**SCOPE OF WORK**

**Project Title:** Bois Brule River Coastal Wetland Invasive Species Control and Wild Rice Restoration

**Project Principle Investigator:** Amy Eliot, Assistant Scientist

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**Persons responsible for reporting:** Amy Eliot, LSRI

**Project Location**: Coastal Wetlands at the Mouth of the Bois Brule River

**Background**

The Bois Brule River coastal wetland is a 78-acre barred drowned river mouth habitat located on Lake Superior in the Beartrap-Nemadji watershed. The emergent marsh, often referred to as the Brule River Lagoon, is largely separated from the main channel of the river and Lake Superior by a natural levee and sand spit.

Several distinct plant species associations occur in the marsh, including dense beds of pond lilies, pondweeds and common bladderwort in the lagoon with stands of bur-reed, soft-stem bulrush, cattail, and arrowhead in the shallower areas and marsh sedges on the margins (Epstein, 1997). A historical study (Thomson, 1943) shows that wild rice (*Zizania palustris*) was once present in the lagoon. The natural levee between the marsh and the river is vegetated with speckled alder, dogwoods, willows, and small ash trees and a very small beach and dune complex between the marsh and Lake Superior supports a sparse growth of marram grass and beach pea (Epstein, 1997).

The lagoon is crucial for both migratory land birds as well as birds that frequent the water and shorelines, including red-necked grebe, common loon, double-crested cormorants, terns, shorebirds, gulls. Rare marsh bird nesting and a state-endangered invertebrate have been documented at the site, (Biotic Inventory Report June 2016, http://dnr.wi.gov/files/PDF/pubs/nh/NH0856\_ext.pdf).

Recent assessments (LSRI, 2016) indicate a negative change in the floristic composition of the lagoon. The wild rice that was present in 1943 is no longer found and the non-native narrow-leaf cattail (NLCT) (*Typha angustifolia*) and yellow iris (YI) (*Iris pseudacorus*) are now present. The 2016 study also shows CT has expanded its range within a 1-year time period. Both YI and NLCT are restricted under WI's invasive species rule (WI. Adm. Code ch. NR 40).

The NLCT and YI populations appear to be expanding and threatening the habitat quality of the complex and YI is expected to obstruct one of the last know connective inlets leading from the river to the lagoon. The alterations caused by invasive species may change the kinds, quantity, and quality of food resources and threaten migratory birds using the “Migratory Bird Stopover Sites” (Duncan et al. 2002).

This project is intended to control non-native yellow iris and narrow leaf cattail infestations in the Bois Brule River coastal wetland and restore native wild rice in order to protect and restore habitat values. This management effort will restore the "complex to a healthy natural condition" and meet objectives in the Brule River Master Plan (2017).

Key project objectives are to:

* Restore and protect floristic and habitat quality to 78 acres of Lake Superior coastal wetland through the following actions:
  + Limit narrow-leaf cattail expansion by controlling a ~0.33 acre population in the lagoon (See Figure 1 and Image 1 attached).
  + Restore wild rice in ~0.33 acres of the lagoon.
  + Limit yellow iris expansion by controlling up to 4.3 acres in the lagoon and the east and west river banks adjacent to the lagoon (See Figure 2 attached).

**Project Scope:**

The project will take place in the 78 acre coastal lagoon at the mouth of the Bois Brule River and on the east and west banks of the river approximately 0.3 miles upstream from the confluence with Lake Superior. The Lake Superior Research Institute (LSRI) will lead all aspects of the control and restoration project. Any sub-contract awards needed to complete the project will be developed and executed by LSRI or the work will be done internally. The WDNR Lake Superior Team will partner with LSRI on the invasive control effort. All control and restoration work will be done in accordance with federal, state and local regulations. Any permits required for the project will be obtained by LSRI with facilitation from WDNR as needed. The LSRI will provide control area and wild rice locational data to the WDNR in electronic and map formats. All GPS data and photographs will be transferred to WDNR electronically. The final report and data produced through this work will be used by WDNR to guide future monitoring, control and restoration work.

