

Lessard-Sams Outdoor Heritage Council

Laws of Minnesota 2013 Final Report



Date: November 13, 2018

Program or Project Title: Lower Mississippi River Habitat Partnership

Funds Recommended: \$1,710,000

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Legislative Citation: ML 2013, Ch. 137, Art. 1, Sec. 2, Subd. 5(f)

Appropriation Language: \$1,710,000 in the first year is to the commissioner of natural resources to enhance aquatic habitat. Of this amount, \$450,000 is for an agreement with the United States Fish and Wildlife Service to enhance aquatic habitat in the lower Mississippi River watershed. A list of proposed land restorations and enhancements must be provided as part of the required accomplishment plan.

County Locations: Goodhue, Houston, and Wabasha.

Eco regions in which work was completed:

- Southeast Forest

Activity types:

- Restore
- Enhance

Priority resources addressed by activity:

- Wetlands
- Forest
- Prairie
- Habitat

Summary of Accomplishments:

The Lower Mississippi River Habitat Partnership included three distinct project components. The U.S. Fish and Wildlife Service enhanced 700 acres of wetland and bottomland forest habitat on the Upper Mississippi River National Wildlife and Fish Refuge's (Refuge) Root River Tract in Houston County. The Minnesota Department of Natural Resources (DNR) restored 112.7 acres of bluff prairie in Houston County; 8 acres of deep water habitat in Goose Lake (navigation pool 5 of the Mississippi River) and enhanced 200 acres of secondary channel and backwater lake habitat in North and Sturgeon Lakes (navigation pool 3 of the Mississippi River).

Process & Methods:

Root River Tract (RRT):

Project planning and design included site elevation surveys, development of hydrologic models and analysis of restoration alternatives. Recommended features to restore hydrologic connectivity included: removal of existing water control structures, installation of ditch plugs and breaching of existing low level levees and dikes. A public informational meeting to seek input on a preliminary project plan

was held and feedback from that meeting used to refine project alternatives. A draft Environmental Assessment (EA) which evaluated four alternatives for restoring/enhancing the RRT was completed and released for a 30-day public comment period in September 2015. A public meeting to discuss the proposed project and draft EA was held in October 2015. Responses to comments received were provided in the final EA. A Finding of No Significant Impact (FONSI) for the preferred alternative was signed by the Regional Director, Region 3 of the U.S. Fish and Wildlife Service in January 2015.

Restoring natural topography and drainage patterns required removal of existing dikes/levees; construction of ditch plugs using fill materials excavated from existing dikes/levees; removal of existing water control structures; and filling of an existing fish pond with materials excavated from existing dikes/levees. Plans and specifications for completing this work were developed and local, State and Federal permits were acquired. Work was accomplished through a combination of contracts and skilled hired labor workers in the U.S. Fish and Wildlife Service. Heavy equipment (track trucks, backhoes, skid steers, etc.) was used to accomplish the work. Large rainfall events in the watershed of the Root River created several floods in 2016 which affected project completion. In September 2016, flooding on the Root River resulted in a levee breach that brought large amounts of floodwater from the Root into the project area. While this flooding delayed completion of some of the project features, it created a unique opportunity to observe how the project would function under flood conditions. As a result of first-hand, on-site observations of flood waters entering and exiting the project site, project features were modified to enhance the overall hydrologic function of the project.

In 2017, installation of low water crossings at locations where trails/roads traveling through the project area crossed restored river channels, oxbows and sloughs, finishing ditch plugs, native seeding, forest enhancement (planting of hard mast trees and flood plain species) and final grading of the project was completed. Wet conditions and high Mississippi and Root River levels delayed completion of final project features in 2017.

The original goal for wetland and forest enhancement was to restore or enhance 700 acres. That goal was achieved on time and under budget. Approximately \$299,612 was expended on the Root River project. The cost of this project component was estimated at \$450,000.

