Lessard-Sams Outdoor Heritage Council
Fiscal Year 2019 / ML 2018 Request for Funding

Date: May 26, 2017

Program or Project Title: Lower Mississippi River Habitat Partnership (Phase IV)-Upper Pool 9 Backwater Enhancement and Fl Forest Restoration

Funds Requested: $1,555,400

Manager's Name: Dan Dieterman
Title: Mississippi River Habitat Specialist
Organization: MN DNR
Address: 1801 S. Oak St.
City: Lake City, MN 55041
Office Number: 651-345-3365
Email: dan.dieterman@state.mn.us

County Locations: Houston

Regions in which work will take place:

- Southeast Forest

Activity types:

- Restore
- Enhance

Priority resources addressed by activity:

- Forest
- Habitat

Abstract:

This proposal seeks to enhance and restore 35 acres of fish and wildlife habitat on the lower Mississippi River in Houston County benefiting bluegill, crappie, bass, deer and Blue-winged and Prothonotary warblers. Sedimentation in Upper Mississippi River (UMR) backwaters and declining UMR floodplain forests are a concern to resource managers, anglers, hunters and recreational users. This proposal includes dredging accumulated sediments from a 15 acre backwater in upper Pool 9 and utilizing that material to bury invasive Reed Canary Grass and enhance topographical diversity on 20 acres of Mississippi River floodplain in support of tree planting and floodplain forest restoration.

Design and scope of work:

Aquatic habitat in backwaters of the UMR are filling due to sedimentation from tributary inputs, altered hydrology and island erosion. Backwaters that historically provided deep water habitat and refuge to fish, reptiles and amphibians have decreased in quantity and quality throughout the UMR. The 15 acre aquatic area in upper Pool 9 to be enhanced by dredging will benefit bluegill, crappie and bass populations. Additionally, the area to be dredged is located in a protected bay adjacent to a public access and will increase year-round angling opportunities for multiple fish species. This is a unique project in that dredged material (silts and clays) will be used beneficially to enhance topographic diversity in support of floodplain forest restoration.

Much of the existing floodplain forest in the Upper Pool 9 project area has been declining in coverage over the past several decades. Flat topography, higher groundwater levels caused by impoundment, increased frequency and duration of inundation, and reduced creation of new islands and shoreline have decreased the amount of terrestrial land cover suitable for sustaining forested communities in this area and throughout the UMR floodplain. Furthermore, increased competition from Reed Canary Grass (RCG), an aggressively invasive species whose occurrence is widespread throughout the project area, has adversely affected forest regeneration and altered the natural succession of open areas to forest. Placement of dredged material on a 20 acre area consisting of a monotypic stand of RCG will bury the invasive RCG, increase floodplain elevations by 2 - 3 feet and provide a clean medium for tree planting and direct seeding to restore the floodplain forest community, benefiting SGCN neo-tropical migrant bird species such as Prothonotary and Cerulean warblers.

This project directly addresses the systemic issues of floodplain forest loss and habitat fragmentation, and is a priority action item in the U.S. Army Corps of Engineers (USACE) UMR Systemic Forest Management Plan. It incorporates a variety of floodplain forest restoration components such as: increasing tree species diversity; reintroduction of a hard mast component in floodplain forest communities; improving wildlife habitat; incorporation of innovative restoration measures such as the utilization of dredge materials for the purpose of increasing topographic diversity; and invasive species control and management. In addition, the project lends itself to the adaptive management process by incorporating a variety of restoration measures as well as post-project monitoring to measure their effectiveness, thereby informing future floodplain forest restoration efforts. As stated in the report "Ecological Status and Trends of the Upper Mississippi River System 1998" (USGS 1999), "The ecosystem as a whole benefits from floodplain forests. Besides serving as a rich habitat for wildlife and fish during floods; the forests reduce soil erosion, improve water quality and provide a scenic and recreational landscape."

