

**Environment and Natural Resources Trust Fund
2016 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 159-F

Controlling Reed Canary Grass to Regenerate Floodplain Forest

Category: F. Methods to Protect, Restore, and Enhance Land, Water, and Habitat

Total Project Budget: \$ 218,500

Proposed Project Time Period for the Funding Requested: 3 years, July 2016 to June 2019

Summary:

Floodplain forests are not regenerating due to invasive species. LCCMR funding will determine the most effective regeneration methods to best utilize existing funding from other sources for tree regeneration projects.

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Sponsoring Organization: Audubon Minnesota

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Web Address: _____

Location

Region: SE

County Name: Dakota, Goodhue, Houston, Wabasha, Winona

City / Township:

Alternate Text for Visual:

Graphic describing project activities including a map of the project area.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____ %



PROJECT TITLE:

Controlling reed canary grass to regenerate floodplain forest

I. PROJECT STATEMENT

This project will help ensure the future of Mississippi River floodplain forests by developing the most effective methods for regenerating native trees in areas that are threatened by invasive reed canary grass. It will leverage Outdoor Heritage and private funding currently being used for reed canary grass control and tree planting within the floodplain.

Floodplain forests protect water quality and provide critical habitat for wildlife. The Upper Mississippi River (Minneapolis to St. Louis) contains some of the most significant tracts of floodplain forest in the nation. However, the long-term existence of these forests is under threat from invasive reed canary grass, which aggressively out-competes tree seedlings.

Floodplain forests in the Upper Mississippi River are dominated by even-aged tree stands with low species diversity. It is expected that canopy trees will begin to die off in the next 50-70 years. Current knowledge suggests that as adult trees die they will be replaced by reed canary grass dominated wet meadows. Without active restoration, Minnesota will likely lose much of its floodplain forests, along with the many species of birds and other wildlife that depend upon these habitats for survival.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Determine the most effective methods to control reed canary grass and regenerate trees. **Budget: \$205,500**

Competition from reed canary grass is one of the primary factors limiting forest regeneration in the floodplain. We will test the efficacy of reed canary grass control methods and examine the impact on tree regeneration. We will document pre-treatment reed canary grass levels and then test the efficacy of reed canary grass control using combinations of herbicide application, plant removal, and soil disturbance within four 10 acres sites. Treatments will include a range of elevations, soils, and light availability within and among sites. This will provide crucial evidence about how fluctuating water levels and variable site conditions within the floodplain influence restoration success, improving our ability to develop site-level prescriptions for future projects.

We will evaluate natural regeneration, and artificial regeneration using direct seeding, bare root, and Root Production Method seedlings. We will plant up to 4 species (silver maple, cottonwood, sandbar willow, swamp white oak) in polycultures. We will monitor survival and growth of planted juveniles and response of reed canary grass control in each treatment. We will assess natural tree regeneration of these same species by monitoring abundance and growth of naturally established seedlings.

Outcome	Completion Date
1. Data set on the effectiveness of herbicide, plant removal, and soil disturbance for controlling reed canary grass	January 2019
2. Data set on the extent of natural tree regeneration following reed canary grass control	January 2019
3. Dataset on tree establishment, survival and growth by regeneration method and species following reed canary grass control	January 2019
4. Final research report documenting the effectiveness of various reed canary control methods, natural regeneration, and tree establishment, survival and growth	June 2019

Activity 2: Provide foresters and wildlife managers with information on the most **Budget: \$13,000**



Environment and Natural Resources Trust Fund (ENRTF)

2016 Main Proposal

Project Title: Controlling reed canary grass to regenerate floodplain forest

effective methods to control reed canary grass and regenerate trees.

A decision support tool will be developed to inform preparation of site-level management prescriptions that use the most effective methods for regenerating forest based on soils, elevation, and light availability.

Outcome	Completion Date
1. <i>Decision support tool that documents the most effective methods for controlling reed canary grass and regenerating floodplain forest for writing site-level prescriptions.</i>	January 2019
2. <i>Decision support tool is distributed to professional foresters and wildlife managers</i>	June 2019

III. PROJECT STRATEGY

A. Project Team/Partners

This project is a collaborative effort between Audubon Minnesota, University of Minnesota, and University of Wisconsin La Crosse. Primary team members include: Andy Meier and Tim Schlagenhaft (Audubon Minnesota); Dr. Rebecca Montgomery (University of Minnesota); Dr. Meredith Thomsen (UW La Crosse). Dr. Montgomery is a forest ecologist with experience in research and assessment of floodplain forest ecosystems, and Dr. Thomsen is a leader in reed canary grass control and effects on regeneration along the Upper Mississippi River. Dr. Thomsen’s expertise in reed canary grass research is the reason some funding would go out of state.

