



Lessard-Sams Outdoor Heritage Council

Floodplain and Upland Forest Enhancement - Mississippi River, Phase 5
ML 2024 Request for Funding

General Information

Date: 08/31/2023

Proposal Title: Floodplain and Upland Forest Enhancement - Mississippi River, Phase 5

Funds Requested: \$4,211,000

Confirmed Leverage Funds: \$241,000

Is this proposal Scalable?: Yes

Manager Information

Manager's Name: Jeffrey Butler / Dale Gentry

Title: Forest Ecologist / Director of Conservation

Organization: Audubon Minnesota

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Location Information

County Location(s): Winona, Wabasha, Houston and Goodhue.

Eco regions in which work will take place:

- Southeast Forest

Activity types:

- Enhance

Priority resources addressed by activity:

- Forest

Narrative

Abstract

The Upper Mississippi River region provides critical forest habitat for hundreds of species of birds from waterfowl and other game birds to warblers and birds of prey. This proposal builds on four previous projects and will expand Audubon's forest conservation work on State and Federal Lands as well as projects on permanently protected private lands. Increased flooding and invasive species are limiting natural tree regeneration and threatening floodplain forests. This project continues our work to plant trees and conserve and maintain forest habitat in Important Bird Areas and two Conservation Focus areas.

Design and Scope of Work

The forests of Southeast Minnesota are experiencing a shift in species cover and composition. Floodplain forests are shifting away from native tree cover and towards invasive grass. Oak-dominated upland forests are slowly converting to shade-tolerant maple and invasive species. While forests are never stagnant, these forests require intervention to ensure they remain a healthy and sustainable resource for the state of Minnesota.

The Mississippi River from Hastings, Minnesota to the Iowa border contains some of the largest and most significant tracts of floodplain and river bluff forest north of Saint Louis. These forests and mixed wetlands cover thousands of acres and are especially critical to many species of birds and other wildlife, including Wood Ducks, Bald Eagles, and multiple songbird species of conservation concern which use these areas for nesting and feeding. The upland forest adjacent to the Mississippi River and its tributaries provide excellent wildlife habitat and support the greater river corridor migratory pathway. Special concern species such as the Cerulean Warbler are well known to use both floodplain forest and upland forest, even preferring habitats where they have access to both.

While historically diverse in the number, age, and size of tree species, much of the floodplain forest now consists of silver maple aged 50 - 70+ years old. These trees are expected to live another 50-70 years, after which they will die naturally. Unfortunately, when trees are lost, reed canary grass and other invasive species move in and prevent natural regeneration. This is occurring at a number of locations within the project area, and without aggressive, long-term management these floodplain forests will be greatly reduced or in some cases disappear completely. Adjacent upland forests are beginning to shift away from their historical oak dominance and are becoming infested with invasive species. A lack of fire and increased maple dominance threatens their value as wildlife habitat. Without management, both forest communities will continue to decline along with their ability to support wildlife.

Project locations and habitats were selected based on state-level Conservation Focus Areas and the Systemic Forest Stewardship Plan. Project work will include selectively controlling invasive plants like reed canary grass and buckthorn across the habitat gradient. Forest stand improvements will be used to improve wildlife tree structure. Site preparations will create the appropriate conditions for natural and artificial tree regeneration. Trees will be planted underneath existing forest canopies and in open areas where forests previously existed. Understory treatments like mowing and fire will be used to control unwanted vegetation and release desirable trees. As a result of this management, floodplain forest habitat will expand while the adjacent upland forests will offer higher quality habitat to wildlife.

Sites were collaboratively identified with MN DNR, U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers. Projects will be accomplished using a variety of contractors, Conservation Corps Minnesota Crews, and in-house labor. In total 3,130 acres will be enhanced.

Explain how the proposal addresses habitat protection, restoration, and/or enhancement for fish, game & wildlife, including threatened or endangered species conservation

Floodplain forests are rare habitats with many having been lost when the river was impounded in the 1930s. The floodplain/bluffland forest matrix is found in relatively narrow ribbons along river corridors and provides important travel routes for wildlife. The Mississippi River, a critical migration corridor for birds, provides some of the most significant tracts of this forest system in the United States.

