Lessard-Sams Outdoor Heritage Council
Laws of Minnesota 2019 Accomplishment Plan

WRE 03

Date: October 12, 2018

Program or Project Title: Restoration of Non-Native Cattail Dominated Wetlands in Border Waters

Funds Recommended: $ 1,270,000

Manager's Name: Bryce Olson
Title: Biologist
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Legislative Citation: ML 2019, Ch. X, Art. 1, Sec. 2, subd, X(x)

Appropriation Language:

County Locations: Koochiching, and St. Louis.

Eco regions in which work will take place:

- Northern Forest

Activity types:

- Restore

Priority resources addressed by activity:

- Wetlands

Abstract:

Non-native cattails (Typha spp.) have invaded wetlands in the Border Waters near Voyageurs National Park, displacing native vegetation, reducing biodiversity, degrading fish/wildlife habitat, impairing recreational opportunities, and degrading cultural resources, especially wild rice (Zizania palustris). These lakes are designated "Outstanding Resource Value Waters" (Minn. R.7050.0250-0335) where herbicide use is prohibited. Treatment methods include mechanical removal along with burning and other methods. We propose to remove cattails using these methods followed by reestablishment of native vegetation to restore wetland communities. This will restore fish and wildlife habitat, reduce damage from detaching floating mats, and improve recreational opportunities.

Design and scope of work:

Step 1 - Remove Non-native Cattail: In areas of dense invasion of floating mats, non-native hybrid cattails will be mechanically removed using plant mulching and harvesting barges. Cutting/harvesting barges are a quick and cost-effective method to completely remove aquatic vegetation where herbicide use is prohibited. Harvesting equipment cuts up and removes cattails, including the dense cattail mats that prevent other vegetation from growing. The equipment also collects the cattail biomass and stores it onboard until dumping in a designated location nearby. Any cattails not accessible by the harvesting equipment will be removed with hand tools designed for aquatic vegetation use. Burning will be used as a tool to reduce cattail biomass and stimulate native vegetation regrowth. We will conduct treatments over the course of multiple seasons to accommodate annual water level changes, weather delays, and availability of equipment. We are partnering/contracting with several tribal communities in Minnesota that have extensive experience in removal of cattails using harvesting equipment to restore wild rice communities and other native vegetation.

Step 2 – Restore Native Species: Following removal of cattail, we will use a combination of methods to reestablish native vegetation. Simply removing the cattail mats, even ones in place for many decades, will allow dormant seeds, including wild rice and other native aquatic plants, to germinate without any further effort. While viable seed banks exist, park staff will transplant plants from nearby sites and directly-sow seeds to jump start the re-establishment of a diverse community of native species.

The steps outlined above are part of our 10-year Wetland Restoration Plan initiated by Voyageurs National Park in 2016 to restore these non-native cattail invaded wetlands. Developing the most cost-effective techniques was the first phase of the project. Phase 2 can now be implemented by applying these techniques to the rest of the wetlands in the area. Outdoor Heritage Funds would be used to continue the most cost-effective cattail removal and wetland restoration techniques outlined in Steps 1-2. Completion of this proposed project would restore cattail invaded wetlands to diverse wetland communities that will create and enhance fish and wildlife habitat and improve recreational and cultural opportunities for Minnesotans.

How does the request address MN habitats that have: historical value to fish and wildlife, wildlife species of greatest conservation need, MN County Biological Survey data, and/or rare, threatened and endangered species inventories:

Over 50% of Minnesota's wetlands have been lost over the last 200 years. Of the remaining wetlands, most are under threat of invasive species including non-native cattails. Minnesota Pollution Control Agency identified non-native cattails and the single greatest negative impact on Minnesota wetlands (MPCA 2015). More than 43% of threatened or endangered species in Minnesota and elsewhere in the US depend on wetlands. It is therefore critical to restore remaining wetlands which have been degraded by invasive species. The proposed wetland project will result in a more natural and diverse community that will benefit a variety of both game and non-game species of fish and wildlife. One of the main target species for the proposed project is wild rice, a plant with high cultural and biological significance. In addition, wetlands will be restored to create diverse plant communities to create or enhance habitat for a variety of fish and wildlife species. Targeted bird species include yellow rail (Coturnicops noveboracensis), American bittern (Botaurus lentiginosus), least bittern (Ixobrychus exilis), Virginia rail (Rallus limicola), red-necked grebe (Podiceps grisegena), and black tern (Chlidonias niger), all of which are on Minnesota's list of Species in G reatest Conservation Need. Targeted mammal species include several important furbearer species, namely muskrats, river otter (Lontra canadensis), American beaver (Castor canadensis), and mink (Neovision vision). Important targeted fish species include northern pike (Esox Lucius), whose spawning areas are degraded by invasive non-native cattails. Several other species on Minnesota's list of Species in Greatest Conservation Need will also benefit from the proposed project, including: common snapping turtles (Chelydra serpentine), eastern red-backed salamanders (Plethodon cinereus), a variety of insects such as caddisflies, and various mollusk species.

Describe the science based planning and evaluation model used:

The project was designed using an Adaptive Management framework to improve management decisions. The basic premise of this approach is to "learn while doing", where science-based information from CURRENT management is used to inform FUTURE management. In the first phase of the project, this management framework has allowed the development of the most cost-effective techniques while simultaneously restoring wetlands. It has now also allowed targeted restoration for future management in Phase 2 by focusing on restoring the most critical wetlands. This will reduce the detachment of potentially hazardous floating mats while also restoring fish and wildlife habitat in the most cost-effective way. While the MN County Biological Survey activities have yet to be completed in this area (this is the last part of the state to be surveyed), it is already known that many of the wetland habitats in the area are currently threatened by invasive cattails. Any rare species and habitats identified by the upcoming MN Biological Survey will add further urgency to our proposed restoration work.

Which sections of the Minnesota Statewide Conservation and Preservation Plan are applicable to this program:

- H2 Protect critical shoreland of streams and lakes
- H5 Restore land, wetlands and wetland-associated watersheds

Which other plans are addressed in this program:

- Managing Minnesota's Shallow Lakes for Waterfowl and Wildlife
- Voyageurs National Park 10-year Wetland Restoration Plan

Which LSOHC section priorities are addressed in this program:

Northern Forest:

- Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

Relationship to other funds:

- Initiative Foundation using funds from the Outdoor Heritage Fund

Describe the relationship of the funds:

The Initiative Foundation received funds from the Outdoor Heritage Fund in 2014 to prevent the introduction or spread of invasive species into Minnesota waters and to assess the effectiveness of these strategies. The first phase of this project was partly funded by the Initiative Foundation to carry out this goal with non-native cattails in the region. With the help of NPS and other funds, this grant kick-started the development of non-native cattail prevention strategies as Phase 1 of the overall project.

Does this program include leverage in funds:

Not Listed

Per MS 97A.056, Subd. 24, Any state agency or organization requesting a direct appropriation from the OHF must inform the LSOHC at the time of the request for funding is made, whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose:

Not Applicable

Describe the source and amount of non-OHF money spent for this work in the past:

Appropriation Year	Source	Amount
2016	NPS	240,000
2017	Initiative Foundation	500,000

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended:

All invasive species control and habitat restoration projects require ongoing maintenance. Voyageurs National Park has staff and equipment capable of sustaining the monitoring and maintenance required once the OHF funds have been expended. We are also incorporating much of the ongoing monitoring and maintenance into current and future programs already occurring at the park and surrounding areas. We are working closely with other agencies and partners to develop long-term management plans for the control of invasive cattails and protection of critical wetland habitats. One of our project's objectives is to also increase public and other stakeholder awareness and education on the issues with invasive species and critical habitats which should in turn bring in future funds for long-term wetland management.