Floodplain forest restoration in this location will allow for direct comparison with other floodplain forest restoration techniques being utilized in adjacent parcels by partner organizations and agencies. Those partners include MN Audubon, U.S. Fish and Wildlife Service (USFWS), and the USACE.

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

- H5 Restore land, wetlands and wetland-associated watersheds
- H6 Protect and restore critical in-water habitat of lakes and streams

Which other plans are addressed in this proposal:

- Minnesota DNR Strategic Conservation Agenda
- USACE UMRS Systemic Forest Management Plan

Describe how your program will advance the indicators identified in the plans selected:

This project will enhance backwater aquatic habitat, control invasive Reed Canary Grass, restore floodplain forest, reduce floodplain forest fragmentation and provide critical habitat for a variety of fish and wildlife, including State and Federally listed species. All of these outcomes are targets or indicators that have been identified in both plans checked above, as well as in some of the other plans listed, including: "Minnesota DNR Nongame Wildlife Plans" "National Audubon Society Top 20 Birds in Decline" and "U.S. Fish and Wildlife Service Strategic Habitat Conservation Model".

Which LSOHC section priorities are addressed in this proposal:

Southeast Forest:

- Protect, enhance, and restore habitat for fish, game, and nongame wildlife in rivers, cold-water streams, and associated upland habitat

Describe how your program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife as indicated in the LSOHC priorities:

In addition to the enhancement/restoration of 35 acres of Mississippi River floodplain habitat for fish and wildlife, a significant outcome will be the recognition of the innovative nature of the project that links the enhancement of aquatic habitat with the restoration of floodplain forest habitat. Enhancing aquatic habitat will benefit populations of important non-game and gamefish species, and angling opportunities. Restoring floodplain forest in this location will increase the topographic diversity of floodplain habitat; increase habitat corridor size and connectivity and provide pathways for forest-dependent animals and migratory bird species; restore and maintain large contiguous patches of floodplain forest communities; maintain viable populations of native species at levels of abundance in keeping with their biotic potential (e.g., reintroduce hard mast tree species); maintain the diversity and extent of native communities throughout their range in the UMR; and reduce the adverse effects of invasive species on native biota (project focus is on RCG). In addition to the multiple resource benefits provided by aquatic habitat enhancement and forest restoration, this project also provides significant adaptive management opportunities. For example, closely monitoring the relative success of various restoration techniques on areas that have been heavily colonized by RCG will enable the successful transfer of the most effective methods to future restoration efforts.

Describe how the proposal uses science-based targeting that leverages or expands corridors and complexes, reduces fragmentation or protects areas identified in the MN County Biological Survey:

This project proposal utilizes the expertise, advice and recommendations provided by State (MN, WI, IA), Federal (USFWS,

U.S.Geological Survey (USGS), USACE), Academic (UW-LaCrosse), and NGO (Audubon Society, The Nature Conservancy) resource managers and researchers that have collectively identified this area of upper Pool 9 as a priority location for aquatic habitat enhancement and floodplain forest restoration to benefit fish and wildlife populations. Numerous multi-agency planning efforts over the past 15 years have provided a strong scientific basis for a project in this location to improve backwater habitat, expand floodplain forest corridors and reduce fragmentation.

How does the proposal address habitats that have significant value for wildlife species of greatest conservation need, and/or threatened or endangered species, and list targeted species:

Enhancement of 15 acres of aquatic backwater habitat will improve conditions for SGCN fishes including: Pirate Perch, Bluntnose Darter, Warmouth, Pugnose Minnow, Pallid Shiner, and Weed Shiner. Floodplain forest restoration in this location will add 20 acres of floodplain forest and reduce fragmentation of the existing floodplain forest community. This will restore a large block of floodplain forest and meet the needs of area-sensitive bird species, including Red shouldered hawks, Cerulean warblers, Acadian flycatchers, Prothonotary warblers, veerys, wood thrushes, Pileated woodpeckers, and Eastern wood peewees (Knutson et al. 1996). A Federally listed mammal that will benefit from this restoration is the Northern long-eared bat. The forest component of the UMR provides critical migration and nesting habitat for a number of rare and declining species in addition to federal and state-listed threatened and endangered species. Additional bird species such as Bald eagles, Great blue herons, Great egrets, and Cerulean warblers favor taller trees such as cottonwood and swamp white oak for roosting and nesting habitat and large blocks of contiguous closed canopy forests are required to maintain viable populations. (Urich et al. 2002). Blue-winged warblers will also immediately benefit from the project as they utilize younger aged stands of floodplain forests. Studies have shown that only a minor amount of natural cottonwood and oak regeneration is occurring on the floodplain (Yin et al. 1997; USGS 1999). Without direct management promoting growth of these trees, tall tree habitat will continue to diminish. If current low levels of natural regeneration are not reversed, floodplain forests may become even more fragmented and therefore less suitable for many forest-dependent species.

Identify indicator species and associated quantities this habitat will typically support:

Bluegill are an appropriate indicator species for a community of fish that will benefit from this project. More than twenty-five species of fish are expected to utilize the aquatic habitat in the enhanced backwater. Based on studies that have quantified Bluegill populations in other backwater locations on the UMR, it is expected that this 15 acre aquatic restoration will support 48,000 Bluegill > 130 mm (5") during winter months when this type of habitat is critically needed (Dieterman, 2009). Select and important floodplain forest indicator species include Swamp White Oak, Prothonotary Warblers, Blue-winged warblers and Red-shouldered hawks. Restoration of 20 acres of floodplain forest in this location will reestablish swamp white oak at densities commensurate to their biologic potential, support Prothonotary Warblers at an average density of 2.7/hectare (Kirsch, 2009), Blue-winged warblers at an average density of 3/hectare (Stravers, personal communication) and Red-shouldered hawks at an average density of 1/hectare (Stravers, personal communication).

Outcomes:

Programs in southeast forest region:

- Healthier populations of endangered, threatened, and special concern species as well as more common species *Annual Fisheries surveys have been conducted by MN DNR in backwaters of upper Pool 9 since 1993, and continued monitoring will provide an opportunity to evaluate the effectiveness of the 15 acre aquatic enhancement portion of this project. USFWS and USACE personnel will monitor and evaluate the success of the techniques used to restore 20 acres of floodplain forest.*

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

The design and location of the aquatic backwater enhancement was carefully chosen to minimize the need for future dredging and maintenance of this portion of the project. The floodplain forest restoration portion of this project will occur on USFWS Refuge lands and will be managed and maintained by the USFWS-UMRNWFR.

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

Not Listed

What is the degree of timing/opportunistic urgency and why it is necessary to spend public money for this work as soon as possible:

Aquatic backwater habitat and floodplain forests are deteriorating rapidly in this area of upper Pool 9 and action to slow this trend is widely recognized by resource managers as critically important to sustain ecosystem functions and resiliency. Small scale attempts have been made with limited funding in recent years, but a larger scale project such as this proposal will generate increasing interest and investment by partnering agencies and organizations. Utilization of dredge material to enhance/restore topographic diversity in support of floodplain forest restoration will provide an important showcase for future consideration when planning larger Federally funded restoration projects on the UMR. Also, direct comparison with ongoing treatments and restoration efforts will aid in the scientific

evaluation of different restoration techniques.

How does this proposal include leverage in funds or other effort to supplement any OHF appropriation:

Technical expertise in floodplain forest restoration techniques and invasive species control and application of those techniques will be provided by both the USFWS and USACE. USFWS Refuge maintenance funds will be used to manage and maintain the floodplain forest restoration portion of this project. There is also the real possibility that this LSOH investment will attract Federal funds from either the Upper Mississippi River Restoration (UMRR) Program or Navigation and Ecosystem Restoration Program (NESP) to expand aquatic and floodplain forest restoration efforts in this area of upper Pool 9.