In Minnesota, the Mississippi River and lower ends of tributaries include large areas of high biodiversity significance as identified in the Minnesota County Biological Survey. Studies by the US Geological Survey along the Upper Mississippi River have documented that songbirds use these floodplain forests extensively, with some species benefiting from access to lowlands and uplands in close proximity. Species in greatest conservation need, including Cerulean Warbler require large contiguous habitat to successfully breed.

The Whitewater Wildlife Management Area lists Cerulean Warbler, Prothonotary Warbler, Acadian Flycatcher, Red-shouldered Hawk, and the Louisiana Waterthrush as priority forest interior birds. All of these species Minnesota Species of Greatest Conservation Need will benefit from access to quality floodplain and adjacent upland forests. By restoring forest cover to deforested floodplains and working in the adjacent uplands, these priority species will see a major increase in quality habitat. Threatened species of bats are currently limited in their ability to use formerly forested floodplains, with the reintroduction of forests there will be an increase in potential future bat roosting trees.

Among other benefits in the uplands and bottomlands, this project work will help conserve an oak resource in decline. Oak trees provide an important food source for game, nongame, and the insects whom provide food to many bird species. Working in the bluff forests in addition to the bottomlands allows Audubon to address the LSOHC Priority action of stream to bluff habitat enhancement as well as increase the overall size of impacted travel corridors.

What are the elements of this proposal that are critical from a timing perspective?

Throughout the Upper Mississippi River large stands of trees are being lost due to increased flooding induced mortality. The existing floodplain forest is dying and not being replaced with new trees. Natural reproduction and bare root tree plantings grow slowly and cannot compete with annual flooding, reed canary grass, and other floodplain vegetation. Without management we risk seeing forest habitat converting to monocultures of reed canary grass. By planting larger container-grown trees, we hope to get the tree above the level of competing vegetation. If we can plant enough trees, in 15-20 years a closed forest canopy will help to shade out the undesirable reed canary grass. These projects need public funding to help prevent some of the last remaining floodplain/bluff land migratory corridors in the country from being lost to non-native brush and grass.

Describe how the proposal expands habitat corridors or complexes and/or addresses habitat fragmentation:

Much of this project work will take place on lands recognized by the Minnesota County Biological Survey as natural communities containing rare species. Project sites have additionally been selected within areas identified as climate change refugia, Conservation Focus Areas, and Important Bird Areas. Audubon has partnered with the Army Corps of Engineers to select project areas on the Upper Mississippi River within priority areas where management will be most effective and feasible.

The Upper Mississippi River Systemic Forest Stewardship plan prepared by the Corps of Engineers and other

partners in 2012 is used to guide restoration and enhancement strategies along the Mississippi River while the Minnesota Wildlife Action Plan informs management within other river tributaries. Audubon has additionally engaged in re-forestation studies and regeneration surveys to determine the best species and planting methodologies for re-forestation projects.

Reed canary grass poses a major fragmentation threat to forests by preventing new trees from establishing within small openings. Over time reed canary grass can shift a forest environment to an open field type setting yielding a patchy forest with fewer large patches of habitat needed by some species. Managing large reed canary dominated landscapes to encourage tree growth both reduces fragmentation and secures forest cover for the foreseeable future. This work greatly reduces fragmentation through reforesting areas that have been deforested during past logging practices, agricultural use, and subsequent invasive species infestation. The project further addresses fragmentation by bolstering forest health thus helping prevent their conversion to nonnative cover.

Which Conservation Plans referenced in MS97A.056, subd. 3a are most applicable to this project?

- Minnesota's Wildlife Action Plan 2015-2025
- Other : Upper Mississippi Systemic Forest Stewardship Plan

Explain how this proposal will uniquely address habitat resilience to climate change and its anticipated effects on game, fish & wildlife species utilizing the protected or restored/enhanced habitat this proposal targets.

