

**Environment and Natural Resources Trust Fund**

# 2021 Request for Proposal

## **General Information**

**Proposal ID:** 2021-455

**Proposal Title:** Habitat Associations of Mississippi Bottomland Forest Marsh Birds

## **Project Manager Information**

**Name:** Andrew Beebe

**Organization:** Audubon Minnesota

**Office Telephone:** (651) 739-9332

**Email:** andrew.beebe@audubon.org

## **Project Basic Information**

**Project Summary:** Determine habitat associations of breeding bottomland forest birds in response to restoration actions along the Mississippi River at the Reno Bottoms outside Reno, MN

**Funds Requested:** $275,000

**Proposed Project Completion:** 2024-06-30

**LCCMR Funding Category:** Methods to Protect, Restore, and Enhance Land, Water, and Habitat (F)

## **Project Location**

**What is the best scale for describing where your work will take place?** Region(s): SE

**What is the best scale to describe the area impacted by your work?** Region(s): SE

**When will the work impact occur?** During the Project and In the Future

## **Narrative**

**Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.**

This project will determine habitat associations of breeding bottomland forest birds and evaluate their response to habitat restoration actions. This will allow managers to target restoration actions to specific habitat conditions or bird species. In the past, Audubon has collaborated with the Minnesota DNR (MDNR), US Fish and Wildlife Service (USFWS), and the U.S. Army Corps of Engineers (USACE) to restore the quality of bottomland forest habitat along the Upper Mississippi River. These forests are under numerous threats, including habitat loss, invasive species, and altered flood cycles. Currently, much of the forest consists of stands dominated by single species. These trees are expected to live another 50-70 years, after which they will die-off and disappear. Unfortunately, when trees are no longer there, reed canary grass and other invasive species move in and prevent natural regeneration.

In partnership with MDNR and USFWS, several restoration sites have been implemented in Winona, Houston and Wabasha counties. These efforts have been followed by the identification of the best restoration strategies to control invasive species and establish early-successional forest. These management recommendations improve our understanding of best practices for controlling promoting forest diversity. However, a better understanding of restoration impacts on wildlife is needed.

**What is your proposed solution to the problem or opportunity discussed above? i.e. What are you seeking funding to do? You will be asked to expand on this in Activities and Milestones.**

We propose to use techniques developed by Audubon and USACE, to evaluate the abundance, and habitat use of avian communities in bottomland forest. Improved understanding of these bird-habitat associations will allow managers to implement adaptive management and continue more effective conservation along the river. Subsequently these restoration and research efforts will contribute to the Bottomland Forest Avian Stewardship Plan developed by the USACE and Audubon. Restoration efforts often target plant communities, with the implementation of these techniques we have to objective of creating a directly link between land management and the response of wildlife communities. As we develop more understanding of human-wildlife-habitats relationships we will be able to better target conservation efforts along the Mississippi river.

Surveys will be co-located with USACE forest inventory plots. Surveys will consist of a point count with two forms of auxiliary data (distance and time of detection) enabling correction for imperfect detection. Survey locations will be spaced at least 400 meters apart, and associated with forest inventory plots surrounding the survey point.

**What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state’s natural resources?**

We will determine baseline understanding of bottomland forest bird-habitat relationships along the Upper Mississippi River in Minnesota and determine response of bottomland forest birds to habitat restoration to help inform future habitat restoration work and priorities in Minnesota.

## **Activities and Milestones**

### **Activity 1: Determine baseline understanding of bottomland forest bird-habitat relationships along the Upper Mississippi River in Minnesota**

**Activity Budget:** $75,000

**Activity Description:**We will conduct surveys within bottomland forest at the Reno Bottoms area of Pool 9 near Reno Minnesota within the Upper Mississippi River National Wildlife Refuge. Surveys will be co-located with USACE forest inventory plots previously conducted at this site. Surveys will consist of a point count with two forms of auxiliary data (distance and time of detection) enabling correction for imperfect detection (Knutson et al. 2016). Survey
locations will be spaced a minimum of 400 meters apart, and associated with forest inventory plots on and surrounding the survey point.

