of the floodplain between Corvallis and Albany. One outcome of the assessment process is that *Ludwigia hexapetala* has been identified as a priority species for control in the Willamette River. The BC CWMA proposes to conduct follow-up treatments of *Ludwigia* in Collins Bay, and to add an additional site locally known as Wapato Cove. Several *Ludwigia* sites have been the focus of volunteer hand-pulling in previous years, and will continue to be monitored and targeted for hand-pulling during this project phase.

The control of target invasive plants will contribute significantly to improving ecological function of the Willamette River, and protecting unique and high quality habitats. In order to support the next phase of these efforts, OPRD staff will assist in volunteer and outreach activities on the river including weed pulls and aquatic weed workshops. OPRD will contribute $2500 in staff time for control, monitoring, and outreach activities related to this project.

The control of aquatic invasive plants will contribute significantly to the overall goal of improving ecological function of the Willamette River habitats.

Thank you for your consideration of this proposal.

Sincerely,

Julie Whalen

Julie Whalen
OPRD Park Manager

Willamette RIVERKEEPER®

Oregon State Weed Board
635 Capital St. NE
Salem, Oregon 97301-2532

November 19, 2015

Subject: Support for the OSWB application entitled "*Willamette River Aquatic Weed Management Phase 3*"

Dear Oregon State Weed Board Grant Review Team Members,

I am writing in strong support of the Benton County Cooperative Weed Management Area (CWMA) grant proposal for the third phase of the Willamette River Aquatic Weed Management Project in the Corvallis to Albany Reach of the Willamette River. This project will treat target noxious weeds, restore biologically diverse habitat, and allow for much needed community outreach about the importance of protecting and enhancing floodplain habitat in the Willamette Valley.

Willamette Riverkeeper is a non-profit organization dedicated to protecting and restoring the Willamette River. The Willamette Aquatic Invasive Network (WAIN) is a group of natural resource and conservation professionals working to foster collaboration, share information, and develop strategies to restore riparian habitat in the Willamette River basin. As coordinator for WAIN, Willamette Riverkeeper supports this project and will work with Benton SWCD to help engage community members in hands-on stewardship activities. In partnership, we will co-facilitate two on-water aquatic weeds trainings in early summer, and two community restoration work party events in mid to late summer. The work party events will focus on hand pulling target invasive plants and providing community outreach and hands on education. All of these activities will occur within the Corvallis to Albany Reach on the mainstem Willamette River. Willamette Riverkeeper is dedicating $620 in kind match for equipment usage to support the Benton County CWMA in these efforts.

Willamette Riverkeeper is also planning to continue the survey work along the mainstem Willamette River downstream of Albany, which is outside of the jurisdiction of the Benton County CWMA. In planning the this survey we are sharing knowledge, building on lessons learned, and planning to synthesize information gained from reach level assessments to develop a prioritized treatment plan for invasive species such as *Ludwigia* along the mainstem Willamette River.

Thank you for your careful consideration of this grant proposal.

Sincerely,

Marci Krass
Restoration Coordinator

1515 SE Water Ave #102, Portland, OR 97214 • 503-223-6418 • www.willamette-riverkeeper.org

November 19, 2015

TO: Oregon State Weed Board

Subject: Additional Funding for *Ludwigia* Control at Collins Bay

We own the land surrounding Collins Bay at Bower's Slough on the Willamette River between Corvallis and Albany. *Ludwigia* made its appearance several years ago and had increased in density on Collins Bay over the ensuing years to where the surface was almost completely covered with this invasive weed, crowding the native wapato, reeds, and water-lilies into small patches.

We were more than pleased when Crystal Durbecq, with the Benton Soil and Water Conservation District, obtained funding for a project to attempt abatement of this weed on Collins Bay. The results were spectacular, with very few *Ludwigia* getting past the flowering stage before dying. 2015 was a very dry year, and much of Collins Bay was dry during the summer months, which exposed new areas where *Ludwigia* was able to sprout. It would be good to have the contract crew return for at least another season to treat these newly emerging plants, and bring the populations down to a more manageable level.

Crystal has been great to work with, friendly, and informative. We have appreciated her efforts to keep us apprised of progress, dates for spray application, and their efforts to protect populations of wapato and water-lilies, and avoiding times when irrigation water for the peppermint crop was being pumped from the slough. We strongly recommend that you provide her with sufficient funds for another year's effort to eliminate any surviving *Ludwigia* and plants arising from residual seed. Please feel free to contact us at any time, even if you wish to have a personal inspection of the site.

Thank you.

Sincerely,

Stan and Louise Snyder

6048 NW Hwy 20

Albany, OR 97321