The need to enhance bottomland forests of the Mississippi River is partially a consequence of changes in precipitation patterns linked to climate change. There has been extensive work to prioritize areas where bottomland forest restoration is more likely to be successful. The United States Geological Survey developed the Resist Accept Direct (RAD) framework and applied it to the bottomland forests to guide management prescriptions. We are using those guidelines to Resist change in higher elevation zones where we will plant hardwood species to retain forest canopy, Accept that the low elevation sites are unlikely to remain forested (take no conservation action), and Direct change in the in-between elevations where early successful plant species like river birch, cottonwoods, and willows are more likely to successfully grow. These strategies will retain maximum forest habitat and retain a mosaic of forest types that are more resilient to climate change.

Which LSOHC section priorities are addressed in this proposal?

Southeast Forest

- Restore forest-based wildlife habitat that has experienced substantial decline in area in recent decades

Describe how this project/program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife, and if not permanent outcomes, why it is important to undertake at this time:

This project is worthy of investment because the Mississippi River's bottomland and adjacent upland forests are a critical artery of forest habitats in an agricultural landscape. Migratory songbirds, which are experiencing global population declines, migrate in higher densities closer to the river because of these forest habitats. In addition to the habitats for birds and shade and cover and food they provide to fish, reptiles, and amphibians, humans depend on bottomland forests for their ecosystem services (flood control, sediment abatement, and water quality) not to mention their role in the human communities on the river. The building of the dams and subsequent impoundment of the Upper Mississippi River caused a dramatic reduction in floodplain forest. What remains is now declining further because of invasive reed canary grass and climate-linked flooding that hinder natural forest regeneration.

This community needs conservation attention.

However, we should not lose hope because our interventions are working. Planting taller three-year-old trees allows them to grow over the top of the reed canary grass, and temporary removal of reed canary grass effectively supports the catch and germination of seeds from the native trees. While some loss of forest is inevitable, our practices are creating healthier forests and what remains will provide wildlife habitat and serve the human communities on the Mississippi River in the future.

Outcomes

Programs in southeast forest region:

- Large corridors and complexes of biologically diverse wildlife habitat typical of the unglaciated region are restored and protected ~ *Existing forests within the Mississippi River floodplain have been mapped, including location and tract size. Over time, forested land cover can be re-mapped to determine if forested locations and/or tract size has changed. In addition, forest inventory is being completed by Minnesota DNR, US Fish and Wildlife Service, and US Army Corps of Engineers to document forest cover, tree species, and size, regeneration, etc. These can be re-surveyed over time to document changes in these parameters.*

What other dedicated funds may collaborate with or contribute to this proposal?

- Environment and Natural Resource Trust Fund

Per MS 97A.056, Subd. 24, Please explain 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.

LSOHC funding is in addition to other funding sources, and does not supplant that work. Without LSOHC funding, Audubon MN would not have resources to implement enhancement projects, and would have greater challenges in funding personnel salaries associated with this work.

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

Audubon is committed to monitoring project sites after OHF funds are expended. Audubon’s forest ecologist is responsible for managing these project sites and will work with our State and Federal partners to ensure management recommendations are understood and implemented as best possible. Audubon receives funding from the USFWS to monitor projects and maintain a presence on the ground. Audubon has a strong working relationship with the Army Corps of Engineers, US Fish and Wildlife Service, the MN DNR, and the Redwing Wildlife League. Through these partnerships, Audubon has enhanced over 2200 acres of floodplain and upland forest in the first 4 phases. Additionally, Audubon is actively collaborating with federal and state partners to secure additional funding for floodplain and riparian forest enhancement.

Forest management is a long-term process and follow-up management will likely be necessary once OHF funds have been expended. Much of this work is however intended to enhance natural regeneration through natural processes and restore tree cover that, once established, should require little intervention.

Actions to Maintain Project Outcomes

Year	Source of Funds	Step 1	Step 2	Step 3
2022-2026	USFWS, LSOHC, Audubon	Site recon, Prescription Development and planning	Conduct Site Management	Maintenance

2029-2033	USFWS, MN DNR, Audubon	Planning Amendments	Maintenance/Management	-
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Provide an assessment of how your program may celebrate cultural diversity or reach diverse communities in Minnesota, including reaching low- and moderate-income households:

The Upper Mississippi region was once all land of the Mdewakanto Oyate (people) of Eastern Dakota Sioux. The five hundred-plus acres of Prairie Island Indian Community reservation is all that remains directly under Dakota stewardship on the Mississippi River. One of the ways we can celebrate their cultural heritage and historic stewardship of the river is by managing the river and the land in alignment with the Native American philosophy of wise stewardship for land that we do not own. Audubon is working with the Prairie Island Indian Community to survey their birds so that the foreknowledge of their bird community can influence their land management decisions. We are humbly learning about the role of the river and its surrounding forests and prairies in forming their culture in hopes that it can similarly influence ours.