Relationship to other funds:

- USFWS Upper Mississippi River National Wildlife and Fish Refuge (UMRNWFR) Maint. Funds USACE Environmental Section - Natural Resource Stewardship Fund

Describe the relationship of the funds:

Funds from these two sources will be used to provide technical expertise, technical support and future maintenance of the floodplain forest restoration portion of this project.

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

Not Listed

Activity Details

Requirements:

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

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 (Refuge Lands, Public Waters)**

Do you anticipate federal funds as a match for this program - **No**

Land Use:

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

Accomplishment Timeline

Activity	Approximate Date Completed
Backwater dredging and upland placement of material	9/30/2021
Placement site prep and tree planting	6/30/2022

Budget Spreadsheet

Total Amount of Request: $1,555,400

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	$0	$0		$0
Contracts	$1,500,000	$0		$1,500,000
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	$0	$0		$0
Professional Services	$30,000	$0		$30,000
Direct Support Services	$22,400	$0		$22,400
DNR Land Acquisition Costs	$0	$0		$0
Capital Equipment	$0	$0		$0
Other Equipment/Tools	$0	$0		$0
Supplies/Materials	$3,000	$0		$3,000
DNR IDP	$0	$0		$0
Total	$1,555,400	$0	-	$1,555,400

Amount of Request:	$1,555,400
Amount of Leverage:	$0
Leverage as a percent of the Request:	0.00%
DSS + Personnel:	$22,400
As a % of the total request:	1.44%
Easement Stewardship:	$0
As a % of the Easement Acquisition:	-%

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

I used the MN DNR Direct and Necessary Cost Calculator.

Does the amount in the contract line include R/E work?

Yes, 100%

Describe and explain leverage source and confirmation of funds:

Not Listed

Does this proposal have the ability to be scalable? - No

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	0	0	20	0	20
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	15	15
Total	0	0	20	15	35

Table 2. Total Requested Funding by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	$0	$0	$313,500	$0	$313,500
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	$1,241,900	$1,241,900
Total	$0	$0	$313,500	$1,241,900	$1,555,400

Table 3. Acres within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	0	0	20	0	0	20
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	15	0	0	15
Total	0	0	35	0	0	35

Table 4. Total Requested Funding within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	$0	$0	$313,500	$0	$0	$313,500
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	$1,241,900	$0	$0	$1,241,900
Total	$0	$0	$1,555,400	$0	$0	$1,555,400

Table 5. Average Cost per Acre by Resource Type

Type	Wetlands	Prairies	Forest	Habitats
Restore	$0	$0	$15,675	$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	$82,793

Table 6. Average Cost per Acre by Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest
Restore	$0	$0	$15,675	$0	$0
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	$82,793	$0	$0

Target Lake/Stream/River Feet or Miles

0

I have read and understand Section 15 of the Constitution of the State of Minnesota, Minnesota Statute 97A.056, and the Call for Funding Request. I certify I am authorized to submit this proposal and to the best of my knowledge the information provided is true and accurate.

Parcel List

Explain the process used to select, rank and prioritize the parcels:

Upper Ice Haul Slough has < 3 feet of water depth and does not provide adequate depths for fish species, especially during winter months. It also has 4+ feet of accumulated silts that when dredged will work well as material for the floodplain forest restoration portion of the project. The Whalen Tract is an abandoned agricultural field, purchased by the USFWS, that is dominated by invasive Reed Canary Grass (RCG). Units within this parcel have been set up as test plots to test various treatments to control RCG and restore floodplain forest communities. This project will allow for direct comparison between various restoration techniques and add to the overall restoration goals for the entire parcel.