Explain the things you will do in the future to maintain project outcomes:

Year	Source of Funds	Step 1	Step 2	Step 3
2018-2028	NPS	Determine long term efficacy of restoration	Removal of any reemerging cattail	Replant native vegetation as needed
2018-2028	NPS	Monitor long term impacts of restoration on wetlands	Monitor long term cattail impacts on restored wetlands	Monitor fish and wildlife in restored wetlands
2018-2028	NPS	Publish and present outcomes of project to educate and assist other wetland management plans	Continue partnerships to assist with cattail and wetland management	Develop effective cattail and wetland management strategies

Activity Details:

If funded, this program will meet all applicable criteria set forth in MS 97A.056 - **Yes**

Will there be planting of corn or any crop on OHF land purchased or restored in this program - **No**

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program - **Yes**

Is the activity on permanently protected land per 97A.056, subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 - **Yes**

(Public Waters, US National Park)

Accomplishment Timeline:

Activity	Approximate Date Completed
Remove Invasive Cattails	2023
Reestablish native vegetation where cattails were removed	2023
Maintain restored wetlands with mechanical techniques	2023
Monitor effectiveness of cattail removal and reestablishment of native vegetation	2023
Report results and recommend most cost effective cattail and wetland management strategies	2027

Date of Final Report Submission: 11/1/2024

Federal Funding:

Do you anticipate federal funds as a match for this program - **Yes**

Are the funds confirmed - **Yes**

What are the types of funds?
Cash Match - $
In-Kind Match - $776100
Other -

Outcomes:

Programs in the northern forest region:

- Improved aquatic habitat indicators *Post cattail treatment and restoration surveys of vegetation and wildlife will be compared to historic as well as pretreatment and restoration surveys to determine success of the project. Long-term monitoring of vegetation and indicator species will also determine the ultimate success of this wetland restoration project. All monitoring and evaluation of the project is funded by NPS and partners.*

Budget Spreadsheet

Budget reallocations up to 10% do not require an amendment to the Accomplishment Plan

How will this program accommodate the reduced appropriation recoomendation from the original proposed requested amount

Generally, the project was reduced to 4 years from the original 5 years of funding request. Direct Support Services was reduced to the minimum while maintaining the original in-kind amount, now a greater portion of the necessary amount. Equipment and supplies were reduced to a minimum while maintaining original in-kind.

Total Amount of Request: $ 1270000

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	$690,000	$192,400	NPS, NPS, NPS, NPS, NPS	$882,400
Contracts	$475,000	$0		$475,000
Fee Acquisition w/ PILT	$0	$0		$0
Fee Acquisition w/o PILT	$0	$0		$0
Easement Acquisition	$0	$0		$0
Easement Stewardship	$0	$0		$0
Travel	$25,000	$36,000	NPS	$61,000
Professional Services	$0	$0		$0
Direct Support Services	$40,000	$89,700	NPS	$129,700
DNR Land Acquisition Costs	$0	$0		$0
Capital Equipment	$0	$350,000	NPS	$350,000
Other Equipment/Tools	$15,000	$58,000	NPS	$73,000
Supplies/Materials	$25,000	$50,000	NPS	$75,000
DNR IDP	$0	$0		$0
Total	$1,270,000	$776,100		$2,046,100

Personnel

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Biologist Project Manager	1.00	4.00	$330,000	$0		$330,000
Biological Science Technician - Term	1.00	4.00	$240,000	$0		$240,000
Biological Science Technician - Seasonal	0.50	4.00	$60,000	$60,000	NPS	$120,000
Biological Science Technician - Seasonal	0.50	4.00	$60,000	$60,000	NPS	$120,000
Project Administrator	0.01	4.00	$0	$8,000	NPS	$8,000
Project Supervisor	0.10	4.00	$0	$44,800	NPS	$44,800
Restoration Ecologist	0.05	4.00	$0	$19,600	NPS	$19,600
Total	3.16	28.00	$690,000	$192,400		$882,400

Capital Equipment

Item Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Facilities, boats, vehicles, vegetation harvester	$0	$350,000	NPS	$350,000
Total	$0	$350,000		$350,000

Amount of Request:	$1,270,000
Amount of Leverage:	$776,100
Leverage as a percent of the Request:	61.11%
DSS + Personnel:	$730,000
As a % of the total request:	57.48%

How did you determine which portions of the Direct Support Services of your shared support services is direct to this program:

Reduced Direct Support Services to minimum of approximately 3% of grant total, 100% of which is direct to this program. Maintained in-kind direct support services leverage amount, now 7% of grand total.