This team will also work closely with foresters and biologists from the US Fish and Wildlife Service, U.S. Army Corps of Engineers, and Minnesota DNR. Funding from the Outdoor Heritage fund through a grant with Audubon will be used to implement projects on public lands. Audubon Minnesota will receive funding to manage the overall project and the University of Minnesota and University of Wisconsin – La Crosse will receive funding for research and monitoring.

B. Project Impact and Long-Term Strategy

This effort is part of Audubon’s long-term strategy to sustain and restore floodplain forest for birds and other wildlife along the Upper Mississippi River. Audubon hired a full time Forest Ecologist in January, 2015 to expand our work in this area. We secured \$300,000 in Outdoor Heritage funding (July 2014-June 2017) and \$20,000 in private funding and have been implementing restoration projects. However, we do not have funding to study the most effective restoration techniques. This is a critical question facing foresters and wildlife managers across the Upper Mississippi River. LCCMR funding will be used to conduct the studies needed to determine the most effective methods to control reed canary grass and regenerate trees, and to get this information in the hands of resource managers as a practical decision making tool for writing site-level management prescriptions. This will ensure future LSOHC and private foundation funds are spent on the most effective restoration projects.

Approximately \$150,000 of the current LSOHC grant will be available to implement projects at the sites selected for study if the LCCMR proposal is funded. An additional proposal of \$700,000 will be submitted in June 2015 to LSOHC to continue implementing forest restoration projects from 2016-2019. This LCCMR proposal will provide the information and decision support tools for river managers to most effectively implement forest restoration projects using funding from other sources into the future.

C. Timeline Requirements

This project can be completed in three years. In year 1, we will identify sites, collect pre-treatment data, and apply fall treatments. In year 2 and part of year 3 we will plant treated plots and evaluate response of reed canary grass and tree regeneration. In the latter half of year 3, we will develop a decision support tool and present a final report including the decision support to foresters, wildlife managers, and other interested partners. University partners and Audubon’s forest ecologist will continue to assess longer-term responses (5-10 yrs) by monitoring beyond the timeline of this proposal.

2016 Detailed Project Budget

Project Title: Controlling reed canary grass to regenerate floodplain forest

IV. TOTAL ENRTF REQUEST BUDGET - 3 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel:	
Tim Schlagenhaft, Project Manager (66.5% salary, 33.5% benefits); 10% FTE for each of years 1-3	\$ 22,400
Andy Meier, Forest Ecologist (66.5% salary, 33.5% benefits); 10% FTE for each of years 1-3	\$ 19,200
Sue Swanson, Administrative Assistant (66.5% salary, 33.5% benefits): 4% FTE for each of years 1-3 - for administrative support	\$ 5,200
Professional/Technical/Service Contracts:	\$ -
1 Graduate Research Assistant located at the University of Minnesota to conduct data collection and analysis (55% salary, 45% fringe benefits (includes health and tuition), 50% FTE for 2.5 years	\$97,700
1 Graduate Research Assistant located at the University of Wisconsin-LaCrosse to conduct data collection and analysis (93% salary, 7% fringe (health), 50% FTE for 2.5 years (note - all field work will be in Minnesota).	\$54,000
Travel:	
Mileage (approximately 20,000 miles), lodging, and meals for graduate student travel to and between data gathering and restoration sites. Travel reimbursement will follow guidelines in DNR Commissioners Plan.	\$20,000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 218,500

