

Willard Bay Project Proposal Form

Applicant Name: Mary McKinley

Co-Applicant Name(s): Jenny Frame and Emily Martin

Project Title: Ogden Nature Center Wetland Restoration and Education Project

Agency or Business Name: Ogden Nature Center

Mailing Address: 966 West 12th Street **City:** Ogden **State:** Utah **Zip:** 84404

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Individual Non-Profit Govt. Agency Academic Commercial Other

1. Estimated Project Costs

Labor: \$35,475.00
Materials: \$40,570.00
Equipment: \$5,000.00
Administration: \$9,500.00
Miscellaneous: \$1,000.00
TOTAL: \$91,545.00

Table 1: Estimated Project Costs from Willard Bay Settlement Grant

Estimated Project Costs		2014	2015	2016	2017	Total Cost
Labor	Bare-root install	-	-	\$9,720	\$6,480	\$16,200
	Wetland sod install	-	\$175	\$700		\$875
	Spraying and Mowing	\$2,750	\$5,500	\$2,750	\$1,100	\$12,100
	Monitoring	\$100	\$400	\$400	\$400	\$1,300
	Intermountain Aquatics, Inc. contract--planning and restoration	\$5,000	-	-	-	\$5,000
	Maintenance	-	-	-	-	\$0
Material	Bare-root	-	-	\$18,792	\$12,528	\$31,320
	Wetland sod	-	\$1,850	\$7,400	-	\$9,250
Equipment	Phragmites tractor removal	\$5,000	-	-	-	\$5,000
Administration		\$2,375	\$2,375	\$2,375	\$2,375	\$9,500
	Signage	-	-	-	\$500	\$500
	Education supplies	-	-	-	\$500	\$500
Total Costs per Year		\$15,225	\$10,300	\$42,137	\$23,883	\$91,545

Other sources of project funding:

Source: State of Utah Invasive Species Mitigation (ISM) Grant **Amount:** \$3,050

Source: Ogden Nature Center **Amount:** \$1,000

Additional funding through the ISM Grant will cover a portion of the spraying and mowing by PMG

Vegetation Control and monitoring by Snow College Department of Natural Resources. We have received the ISM grant for the past three years and future funds will depend on continued proposal acceptance through the Utah Department of Agriculture. ONC will supply limited funds to support ongoing maintenance of the project.

Total project cost including other sources of funding: \$95,595

2. Describe the purpose and need of this project

The Ogden Nature Center (ONC) is a Utah nonprofit organization, founded in 1975, and focused on environmental education and stewardship of the land. Our 152 acre nature preserve provides valuable habitat for wildlife, invertebrates and plants. These species are valued by the people of Northern Utah and provide critical support for our experiential, hands-on education programs. Historically the land that now comprises the preserve was used for cultivated agriculture and military use. Unfortunately due to the large scale land clearing that occurred on the preserve and surrounding lands before ONC was established, invasive weeds were well-established prior to our organization's inception. These weeds have proven to be detrimental to the terrestrial and aquatic ecosystems that are used extensively for environmental education, especially in regards to our wetland habitats. Phragmites is of particular concern as it has invaded our wetlands, severely reducing water quality and extensively degrading native habitats available for desirable plants, animals and birds.

The primary proposed activities with the Willard Bay Settlement Grant will include a large-scale, aggressive treatment of 90% of the phragmites where practically achievable, restoration of two wetland habitats and educational programs to teach the public about the harmful impacts of phragmites on water quality, native vegetation, and wildlife. In line with our mission to unite people with nature and nurture appreciation and stewardship of the environment, restoring our wetland ecosystems is crucial to providing natural environments from which people can learn. Each year, ONC hosts over 8,000 visitors, over 10,000 children annually during school field trips, and thousands more through community events, allowing the message of preserving native aquatic ecosystems to be instilled in a large and varied audience. With the assistance of the Willard Bay Settlement, we will be able to restore important habitats and preserve the water quality and biodiversity of these two major wetlands.