What is included in the contacts line?

The amount in the contract line is to contract large harvesting equipment for cattail floating mat removal

Does the amount in the travel line include equipment/vehicle rental? - Yes

Explain the amount in the travel line outside of traditional travel costs of mileage, food, and lodging:

Automobile lease for the project to travel to and from project sites and haul equipment and tools. Requesting one vehicle for the term of the project and leveraged with two additional vehicles funded by NPS.

Describe and explain leverage source and confirmation of funds:

Current in-hand leverage funds are through the NPS and other federal agencies. We also have in-kind support from multiple partners and agencies to implement and monitor this project.

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	1,016	0	0	0	1,016
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	0	0
Enhance	0	0	0	0	0
Total	1,016	0	0	0	1,016

Table 2. Total Funding by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	$1,270,000	$0	$0	$0	$1,270,000
Protect in Fee with State PILT Liability	$0	$0	$0	$0	$0
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0	$0
Protect in Easement	$0	$0	$0	$0	$0
Enhance	$0	$0	$0	$0	$0
Total	$1,270,000	$0	$0	$0	$1,270,000

Table 3. Acres within each Ecological Section

Type	Metro Urban	Forest Prairie	SE Forest	Prairie	N Forest	Total
Restore	0	0	0	0	1,016	1,016
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	0	0	0
Total	0	0	0	0	1,016	1,016

Table 4. Total Funding within each Ecological Section

Type	Metro Urban	Forest Prairie	SE Forest	Prairie	N Forest	Total
Restore	$0	$0	$0	$0	$1,270,000	$1,270,000
Protect in Fee with State PILT Liability	$0	$0	$0	$0	$0	$0
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0	$0	$0
Protect in Easement	$0	$0	$0	$0	$0	$0
Enhance	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$1,270,000	$1,270,000

Table 5. Average Cost per Acre by Resource Type

Type	Wetlands	Prairies	Forest	Habitats
Restore	$1250	$0	$0	$0
Protect in Fee with State PILT Liability	$0	$0	$0	$0
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0
Protect in Easement	$0	$0	$0	$0
Enhance	$0	$0	$0	$0

Table 6. Average Cost per Acre by Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest
Restore	$0	$0	$0	$0	$1250
Protect in Fee with State PILT Liability	$0	$0	$0	$0	$0
Protect in Fee W/O State PILT Liability	$0	$0	$0	$0	$0
Protect in Easement	$0	$0	$0	$0	$0
Enhance	$0	$0	$0	$0	$0

Automatic system calculation / not entered by managers

Target Lake/Stream/River Feet or Miles

Rainy and Kabetogama Lakes

Parcel List

For restoration and enhancement programs ONLY: Managers may add, delete, and substitute projects on this parcel list based upon need, readiness, cost, opportunity, and/or urgency so long as the substitute parcel/project forwards the constitutional objectives of this program in the Project Scope table of this accomplishment plan. The final accomplishment plan report will include the final parcel list.

Section 1 - Restore / Enhance Parcel List

Koochiching

Name	TRDS	Acres	Est Cost	Existing Protection?
Reuter Creek East	07022202	4	$5,600	Yes
Reuter Creek North	07022203	5	$6,200	Yes
Reuter Creek West	07022210	22	$27,000	Yes

St. Louis

Name	TRDS	Acres	Est Cost	Existing Protection?
Alder Bay SE	07021203	32	$40,600	Yes
Alder Bay South	07121234	65	$81,700	Yes
Cranberry Central	07021205	102	$127,200	Yes
Cranberry North	07121232	50	$63,000	Yes
Cranberry South	07021208	11	$13,500	Yes
Daley Bay	06920232	80	$99,400	Yes
Daley Bay NE	06920229	1	$1,800	Yes
Daley Bay NW	06920230	4	$5,400	Yes
Daley Bay NW	06920231	4	$4,500	Yes
Dove Bay East	07121236	52	$64,700	Yes
Dove Bay West	07121235	27	$33,500	Yes
Irwin Bay Central	06921236	36	$44,900	Yes
Irwin Bay NW	06921226	61	$76,500	Yes
Irwin Bay NW	06921227	5	$6,700	Yes
Irwin Bay West	06921235	106	$133,000	Yes
Moose Bay North	07021221	10	$12,900	Yes
Moose Bay South	07021228	6	$7,100	Yes
Ranta Bay North	07022225	7	$8,200	Yes
Ranta Bay South	07022236	39	$48,900	Yes
Tom Cod East	06922201	69	$86,500	Yes
Tom Cod NW	06922202	27	$33,200	Yes
Tom Cod SE	06922212	64	$80,100	Yes
Tom Cod West	06922211	122	$152,600	Yes
Wooden Frog West	07021231	4	$5,200	Yes