Section 1 - Restore / Enhance Parcel List

Houston

Name	TRDS	Acres	EstCost	Existing Protection?
Upper Ice Haul Slough	10104223	15	$1,210,000	Yes
Whalen Tract	10104235	20	$303,000	Yes

Section 2 - Protect Parcel List

No parcels with an activity type protect.

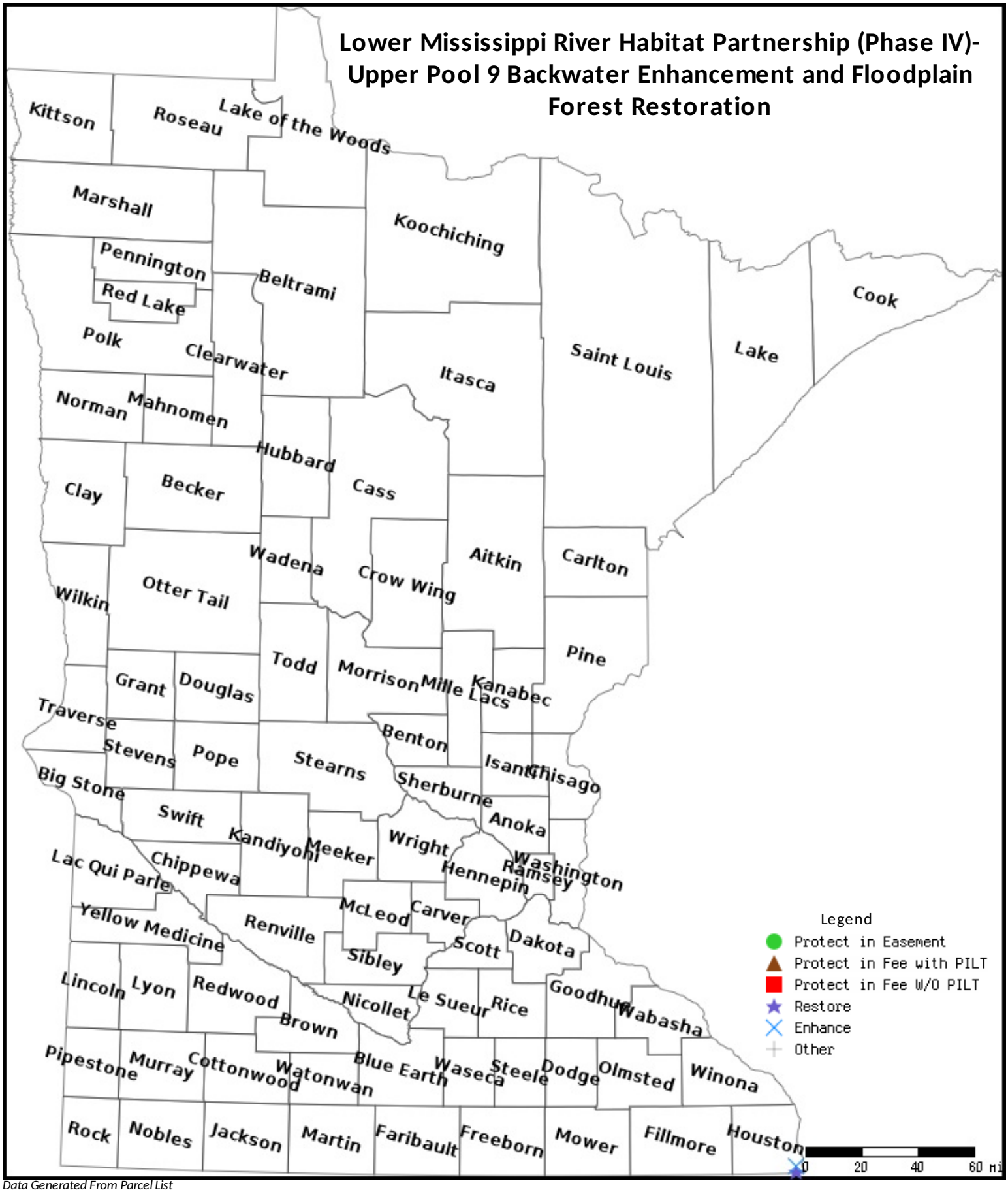
Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

Section 3 - Other Parcel Activity

No parcels with an other activity type.