The two proposed wetlands intended to be restored to their native condition were chosen because they are frequented by the public and are often used in educational programs, making them an invaluable tool to educate Utah citizens about the importance of promoting healthy aquatic ecosystems. Through extensive restoration efforts, Avocet Pond and Tadpole Pond, which are predominantly phragmites, will be restored to their native condition. The restoration phase of this project will return the wetlands to an ecologically more diverse, resilient condition while providing a unique opportunity for tens of thousands of citizens to reconnect with Utah's dynamic aquatic ecosystems.

3. Estimated time frame of the project with significant milestones

The entire project will take an estimated 3 ½ years with the early phase of the project focusing on controlling phragmites, while the later phase of the project will focus increasingly on restoration.

To see the estimated time frame of the project, refer to Appendix B.

4. Describe the location of the project with attached location map, including details on the total area that will be directly enhanced by the project

The total area that will be directly enhanced by the project through phragmites removal is approximately 4.08 acres within the larger 152-acre nature preserve that will be indirectly enhanced by the project. This acreage represents several fragmented, satellite stands of phragmites that are capable of colonizing every low spot on the property if swift action is not taken (see Appendix A for map). Along with these small

patches, there are several stands of phragmites that are threatening important educational wetlands and will be the focus of our restoration efforts. The total acreage of wetland restoration is 1.25 acres with a combined total of approximately 244.63 meters of shoreline. Both of these areas were once valued by wildlife and migratory birds, but are now overrun by phragmites. These areas are also visible to the public, making them a prime area for educational opportunities.

5. Describe how the project will specifically enhance and protect waterways affected by the Willard Bay diesel release and improve the conditions of one or more of the following: wildlife, habitat, natural vegetation, water quality or emergency response:

ONC is just 16 miles from Willard Bay and many of the people that enjoy Willard Bay take advantage of the recreation opportunities made available at the ONC. Therefore, the educational messages regarding protecting water quality and native vegetation will be transferred to a large group of people that have a strong connection with Willard Bay.

Along with a powerful educational message, this project will significantly improve the condition of wildlife, habitat, natural vegetation and water quality at the ONC. We propose an integrated approach to managing invasive weeds that currently threaten the aforementioned conditions. With this grant we will implement a large scale revegetation using both wetland sod and forbs consisting of native wetland species with the help and guidance of a habitat restoration company (see question 8 for details). Consistent with our land management plan, we will revegetate with the appropriate plants that fit the wetland habitat type. This process will promote native vegetation while enhancing the benefit of these areas to wildlife and migratory birds that frequent the area. In past years we have been able to rely heavily upon volunteers to assist us in our aggressive revegetation plan, and this will continue to be our approach in the future.

6. Describe project's connectivity to other natural areas or projects that further enhance wildlife, habitat, natural vegetation, water quality or emergency response:

Both Avocet and Tadpole ponds were once thriving wetland communities and were primary tools in our education programs. Prior to phragmites, it was a common sight to see hundreds of school children a day dipping their nets in the water to discover the wonders of wetlands. The public also frequented Avocet tower to view the nesting migratory birds at Avocet pond. Since the introduction of phragmites, we've witnessed a decline in both wildlife habitat, water quality and native vegetation, rendering these wetlands unusable as both an educational tool and by wildlife. Through this wetland restoration project, the natural areas negatively impacted by phragmites will be returned to a more vibrant, productive state and visitors will once again be able to enjoy all that these ecosystems have to offer. As these wetland communities return to a more natural ecological state, the surrounding ecosystems that make up the ONC will also benefit through enhancement of biodiversity and protection against invasive species.