Section 2 - Protect Parcel List

No parcels with an activity type protect.

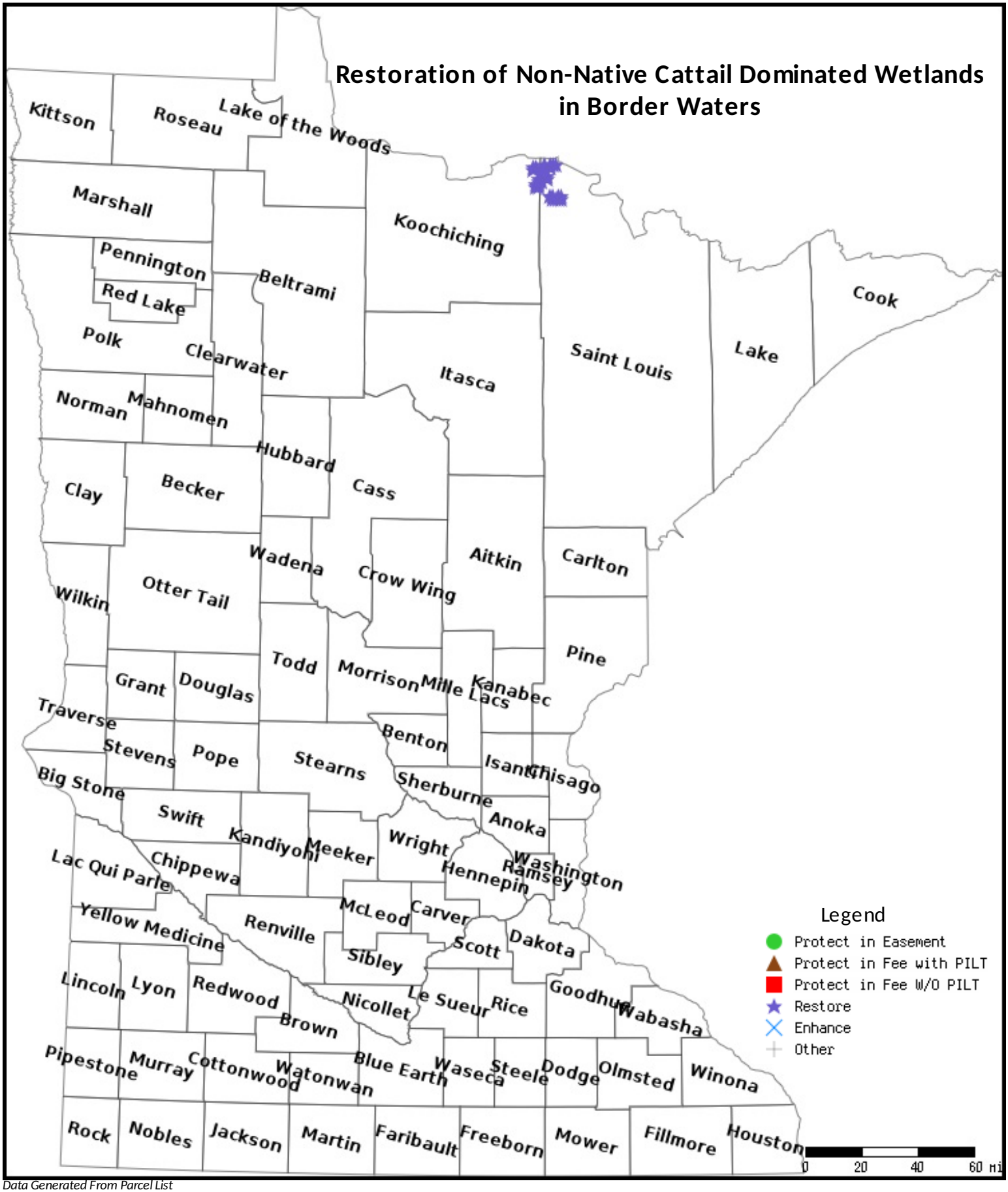
Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