Bluff Prairie Restoration:

Bluff prairies, also known as “goat prairies” are a unique and rare habitat in southeastern Minnesota. Goat prairies are found typically on south or west facing slopes. Many if not most of these prairies are negatively affected by the invasion of tree species, in particular, red cedar trees. Removal of red cedar trees as well as other trees from these prairies enhances light penetration to the vegetative layer under the trees and invigorates dormant/shaded prairie plants and seeds. Restoring a natural fire regime through controlled burning on these sites further enhances prairie development. Selection of prairies for restoration was based on public ownership and/or willingness of private landowners to have work completed on their property. Work was accomplished by contract to businesses familiar with goat prairie restoration techniques. The original goal for bluff prairie restoration under this grant was to restore 70 acres. The final bluff prairie acreage restored was 112.7 acres on 8 sites. This project component was completed, on time, on budget (\$150,000 spent) and exceeded the project acreage objective.

Pool 3 (North and Sturgeon Lakes) – Pool 5 (Goose Lake):

This project component initially involved multiple habitat restoration/enhancement objectives using established large river restoration techniques such as water level management, channel modifications, island building and dredging. A “cost-share partnership agreement” between the U.S. Army Corps of Engineers and Minnesota DNR was needed to fully execute the project, however, the federally funded portion of the project was placed in deferment until the language associated with partnership agreement and future project management could be amended to satisfy legal requirements. Based on these challenges, an amendment to the accomplishment plan for Pool 3 was approved on July 10, 2015 which reduced the dollar amount of leverage expected from the Federal Government and the potential scope of the project. An additional amendment was submitted and approved in March 2016 which added Goose Lake (Pool 5) as a project site and defined that portion of the Pool 3 project to only include a channel modification at the Brewer Lake inlet. Approximately \$500,000 Federal dollars were leveraged and spent on planning and development of preliminary project specifications and Environmental Assessment (EA) for the larger project. Products from this planning effort were used to develop final plans and specs and to obtain the necessary permits for the LSOH funded channel modification project.

In 2016, 8 acres of Goose Lake was dredged to a depth of 7 feet to restore fisheries habitat. Backwater habitats are declining as a result of sedimentation. Dredging to restore depth in backwaters benefits many aquatic species by providing habitat suited for overwintering.

Permits were secured and a contract for the channel modification project at Brewer Lake inlet was awarded in April 2017. Placement of a rock channel liner and shoreline protection was performed from barge mounted heavy equipment. Construction was completed in the spring of 2018. Pre-project monitoring of habitat conditions, fish populations and freshwater mussel populations was completed before construction. The project has achieved the desired outcome of reducing Mississippi River flows and sedimentation rates in Brewer Lake, Buffalo Slough and Sturgeon Lake. The physical and biological response expected would improve aquatic habitat conditions for fish and mussels and protection of floodplain forest communities for a variety of bird and mammal species.

Explain Partners, Supporters, & Opposition:

Primary partners in this project included the U.S. Fish and Wildlife Service, Upper Mississippi River National Wildlife and Fish Refuge and the Minnesota Department of Natural Resources. Planning assistance was provided by the U.S. Army Corps of Engineers, Houston County Soil and Water Conservation District and the Audubon Society of Minnesota.

Additional Comments:

Exceptional challenges, expectations, failures, opportunities, or unique aspects of program

Repeated flooding on the Root River during project construction was both a challenge and a unique aspect of the project. While the flooding delayed project completion it also resulted in a levee breach on the Root River proper which allowed for onsite, real time observation and analysis of how the project would function. This real time analysis was utilized to adjust/redesign several project features.

When originally proposed, the project in North and Sturgeon Lakes would have been a multi-million dollar restoration project accomplished with a 35%/65% State/Federal cost share funding. Challenges with the partnership agreement resulted in the loss of the Federal portion of the cost-share.

Other Funds Received:

- Not Listed

How were the funds used to advanced the program:

This partnership will primarily benefit habitat. However, there will be significant secondary benefits for clean water. Any related efforts will be coordinated with other funding sources, such as Clean Water Council and LCCMR.

What is the plan to sustain and/or maintain this work after the Outdoor Heritage Funds are expended:

The hydrologic restoration work completed on the Root River Tract is expected to continue to function as a natural floodplain with little if any maintenance required. Future management of the tract may include forestry practices, haying or grazing of meadows or other habitat management practices which would be funded through the Upper Mississippi River National Wildlife and Fish Refuge's annual budget.