The Dakota Sioux people, and all people who come to the river, benefit from the opportunity to hunt, fish, and experience the river and the wildlife it sustains in a healthy condition. These forests provide numerous ecosystem services including recreational opportunities for local communities, carbon sequestration, mitigating nutrient runoff, sediment management, and flood water storage in addition to providing habitat for wildlife. Investing in these environments helps achieve Minnesota’s commitment to its own cultural heritage by serving the people, and wildlife, that choose to call it home.

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 restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 or on lands to be acquired in this program?

Yes

Where does the activity take place?

- WMA
- Permanently Protected Conservation Easements
- Refuge Lands
- State Forests

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program?

No

Will neonicotinoid pesticide products be used within any activities of this proposal?

No

Other OHF Appropriation Awards

Have you received OHF dollars in the past through LSOHC that are current OPEN appropriations?

Yes

Approp Year	Funding Amount Received	Amount Spent to Date	Funding Remaining	% Spent to Date
2021	\$1,247,000	\$106,897	\$1,140,103	8.57%
2019	\$1,357,000	\$1,022,235	\$334,765	75.33%
2016	\$412,000	\$404,267	\$7,733	98.12%
2014	\$300,000	\$300,000	-	100.0%
Totals	\$3,316,000	\$1,833,399	\$1,482,601	55.29%

Timeline

Activity Name	Estimated Completion Date
Complete Site Preparations	2027
Complete Site Precriptions	2026
Planting and Maintenance	2028

Budget

Totals

Item	Funding Request	Total Leverage	Leverage Source	Total
Personnel	\$486,500	\$86,400	N/A, USFWS	\$572,900
Contracts	\$3,192,000	-	-	\$3,192,000
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	-	-	-
Easement Stewardship	-	-	-	-
Travel	\$4,500	\$1,000	Audubon	\$5,500
Professional Services	-	-	-	-
Direct Support Services	\$128,000	\$199,000	Unrecovered Indirect Services	\$327,000
DNR Land Acquisition Costs	-	-	-	-
Capital Equipment	-	-	-	-
Other Equipment/Tools	-	-	-	-
Supplies/Materials	\$400,000	-	-	\$400,000
DNR IDP	-	-	-	-
Grand Total	\$4,211,000	\$286,400	-	\$4,497,400

Personnel

Position	Annual FTE	Years Working	Funding Request	Total Leverage	Leverage Source	Total
Grant Administrator	0.05	4.0	\$21,500	-	N/A	\$21,500
Forest Ecologist	0.75	4.0	\$267,000	\$86,400	USFWS	\$353,400
Conservation Director/Manager	0.35	4.0	\$198,000	-	N/A	\$198,000

Amount of Request: \$4,211,000

Amount of Leverage: \$286,400

Leverage as a percent of the Request: 6.8%

DSS + Personnel: \$614,500

As a % of the total request: 14.59%

Easement Stewardship: -

As a % of the Easement Acquisition: -

Total Leverage (from above)	Amount Confirmed	% of Total Leverage	Amount Anticipated	% of Total Leverage
\$286,400	\$241,000	84.15%	\$45,400	15.85%

Detail leverage sources and confirmation of funds:

Audubon receives funding from the US Fish and Wildlife Service to support 25% of the salary and benefits of the forest ecologist, private foundations, and individuals also donate to Audubon which helps with unrecovered indirect services (overhead).

Does this proposal have the ability to be scalable?

Yes

If the project received 50% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?

We would reduce the acres of enhancement based on the reduction in funding. We should still be able to achieve close to 50% of the acres if we received 50% of the funding. Personnel funds for project planning and management could also be proportionally reduced.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?