In addition to this proposal, we have received an ISM grant for the past three years to manage our invasive weeds. The ISM grant has allowed us to control invasive weeds on the ground with various methods including mechanical, biological and chemical controls. This grant has also allowed us to aggressively revegetate by planting bare-root stock and native seeds. The ISM grant focuses on eliminating a variety of invasive weed species including dyer's woad, hoary cress, yellow star thistle, Canada thistle and phragmites. The amount of funds we have put towards phragmites control has been limited and additional resources are essential in controlling the ever-increasing phragmites population. The combination of both

the ISM and Willard Bay grants would allow us to continue to treat and control high priority weeds in order to promote native habitats and improve biodiversity.

7. Describe any additional social benefits of implementing this project:

One of the key aspects of this project is the development of a variety of educational programs focused on people of all ages aiming to instill a sense of ecological stewardship in regards to water quality and native aquatic ecosystems. We propose to meet this objective through the following:

- Installing wetland and habitat restoration interpretive signage at both of the restoration sites
- Integrating the restored wetland into the 'Ponds Ecology' and 'Endangered Species' school programs
- Creating two new "Wild Wednesdays!" community programs entitled 'Alien Invaders' and 'Wondrous Wetlands' focused around the restoration sites
- Creating a 'Restoration Days' series aimed at educating community volunteers about restoration practices and involving them in the restoration process
- Incorporating sequential water quality and wetland education into the Volunteer Program, a summer volunteer program for teenagers

Along with providing an opportunity to greatly expand our water quality education programs for school groups and the community, this project benefits the larger Utah community by educating the many volunteers that will participate in the restoration process.

8. Project plans and details, including rights to work on specified piece of land:

ONC maintains a long term lease with Ogden city as stewards of the land and is counted on to maintain a healthy, natural environment for people to enjoy and learn from. This fifty-year renewable lease allows us to manage the property as we see fit.

During the eradication phase of this project, funds will be used to control the areas of the property that are invaded with phragmites. We plan to aggressively combat phragmites through the use of herbicide applications and consistent mechanical removal in order to stress the plant. This will be done by a team from PMG Vegetation Control. Herbicide applications will occur in August of 2014 and 2015. Spot spraying of stands that survived initial treatment will occur in August of 2016 and 2017 as needed to avoid disturbing newly planted species in the restoration process.

Phragmites stands will be mowed at least 2 weeks after chemical treatment during the fall of 2014 and 2015 in order to encourage native plant growth and to further enhance the impact of the herbicide applications. We will continue to contract with Snow College Department of Natural Resources for monitoring the restored wetland vegetation. Any remaining stands of phragmites that were missed during fall treatment, stands will be mowed again in early spring by PMG. This will occur prior to March 15th of 2015 and 2016 in order to avoid potential nesting birds. Equipment used to manage phragmites will be cleaned of all debris and mowed plant parts will be properly disposed of.

We plan to work with Intermountain Aquatics, Inc., a reputable habitat restoration company, to restore the surrounding vegetation. A phase-plan approach for installing wetland plants will begin in areas where treatment of phragmites was most effective. To offset installation and planting costs and to further the educational aspect, we will incorporate volunteers into the restoration phase. In fall of 2015 and 2016 after

spraying and mowing, wetland sod consisting of Nebraska Sedge, Woolley sedge, and Arctic rush will be planted along the shoreline in areas that are free of phragmites. A total of 50 units of wetland sod will be installed (see appendix B for breakdown of installation per year). In the spring of 2016 and 2017, a total of 54,000 bare-root plants will be installed one foot on center based on recommendations from Intermountain Aquatics, Inc. These plants represent diverse communities composed of a mix of native varieties of flowering plants, shrubs and trees, particularly hardstem bulrush in deeper areas and native sedges in shallower areas.

A major focus of 2017 will be maintenance and follow-up as needed. Preparation for phasing restored wetlands into education programs and ordering interpretive signage will occur during the summer and fall of 2017. Final reports will be drafted and submitted by January 1st, 2018. Ongoing maintenance and education will occur into the future.