Bluff prairie restorations would be managed through the application of prescribed fire to suppress encroachment of woody vegetation and enhance prairie communities through restoration of a natural burn cycle. Management actions would be funded through the DNR's annual budget.

The Brewer's Lake inlet structure is not expected to require any maintenance nor operation costs. The rock liner and shoreline protection should function for many years before needing repairs.

Outcomes:

The original accomplishment plan stated the program would

Programs in southeast forest region:

- Healthier populations of endangered, threatened, and special concern species as well as more common species
- Improved aquatic habitat indicators
- Remnant goat prairies are perpetually protected
- Rivers, streams, and surrounding vegetation provide corridors of habitat
- Outdoor recreationists will benefit from these projects

How will the outcomes be measured and evaluated?

The vegetation response to restored hydrology on the Root River tract will be monitored annually and management of the tract (haying, grazing, burning, etc.) will be planned and initiated to maintain a natural pattern of vegetation succession on the tract. Similarly, restored bluff prairies will be monitored and management initiated (primarily prescribed burning and tree removal) to maintain native prairie vegetation. Land cover (vegetation) mapping of the pools on the Mississippi River is conducted every 10 years and can serve as the monitoring tool for assessing the project response in Pool 3, Pool 5 and Pool 8 (Root River).

Budget Spreadsheet

Final Budget line item reallocations are allowed up to 10% and do not need require an amendment to the Accomplishment Plan

Total Amount: \$1,710,000

Budget and Cash Leverage

BudgetName	Request	Spent	Cash Leverage (anticipated)	Cash Leverage (received)	Leverage Source	Total (original)	Total (final)
Personnel	\$30,000	\$97,500	\$30,000	\$30,000	USFWS, USFWS salary	\$60,000	\$127,500
Contracts	\$1,648,000	\$1,433,900	\$2,061,400	\$500,000	USACE	\$3,709,400	\$1,933,900
Fee Acquisition w/ PILT	\$0	\$0	\$0	\$0		\$0	\$0
Fee Acquisition w/o PILT	\$0	\$0	\$0	\$0		\$0	\$0
Easement Acquisition	\$0	\$0	\$0	\$0		\$0	\$0
Easement Stewardship	\$0	\$0	\$0	\$0		\$0	\$0
Travel	\$0	\$0	\$0	\$0		\$0	\$0
Professional Services	\$0	\$0	\$0	\$0		\$0	\$0
Direct Support Services	\$12,000	\$0	\$0	\$0	MDNR	\$12,000	\$0
DNR Land Acquisition Costs	\$0	\$0	\$0	\$0		\$0	\$0
Capital Equipment	\$0	\$0	\$0	\$0		\$0	\$0
Other Equipment/Tools	\$0	\$0	\$0	\$0		\$0	\$0
Supplies/Materials	\$20,000	\$18,200	\$20,000	\$0		\$40,000	\$18,200
DNR IDP	\$0	\$0	\$0	\$0		\$0	\$0
Total	\$1,710,000	\$1,549,600	\$2,111,400	\$530,000		\$3,821,400	\$2,079,600

Personnel

Position	FTE	Over # of years	Spent	Cash Leverage	Leverage Source	Total
Maintenance Worker	1.73	0.30	\$97,500	\$0	USFWS	\$97,500
Refuge Manager	0.30	0.30	\$0	\$30,000	USFWS salary	\$30,000
Total	2.03	0.60	\$97,500	\$30,000		\$127,500

Budget and Cash Leverage by Partnership

BudgetName	Partnership	Request	Spent	Cash Leverage (anticipated)	Cash Leverage (received)	Leverage Source	Original AP Total	Total Spent
Personnel	USFWS	\$30,000	\$97,500	\$30,000	\$30,000	USFWS, USFWS salary	\$60,000	\$127,500
Contracts	USFWS	\$400,000	\$183,900	\$0	\$0		\$400,000	\$183,900
Fee Acquisition w/ PILT	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Fee Acquisition w/o PILT	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Easement Acquisition	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Easement Stewardship	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Travel	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Professional Services	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Direct Support Services	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
DNR Land Acquisition Costs	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Capital Equipment	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Other Equipment/Tools	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Supplies/Materials	USFWS	\$20,000	\$18,200	\$20,000	\$0		\$40,000	\$18,200
DNR IDP	USFWS	\$0	\$0	\$0	\$0		\$0	\$0
Total		\$450,000	\$299,600	\$50,000	\$30,000		\$500,000	\$329,600