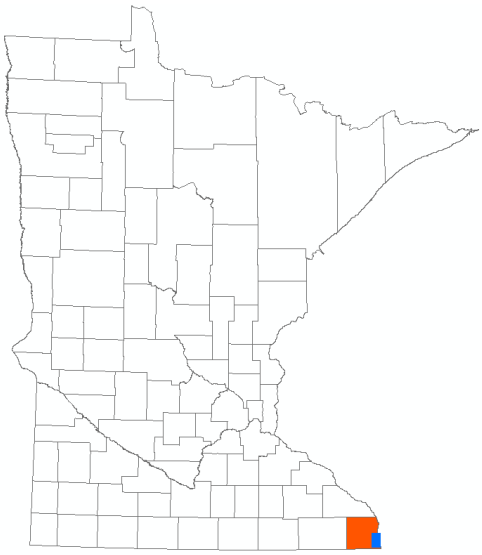
Parcel Map



Data Generated From Parcel List

Lower Mississippi River Habitat Partnership (Phase IV) - Upper Pool 9 Backwater Enhancement and Floodplain Forest Restoration

DEPARTMENT OF NATURAL RESOURCES

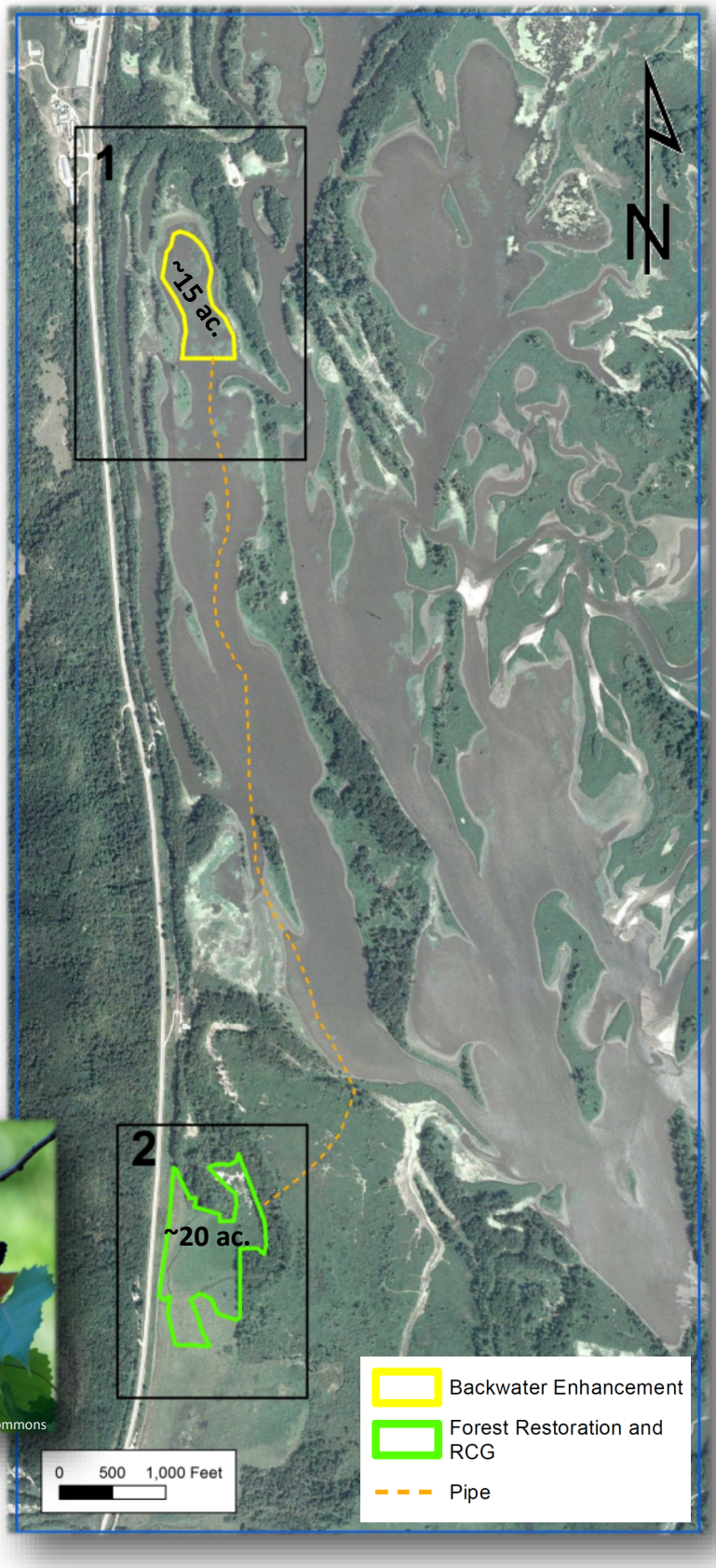


Abstract

This proposal seeks to enhance and restore 35 acres of fish and wildlife habitat on the lower Mississippi River in Houston County.

Sedimentation of aquatic areas in Upper Mississippi River (UMR) backwaters and declining UMR