Based on our experiences with other LSOHC supported projects, personnel and dedicated support staff are important to project success and more difficult to scale down, though reductions are possible.

If the project received 30% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?

This project is scalable and the number of acres could be reduced proportionally.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?

As before, personnel and DSS costs are more difficult to scale although they could be reduced still further.

Personnel

Has funding for these positions been requested in the past?

Yes

Please explain the overlap of past and future staffing and position levels previously received and how that is coordinated over multiple years?

Phases are billed in order as they are completed, including staff salaries. The Forest Ecologist(s) and the Conservation Director work together to design and implement projects and bill their time to the associated phase of work.

Contracts

What is included in the contracts line?

Contract work will include tree planting, invasive species control, tree cutting, site preparation (i.e. mowing and herbicide), and direct seeding.

Travel

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

No

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

All of the travel is for mileage, food and lodging. Primarily for the Conservation manager/director to drive to project sites and meetings.

I understand and agree that lodging, meals, and mileage must comply with the current MMB Commissioner Plan:

Yes

Direct Support Services

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

Audubon has a federally-negotiated indirect rate of 25.49%. We're are requesting 10% from LSOHC and matching 15.49%. Indirect only applies to the first \$25,000 of contracts.

Federal Funds

Do you anticipate federal funds as a match for this program?

Yes

Are the funds confirmed?

No

What is the approximate date you anticipate receiving confirmation of the federal funds?

8/31/2023

Output Tables

Acres by Resource Type (Table 1)

Type	Wetland	Prairie	Forest	Habitat	Total Acres
Restore	0	0	0	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	3,130	0	3,130
Total	0	0	3,130	0	3,130

Total Requested Funding by Resource Type (Table 2)

Type	Wetland	Prairie	Forest	Habitat	Total Funding
Restore	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	\$4,211,000	-	\$4,211,000
Total	-	-	\$4,211,000	-	\$4,211,000

Acres within each Ecological Section (Table 3)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Acres
Restore	0	0	0	0	0	0
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	3,130	0	0	3,130
Total	0	0	3,130	0	0	3,130

Total Requested Funding within each Ecological Section (Table 4)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Funding
Restore	-	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	\$4,211,000	-	-	\$4,211,000
Total	-	-	\$4,211,000	-	-	\$4,211,000

Average Cost per Acre by Resource Type (Table 5)

Type	Wetland	Prairie	Forest	Habitat
Restore	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-
Protect in Easement	-	-	-	-
Enhance	-	-	\$1,345	-

Average Cost per Acre by Ecological Section (Table 6)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest
Restore	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-

Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	\$1,345	-	-

Target Lake/Stream/River Feet or Miles

Parcels

Sign-up Criteria?