Personnel - USFWS

Position	FTE	Over # of years	Spent	Cash Leverage	Leverage Source	Total
Maintenance Worker	1.73	0.30	\$97,500	\$0	USFWS	\$97,500
Refuge Manager	0.30	0.30	\$0	\$30,000	USFWS salary	\$30,000
Total	2.03	0.60	\$97,500	\$30,000		\$127,500

BudgetName	Partnership	Request	Spent	Cash Leverage (anticipated)	Cash Leverage (received)	Leverage Source	Original AP Total	Total Spent
Personnel	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Contracts	DNR	\$1,248,000	\$1,250,000	\$2,061,400	\$500,000	USACE	\$3,309,400	\$1,750,000
Fee Acquisition w/ PILT	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Fee Acquisition w/o PILT	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Easement Acquisition	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Easement Stewardship	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Travel	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Professional Services	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Direct Support Services	DNR	\$12,000	\$0	\$0	\$0	MDNR	\$12,000	\$0
DNR Land Acquisition Costs	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Capital Equipment	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Other Equipment/Tools	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Supplies/Materials	DNR	\$0	\$0	\$0	\$0		\$0	\$0
DNR IDP	DNR	\$0	\$0	\$0	\$0		\$0	\$0
Total		\$1,260,000	\$1,250,000	\$2,061,400	\$500,000		\$3,321,400	\$1,750,000

Explain any budget challenges or successes:

We were able to utilize Fish and Wildlife Service maintenance mechanics to accomplish much of the heavy equipment operation needed to complete the project. Although personnel costs were above what was originally estimated, the use of skilled maintenance mechanics substantially reduced the total cost of the project and resulted in a completed project well under budget.

All revenues received by the recipient that have been generated from activities on land with money from the OHF:

Total Revenue: \$0
Revenue Spent: \$0
Revenue Balance: \$0

- E. This is not applicable as there was no revenue generated.

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands (original)	Wetlands (final)	Prairies (original)	Prairies (final)	Forest (original)	Forest (final)	Habitats (original)	Habitats (final)	Total (original)	Total (final)
Restore	0	0	70	113	0	0	0	0	70	113
Protect in Fee with State PILT Liability	0	0	0	0	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0	0	0	0	0
Enhance	700	671	0	0	0	29	1,500	200	2,200	900
Total	700	671	70	113	0	29	1,500	200	2,270	1,013

Table 1b. How many of these Prairie acres are Native Prairie?

Type	Native Prairie (original)	Native Prairie (final)
Restore	0	0
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
Total	0	0

Table 2. Total Funding by Resource Type

Type	Wetlands (original)	Wetlands (final)	Prairies (original)	Prairies (final)	Forest (original)	Forest (final)	Habitats (original)	Habitats (final)	Total (original)	Total (final)
Restore	\$0	\$0	\$150,000	\$150,000	\$0	\$0	\$0	\$0	\$150,000	\$150,000
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$450,000	\$299,600	\$0	\$0	\$0	\$0	\$1,110,000	\$1,100,000	\$1,560,000	\$1,399,600
Total	\$450,000	\$299,600	\$150,000	\$150,000	\$0	\$0	\$1,110,000	\$1,100,000	\$1,710,000	\$1,549,600

Table 3. Acres within each Ecological Section

Type	Metro Urban (original)	Metro Urban (final)	ForestPrairie (original)	Forest Prairie (final)	SEForest (original)	SE Forest (final)	Prairie (original)	Prairie (final)	N Forest (original)	N Forest (final)	Total (original)	Total (final)
Restore	0	0	0	0	70	113	0	0	0	0	70	113
Protect in Fee with State PILT Liability	0	0	0	0	0	0	0	0	0	0	0	0
Protect in Fee W/O State PILT Liability	0	0	0	0	0	0	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0	0	0	0	0	0	0
Enhance	0	0	0	0	2,200	900	0	0	0	0	2,200	900
Total	0	0	0	0	2,270	1,013	0	0	0	0	2,270	1,013