**LSRI Project Deliverables and Timeline:**

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| --- | --- |
| Deliverable | Timeline |
| 1. Attend a minimum of 2 coordination meetings during the project period with the WDNR Project Manager to refine project schedules, objectives, and address project issues or conflicts. | 1stMay 2018  2ndTBD |
| 1. Develop a QAPP (if required). | May/Jun 2018 |
| 1. Reconnaissance | May 2018 |
| 1. Develop and implement a control and restoration plan and schedule. The control methods used will be subject to approval by the WDNR Project Manager and/or the Lake Superior Basin AIS Early Detection and Rapid Response Coordinator. | May 2018 |
| 1. Obtain control permits, disposal permits and land owner permissions as required. | May/Jun 2018 |
| 1. Coordinate as needed with WDNR Lake Superior Team and any sub-contractors. | May/Jun 2018 |
| 1. Provide crew leaders with sufficient botanical expertise and experience leading field crews. | May/Jun 2018 |
| 1. Conduct two Floristic Quality Assessment prior to control work using WDNR Timed Meander protocol (two control areas) | May/Jun 2018 |
| 1. Control up to 4.3 acres of yellow iris and 0.33 acres of narrow leaf cattail using mechanical methods. Vegetative material will be dewatered and burned or disposed of at an approved facility. | May/Jun 2018 |
| 1. Obtain green wild rice through GLIFWC and seed a ~0.33 acre area in the lagoon. | Sep/Oct 2018 |
| 1. Acquire GPS points showing the extent of the control and seeding areas. | May/Jun 2018 Sep/Oct 2018 |
| 1. Produce a map showing the control and seeding locations. | Dec 2018 |
| 1. Submit progress reports to the WDNR Project Manager. Include: Project budget and the amount of funds expended to date; Activities/products completed (examples: meetings held, progress made on deliverables, etc.); Problems/Issues: note any issues or concerns for completing the project on time or within budget; and Note activities planned for the upcoming 3 months. | Jul 2018  Sep 2018 |
| 1. Submit Final Report, which will include a summary of the project objectives, methods, maps, acres and species controlled, acres restored, lessons learned, overall results and recommendations for next steps. | Dec 2018 |

**WDNR Project Deliverables:**

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| --- | --- |
| Deliverable | Timeline |
| 1. Attend a minimum of 2 coordination meetings during the project period with LSRI to refine project schedules, objectives, and address project issues or conflicts. | 1stMay 2018  2ndTBD |
| 1. Facilitate communication between LSRI and the Brule River State Forest land manager as needed. | May/Jun 2018 |
| 1. Facilitate state approvals for AIS control. | May/Jun 2018 |
| 1. Facilitate QAPP approval with Great Lakes Quality Assurance staff. | May/Jun 2018 |
| 1. Facilitate partnership with the WDNR Lake Superior Team. | May/Jun 2018 |
| 1. Accept project data and provide feedback as needed on progress and final reports. | Jul, Sep, Dec 2018 |

**Budget Summary:**

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| --- | --- |
|  | **May 15, 2018 –**  **December 31, 2018** |
| **Salaries & Wages** | $35,565 |
| **Fringe Benefits** | $11,150 |
| **Equipment & Other Capital** | 0$00000 |
| **Supplies** | $403 |
| **Travel – Domestic** | $4875 |
| **Other Direct Charges** | $1000 |
|  |  |
| **Direct Costs** | **$52,993** |
| **Indirect Costs (15%)** | $7,007 |
|  |  |
| **Total Costs** | **$60,000** |

**Budget Narrative:**

This project will be contracted with LSRI to lead and manage the project to conduct the control and restoration work as specified in the deliverables above. The total costs for contractual services includes: coordination with the WDNR; QAPP development; planning and scheduling control and restoration work; obtaining regulatory permits and landowner permissions with some facilitation from WDNR; conducting two FQAs; leading, coordinating and conducting control and restoration work; training and hiring of project staff; coordinating with WDNR Lake Superior Team; developing and executing any sub-contracts; creating maps, photograph and GPS data logs; and developing progress and final reports. Any sub-contracted services will be executed and remunerated by LSRI and will not exceed the total cost budgeted for the project.

The budget includes salaries and wages, fringe benefits and a 15% indirect cost, which is the agreed rate for UWS/WDNR projects with federal pass-through dollars. Indirect costs cover office overhead such as computers and IT support, ArcMap licensing, office space, waders and other field gear, use of GPS units, cameras, canoes or boats, and other miscellaneous equipment.

Travel costs of $4875 includes: truck rental with mileage rate of 0.545, boat and canoe rental; truck and boat gas; and per diem meal allowances.

Supply costs of $403 includes: wild rice, batteries and miscellaneous field and office supplies. Other direct costs includes disposal costs of vegetative material (or purchase of chemical supplies if needed).