No

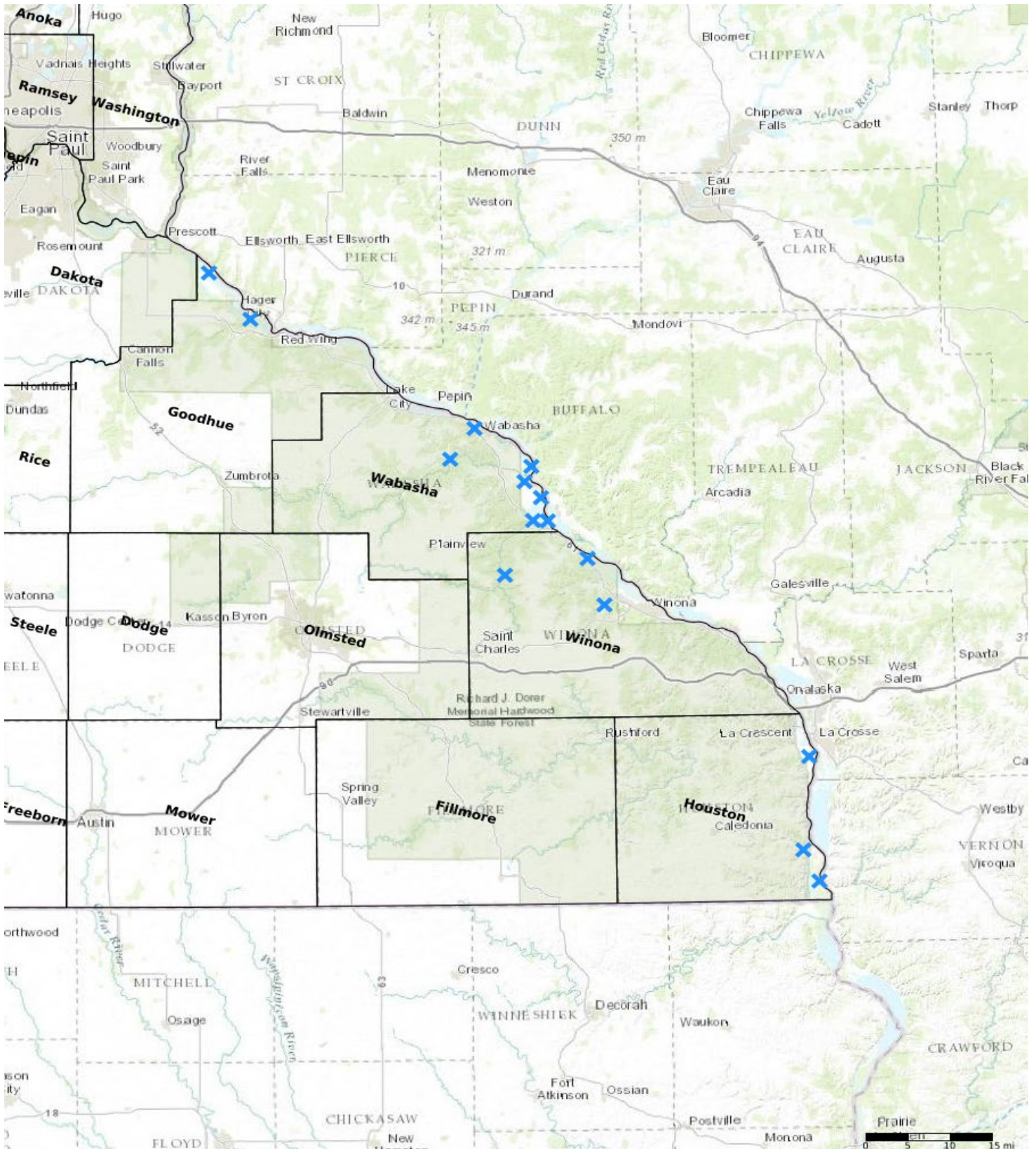
Explain the process used to identify, prioritize, and select the parcels on your list:

Audubon collaborates with the MN DNR, US Fish and Wildlife Service and US Army Corps of Engineers to identify priority parcels for enhancement projects. LiDAR imagery is used to identify areas that can be enhanced and are not excessively wet. Forests with major threats of loss are prioritized first.

Restore / Enhance Parcels

Name	County	TRDS	Acres	Est Cost	Existing Protection
Gores South USACE	Goodhue	11416214	400	\$360,000	-
Red Wing Wildlife League	Goodhue	11315215	150	\$135,000	Yes
Reno Bottoms	Houston	10204235	170	\$153,000	-
Hayshore Lake	Houston	10103219	300	\$360,000	-
Root River	Houston	10404236	485	\$582,000	Yes
West Newton /Zumbro River	Wabasha	11009231	75	\$67,500	-
Wabasha Bottoms	Wabasha	11009220	380	\$380,000	Yes
Riverview Cemetery	Wabasha	11110230	100	\$90,000	-
Whitewater Delta	Wabasha	10909229	100	\$90,000	-
Zumbro Bottoms MNDNR	Wabasha	11011215	100	\$100,000	-
Winona District EAB Mitigation	Wabasha	10909209	75	\$90,000	-
Bronk State Forest	Winona	10708223	300	\$300,000	Yes
Whitewater WMA MNDNR	Winona	10810235	300	\$300,000	Yes
Horseshoe Bend	Winona	10808221	165	\$148,500	Yes
Weaver Channel Islands	Winona	10909227	30	\$36,000	-

Parcel Map



- Protect in Easement
- ▲ Protect in Fee with PILT
- Protect in Fee W/O PILT
- ★ Restore
- ✕ Enhance
- ⊕ Other