floodplain forests are a concern to resource managers, anglers, hunters and recreational users of the UMR. This proposal includes dredging accumulated sediments from a 15 acre backwater in upper Pool 9 and utilization of the dredged material to bury invasive Reed Canary Grass and enhance topographical diversity on 20 acres of Mississippi River floodplain in support of tree planting and floodplain forest restoration.

Photo: Don Faulkner, Flikr, Creative Commons



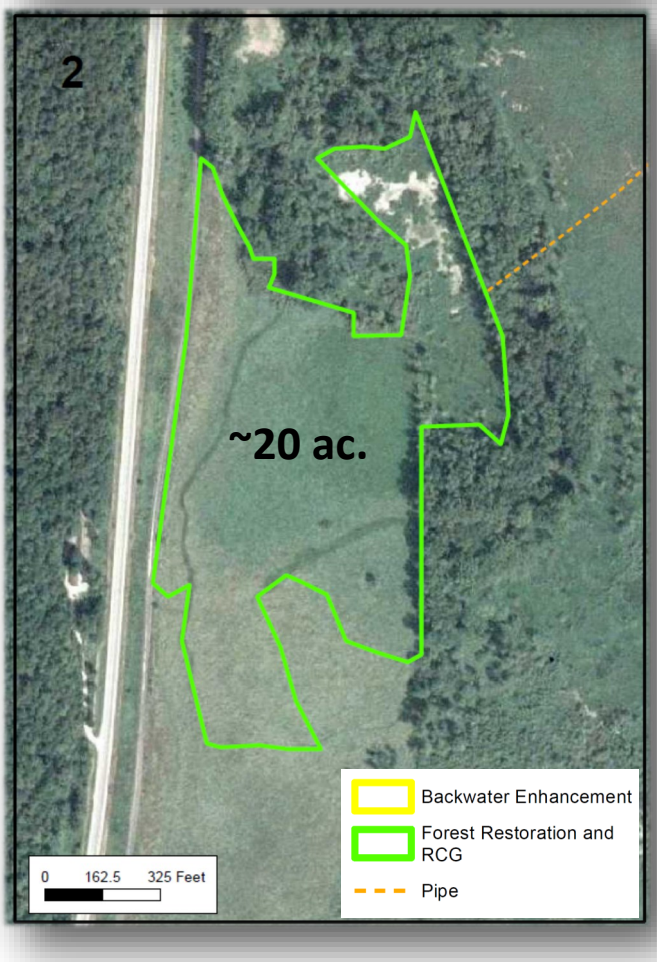
In partnership with:

US Army Corps of Engineers ®
St. Paul District

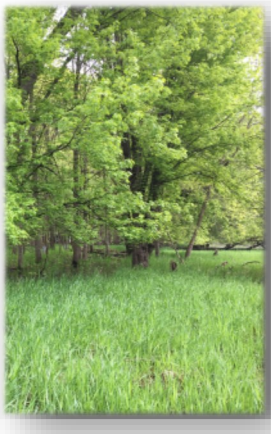
Audubon MINNESOTA

1. Backwater Habitat Enhancement

Backwater habitat enhancement will provide quality habitat and angling opportunities for largemouth bass, northern pike, bluegill, crappie and perch.



2. Floodplain Forest Restoration and RCG Control



Placement of the dredged material from the backwater enhancement site on areas invaded by Reed Canary Grass (RCG) will bury the RCG, elevate the site, and allow trees to establish on a site that is less flood prone, benefitting floodplain forest dependent birds and mammals

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1114 SOUTH OAK STREET
LA CRESCENT, MN 55947-1560

CEMVP-OP-RNR

May 5, 2017

Dan Dieterman
Minnesota Department of Natural Resources
1801 South Oak Street
Lake City, MN 55041

Dear Dan,

Thank you for the opportunity to review and comment on your proposed project, 'Lower Mississippi River Habitat Partnership (Phase II) – Upper Pool 9 Backwater Dredging and Floodplain Restoration.' As you know, the Corps of Engineers Environmental Section is actively involved with our partners, including the Minnesota Department of Natural Resources, in planning and implementing the Upper Mississippi River Systemic Forest Stewardship Plan on Corps-owned lands, while also supporting implementation on partner-owned properties with the Upper Mississippi River floodplain. Your Lessard-Sams Outdoor Heritage Council proposed project for Upper Pool 9 would complement our own efforts by helping to achieve many of the goals and objectives in the Stewardship Plan. It would also help to accelerate implementation of the plan by addressing forest habitat restoration needs over a larger part of the landscape. We greatly appreciate the collaboration and your efforts to achieve additional restoration of this important resource.

Sincerely,

Randall Urich

Randall Urich
Environmental Section Manager

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Upper Mississippi River National Wildlife and Fish Refuge
51 E. Fourth Street - Room 101
Winona, Minnesota 55987

May 8, 2017

Mr. Dan Dieterman
Mississippi River Habitat Specialist
Minnesota Department of Natural Resources
1801 South Oak Street
Lake City, Minnesota 55041

Dear Mr. ~~Dieterman~~ Dan,

Thank you for the opportunity to review and comment on your Lessard-Sams Outdoor Heritage proposed project, 'Lower Mississippi River Habitat Partnership – Upper Pool 9 Backwater Enhancement and Floodplain Restoration'. The Upper Mississippi River National Wildlife and Fish Refuge is excited about the opportunity to partner with The Minnesota Department of Natural Resources to enhance and restore backwater habitat and floodplain forest in Upper Pool 9. Much of the area in Upper Pool 9 is considered crucial habitat for aquatic and floodplain forest dependent species and a portion is designated as a Research Natural Area. I especially appreciate your early planning efforts with our McGregor District staff as you pursue funding for this project. As a partner with the State of Minnesota in management of the Upper Mississippi River, we support your project proposal and will assist you with planning efforts and future management/maintenance needs of the floodplain forest restoration portion of the project. Your proposed project will complement our own efforts by helping to achieve many of the goals and objectives in the Upper Mississippi River Systemic Forest Stewardship Plan and we greatly appreciate the collaboration and your efforts to secure funding for additional restoration of this important resource. I look forward to working with you and other partners on this project should your proposal be selected for funding.

Sincerely,

Sabrina Chandler
Refuge Manager