Table 4. Total Funding within each Ecological Section

Type	Metro Urban (original)	Metro Urban (final)	ForestPrairie (original)	Forest Prairie (final)	SE Forest (original)	SE Forest (final)	Prairie (original)	Prairie (final)	N Forest (original)	N Forest (final)	Total (original)	Total (final)
Restore	\$0	\$0	\$0	\$0	\$150,000	\$150,000	\$0	\$0	\$0	\$0	\$150,000	\$150,000
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0	\$1,560,000	\$1,399,600	\$0	\$0	\$0	\$0	\$1,560,000	\$1,399,600
Total	\$0	\$0	\$0	\$0	\$1,710,000	\$1,549,600	\$0	\$0	\$0	\$0	\$1,710,000	\$1,549,600

Automatic system calculation / not entered by managers

Target Lake/Stream/River Feet or Miles (original)

14

Target Lake/Stream/River Feet or Miles (final)

14

Explain the success/shortage of acre goals:

Bluff prairie restoration was highly successful and exceeded the proposed goal of 70 acres by 43 acres. Restoration was accomplished through contracts with companies/individuals experienced in prairie rehabilitation. The efficiency of restoration work was higher than expected, thus funding could be spread out over a larger footprint to accomplish more.

The Brewer Lake inlet project will protect a large backwater lake from increasing sedimentation and may actually result in the scouring of sediment from this lake. An estimated 1800 acres would be preserved as a result.

Parcel List

Section 1 - Restore / Enhance Parcel List

Goodhue					
Name	TRDS	Acres	Total Cost	Existing Protection?	Description
North and Sturgeon Lakes - Pool 3 of Mississippi River	11416225	1,800	\$942,000	Yes - federal/tribal ownership	construct island, dredge backwater, construct channel liner/closing structure and complete summer water level drawdown
Houston					
Name	TRDS	Acres	Total Cost	Existing Protection?	Description
Goat prairie enhancement	10405225	70	\$150,000	Yes	prescribed burns and invasive species removal
Root River Tract - Upper Mississippi River National Wildlife and Fish Refuge	10404235	700	\$299,612	Yes - national wildlife refuge	wetland and forest enhancement
Wabasha					
Name	TRDS	Acres	Total Cost	Existing Protection?	Description
Goose Lake - Pool 5 of Mississippi River	10909218	10	\$158,000	Yes - national wildlife refuge	dredge backwater to increase deep water winter habitat

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.

Completed Parcel: Goat prairie enhancement

# of Total Acres:	70
County:	Houston
Township:	104
Range:	05
Direction:	2
Section:	25
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	70
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	
Has there been signage erected at the site:	
Total cost of Restoration/Enhancement:	\$150,000

Completed Parcel: Goose Lake - Pool 5 of Mississippi River

# of Total Acres:	10
County:	Wabasha
Township:	109
Range:	09
Direction:	2
Section:	18
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	Mississippi River
Has there been signage erected at the site:	Yes
Total cost of Restoration/Enhancement:	\$158,000