V. OTHER FUNDS

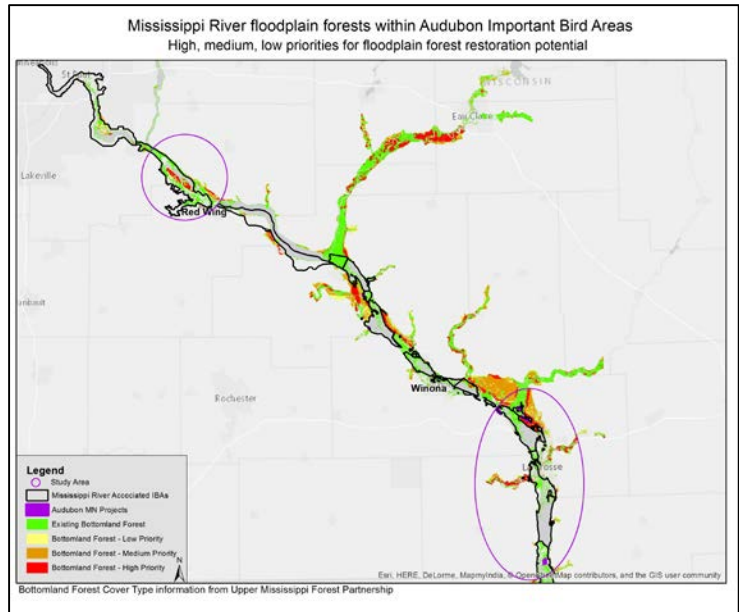
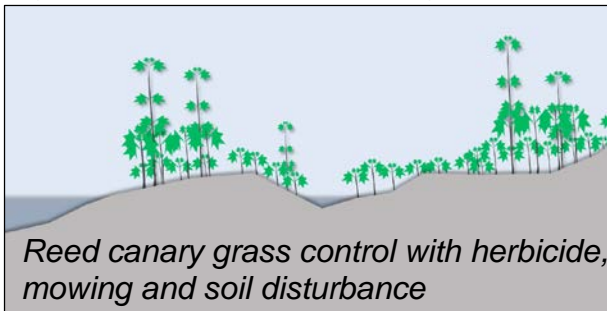
<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ To Be Applied To Project During Project Period: University of Wisconsin LaCrosse funds for waiving overhead charges	\$ 21,300	secured
Other State \$ To Be Applied To Project During Project Period: \$150,000 in LSOHC funding to implement bottomland forest restoration projects on treatment sites including site preparation and tree planting is secured.	\$ 150,000	secured
Other State \$ To Be Applied To Project During Project Period: A proposal for an additional approximately \$700,000 will be submitted by Audubon to LSOHC in June 2015 to continue implementing floodplain restoration projects from 2016-2019. Additional proposals to continue this work are planned.	\$700,000	pending
In-kind Services To Be Applied To Project During Project Period: \$9,000 in kind salary from University of Minnesota and \$5,000 in kind salary from University of Wisconsin La Crosse faculty.	\$ 14,000	secured
Funding History: LSOHC funding to implement bottomland forest restoration projects including site preparation and tree planting. \$300,000 secured from July 2014-June 2017, of which \$150,000 would be available to spend during fall 2016, the first year of the LCCMR project under this proposal.	\$ 150,000	secured
Remaining \$ From Current ENRTF Appropriation: None		

Problem: As trees in the Upper Mississippi floodplain die, invasive reed canary grass replaces forest.



Result: Loss of floodplain forests and many species of birds and other wildlife

Solution: *Activity 1.* Determine the most effective methods to control reed canary grass and regenerate trees across a range of conditions in **high priority sites** for bird conservation.



PLANT trees across different elevations and soil type

Compare success of two stock types:

Activity 2. Provide foresters and wildlife managers with information on the most effective methods to control reed canary grass and regenerate trees.



Root Production Method **Bare root**

Outcome: Healthy floodplain forests with lots of tree regeneration and abundant floodplain dependent bird and wildlife species.



Tim Schlagenhaft is the Community Conservation Coordinator for Audubon, Minnesota based out of Red Wing. Tim has worked on habitat restoration and protection on the Mississippi River for nearly 25 years. He spent most of his career with the Minnesota Department of Natural Resources based out of Lake City, where he served as Area Fisheries Supervisor, Mississippi River Coordinator, and Asian Carp Coordinator.

Tim's current position with Audubon Minnesota focuses on Mississippi River habitat restoration including restoring floodplain forests, water level management, and island construction and dredging projects. He has worked in partnership with many of the state and federal agencies and non-profits that are responsible for fish and wildlife management of the Mississippi River.

Audubon Minnesota is a state office of the National Audubon Society. The National Audubon Society, established in 1905, is one of the most respected conservation not-for-profits in the world. Audubon's national network of community-based nature centers, field offices, and chapters as well as science, education, and advocacy professionals are committed to sustaining important bird populations while engaging millions of people of all ages and backgrounds in positive conservation experiences. Audubon's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity. Audubon is working closely with other organizations including the US Fish and Wildlife Service, US Army Corps of Engineers, state natural resource agencies, universities and others to implement bottomland forest restoration projects and ensure the long-term sustainability of these critical habitats on the Mississippi River and tributaries.