9. Describe your experience in implementing projects of similar scope and magnitude:

ONC has almost 40 years of experience in land management and habitat restoration efforts. For much of ONC's existence, we have had difficulties combating invasive species that are prolific throughout the area. Originally we tried to use a very organic approach, however, for the past four years we have taken an integrated pest management route. Through the combined use biological, mechanical and chemical controls, we have gained experience in what works and have made great strides in controlling invasive species on the property.

As a non-profit, we have had demonstrated success in multiple large-scale projects, including construction of two of Utah's first green buildings. The majority of our projects are funded through grants, which in turn has given us the experience in allocating appropriate funds and seeing projects through to completion. In the past, we have worked closely with the Utah Department of Wildlife Resources, Weber State University, Intermountain Aquatics, Inc., USU extension, Chad Dewey from Snow College, and many more.

10. Describe how ongoing maintenance of the project will be funded and carried out:

Maintaining healthy and thriving habitats is a key priority to the ONC. We have an extensive volunteer labor force that contributed over 1,800 hours in 2013 to weed management. Our volunteers represent people from all spectrums of Northern Utah and play an important role in our success. We will reach out to volunteers from Weber State University, high schools, religious organizations, scout troops, businesses, Hill Air Force Base and many more in order to reduce our costs and to provide a meaningful volunteer experience. These volunteer groups will be an integral part of the ongoing maintenance necessary to preserve the restored wetlands.

We are also able to expand our capacity by hiring an Americorps volunteer through Utah Conservation Corps every year that works directly with habitat restoration activities throughout the property. In turn, we are able to increase our volunteer force and focus on invasive weed control. The presence of someone working in this capacity will be a large part in the ongoing maintenance of this project. Handbooks will be created for each year of the project that highlights the goals, objectives and milestones to be accomplished that year to ensure that all personnel are up to date and able to meet each task needed to maintain the project.

We are also continuously receiving donations from individuals and an anonymous donor that help fund habitat restoration projects.

11. List consultants or agency partners that have participated in project development (below):

Name/Company: Eric McCulley/Intermountain Aquatics, Inc.

Address: 116 Mustang Drive, Driggs, ID 83422

Phone: 801-520-2505

Name/Company: Chad Dewey/Snow College

Address: 150 College Avenue, Ephraim, UT 84627

Phone: 435-283-7337

Name/Company: Bryan Dayton/PMG Vegetation Control

Address: 121 E 11600 N, Richmond, UT 84333

Phone: 435-760-2737

Appendix A

Project Location Maps

2014 Areas Infested With Phragmites



Proposed Restoration Sites



Avocet Pond

Tadpole Pond

1200 West Street

12th Street



Appendix B

Estimated Timeline with Milestones

	Yearly Goals	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2014	Focus on controlling phragmites; prepare for fall 2015 planting								Spray phragmites		Mow phragmites		
2015	Continue phragmites control; implement first phase of restoration with wetland sod planting in areas that are free of phragmites			Check to see if mowing is needed--if so, mow prior to 3/15					Spray phragmites	Plant Wetland Sod (20% of stock)	Mow phragmites		
2016	Heavy restoration/planting year; spot-spray remaining phragmites and plant bare root in spring and more wetland sod in fall in areas free of phragmites			Check to see if mowing is needed--if so, mow prior to 3/15	Plant bare root (60% of stock)				Spot-spray remaining phragmites	Plant Wetland Sod (80% of stock)			
2017	Follow-up and monitoring year; plant bare root stock in the spring and spot-spray if needed in the fall; monitor conditions and begin preparing final report				Plant bare root (40% of stock)	Order and install interpretive signs			Spot-spray remaining phragmites if needed	Write lesson plans for new education programs	Prepare Final Report		
2018	Submit final report; ongoing monitoring and maintenance; implement educational programs focused on restored wetlands	1/1/18: Final Report Due		Implement educational programs focused on restored wetlands									

Legend	
	Control Phase
	Restoration Phase
	Education Phase
	Additional