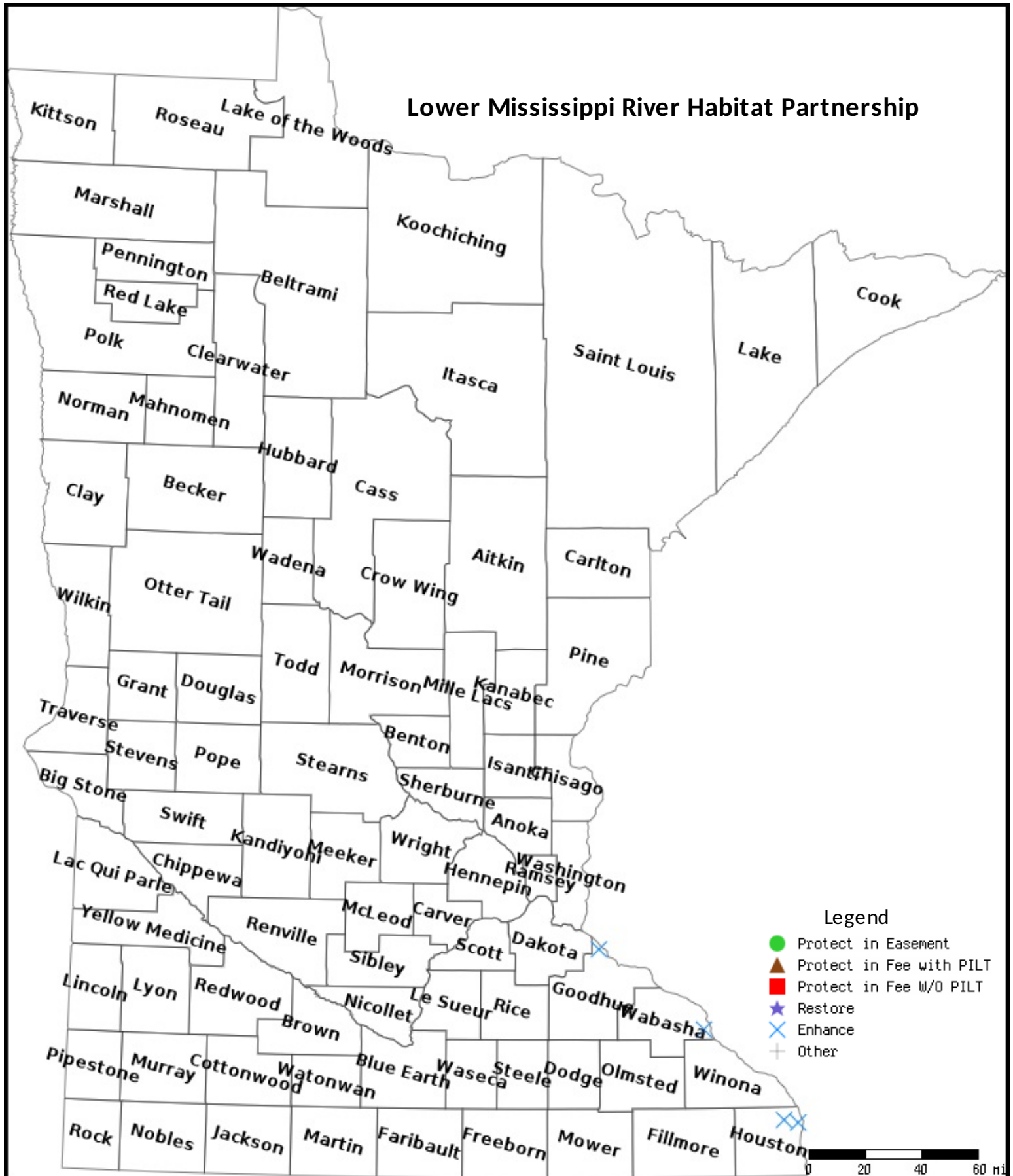
Completed Parcel: North and Sturgeon Lakes - Pool 3 of Mississippi River

# of Total Acres:	1800
County:	Goodhue
Township:	114
Range:	16
Direction:	2
Section:	25
# of Acres: Wetlands/Upland:	
# of Acres: Forest:	
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	230 (Linear Feet)
Name of Adjacent Body of Water (if applicable):	Mississippi River
Has there been signage erected at the site:	Yes
Total cost of Restoration/Enhancement:	\$942,000

Completed Parcel: Root River Tract - Upper Mississippi River National Wildlife and Fish Refuge

# of Total Acres:	700
County:	Houston
Township:	104
Range:	04
Direction:	2
Section:	35
# of Acres: Wetlands/Upland:	671
# of Acres: Forest:	29
# of Acres: Prairie/Grassland:	
Amount of Shoreline:	
Name of Adjacent Body of Water (if applicable):	Root River and Mississippi River
Has there been signage erected at the site:	Yes
Total cost of Restoration/Enhancement:	\$299,612

Parcel Map



Data Generated From Parcel List