Section 3 - Other Parcel Activity

No parcels with an other activity type.

Parcel Map



Data Generated From Parcel List

Lessard-Sams Outdoor Heritage Council
Comparison Report

Program Title: 2019 - Restoration of Non-Native Cattail Dominated Wetlands in Border Waters
Organization: Voyageurs National Park
Manager: Bryce Olson

Budget

Requested Amount: $1,973,400
Appropriated Amount: $1,270,000
Percentage: 64.36%

	Total Requested		Total Appropriated		Percentage of Request	
Budget Item	**LSOHC Request**	**Anticipated Leverage**	**Appropriated Amount**	**Anticipated Leverage**	**Percentage of Request**	**Percentage of Leverage**
Personnel	$939,000	$370,500	$690,000	$192,400	73.48%	51.93%
Contracts	$750,000	$0	$475,000	$0	63.33%	-
Fee Acquisition w/ PILT	$0	$0	$0	$0	-	-
Fee Acquisition w/o PILT	$0	$0	$0	$0	-	-
Easement Acquisition	$0	$0	$0	$0	-	-
Easement Stewardship	$0	$0	$0	$0	-	-
Travel	$25,000	$45,000	$25,000	$36,000	100.00%	80.00%
Professional Services	$0	$0	$0	$0	-	-
Direct Support Services	$179,400	$89,700	$40,000	$89,700	22.30%	100.00%
DNR Land Acquisition Costs	$0	$0	$0	$0	-	-
Capital Equipment	$0	$350,000	$0	$350,000	-	100.00%
Other Equipment/Tools	$30,000	$58,000	$15,000	$58,000	50.00%	100.00%
Supplies/Materials	$50,000	$50,000	$25,000	$50,000	50.00%	100.00%
DNR IDP	$0	$0	$0	$0	-	-
Total	$1,973,400	$963,200	$1,270,000	$776,100	64.36%	80.58%

How will this program accommodate the reduced appropriation recommendation from the original proposed requested amount?

Generally, the project was reduced to 4 years from the original 5 years of funding request. Direct Support Services was reduced to the minimum while maintaining the original in-kind amount, now a greater portion of the necessary amount. Equipment and supplies were reduced to a minimum while maintaining original in-kind.

Output

Table 1a. Acres by Resource Type

Type	Total Proposed	Total in AP	Percentage of Proposed
Restore	1,825	1,016	55.67%
Protect in Fee with State PILT Liability	0	0	-
Protect in Fee W/O State PILT Liability	0	0	-
Protect in Easement	0	0	-
Enhance	0	0	-

Table 2. Total Funding by Resource Type

Type	Total Proposed	Total in AP	Percentage of Proposed
Restore	1,973,400	1,270,000	64.36%
Protect in Fee with State PILT Liability	0	0	-
Protect in Fee W/O State PILT Liability	0	0	-
Protect in Easement	0	0	-
Enhance	0	0	-

Table 3. Acres within each Ecological Section

Type	Total Proposed	Total in AP	Percentage of Proposed
Restore	1,825	1,016	55.67%
Protect in Fee with State PILT Liability	0	0	-
Protect in Fee W/O State PILT Liability	0	0	-
Protect in Easement	0	0	-
Enhance	0	0	-

Table 4. Total Funding within each Ecological Section

Type	Total Proposed	Total in AP	Percentage of Proposed
Restore	1,973,400	1,270,000	64.36%
Protect in Fee with State PILT Liability	0	0	-
Protect in Fee W/O State PILT Liability	0	0	-
Protect in Easement	0	0	-
Enhance	0	0	