We will model bird-habitat relationships, using both forms of auxiliary data to estimate densities of focal species and detection-corrected counts with habitat variables drawn from forest inventory surveys. This analysis will be used to understand relationships of multiple vegetation variables. These models will be extrapolated to forest inventory sites across Pool 9 to predict species occurrence and abundance given site conditions and
management strategies.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Completion Date** |
| Completion of point count surveys | 2023-09-30 |
| Scenario modeling predicting bird response to future restoration efforts | 2024-01-31 |
| Evaluation of species-specific bird response to implemented restoration efforts | 2024-01-31 |
| Analysis of baseline bottomland forest species-specific bird-habitat relationships | 2024-01-31 |

### **Activity 2: Determine response of bottomland forest birds to habitat restoration**

**Activity Budget:** $200,000

**Activity Description:**We will follow a Before After analysis, implementing bird surveys following the Knutson et al. (2016) protocol at restoration and control sites both before and after restoration. Bird-habitat relationships will be modeled as described in Activity 1, with the addition of two predictors: year and management strategy. This design enables managers to evaluate species-specific response to restoration action, and can be used in scenario modeling to predict bird response to management.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Completion Date** |
| Completion of all survey bird points bird | 2023-07-31 |
| Scenario modeling predicting bird response to future restoration efforts | 2024-01-31 |
| Evaluation of species-specific bird response to implemented restoration efforts | 2024-01-31 |
| Analysis of habitat used data | 2024-01-31 |

## **Project Partners and Collaborators**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Organization** | **Role** | **Receiving Funds** |
| MN Department of Natural Resources | MN Department of Natural Resources | Collaborate on surveys within bottomland forest at the Reno Bottoms area of Pool 9 near Reno Minnesota within the Upper Mississippi River National Wildlife Refuge | No |
| US Fish & Wildlife Service | US Fish & Wildlife Service | Collaborate on surveys within bottomland forest at the Reno Bottoms area of Pool 9 near Reno Minnesota within the Upper Mississippi River National Wildlife Refuge | No |
| US Army Corps of Engineers | US Army Corps of Engineers | Collaborate on surveys within bottomland forest at the Reno Bottoms area of Pool 9 near Reno Minnesota within the Upper Mississippi River National Wildlife Refuge | No |

## **Long-Term Implementation and Funding**

**Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this be funded?**The aim of this project is to inform bird habitat conservation efforts across the Upper Mississippi River region and significantly increase the understanding of the impact that the different bottomland forest management strategies have on promoting wildlife habitat. The project team will be able to increase the impact that Outdoor Heritage and other funds have already had along these important forest habitats. Audubon and other partners are committed to improve the restoration and bird conservation efforts along the Mississippi River and tributaries, and this work will help to understand what conservation practices are more effective to promote wildlife habitat.

## **Other ENRTF Appropriations Awarded in the Last Six Years**

|  |  |  |
| --- | --- | --- |
| **Name** | **Appropriation** | **Amount Awarded** |
| Implementing Conservation Plans for Avian Species of Concern | M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 03k | $124,000 |
| Maximize Value of Water Impoundments to Wildlife | M.L. 2017, Chp. 96, Sec. 2, Subd. 06f | $195,000 |
| Local Planning and Implementation Efforts for Bird Habitat | M.L. 2017, Chp. 96, Sec. 2, Subd. 05e | $280,000 |
| Minnesota Breeding Bird Atlas - Final Phase | M.L. 2014, Chp. 226, Sec. 2, Subd. 05f | $300,000 |
| Controlling Reed Canary Grass to Regenerate Floodplain Forest | M.L. 2016, Chp. 186, Sec. 2, Subd. 08e | $218,000 |
| Creating a Statewide Wetland Bird Survey | M.L. 2015, Chp. 76, Sec. 2, Subd. 03f | $146,000 |

## **Project Manager and Organization Qualifications**

**Project Manager Name:** Andrew Beebe

**Job Title:** Forest Ecologist

**Provide description of the project manager’s qualifications to manage the proposed project.**Andrew joined Audubon Minnesota's team as Forest Ecologist five years ago. He is passionate about forestry health and managing forests for birds and wildlife. Andrew attended Michigan Technological University where he earned a BS in Forestry with an additional major in Wildlife Ecology and Management.

He lives and works in southeast Minnesota and he has worked extensively on projects with a special focus on bird habitat. His work has included major projects managing reed canary grass and other invasive plants that prevent natural regeneration of trees and threaten floodplain forests and wildlife along the Mississippi River. He has effectively managed a wide-range of contractors, volunteers, and partners involved in bird habitat projects covering thousands of acres of forest.

Andrew’s work is guided by the implementation of the Bottomland Forest Avian Stewardship Plan. He regularly collaborates with Minnesota Department of Natural Resources, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers and he is skilled at managing partnerships with these agencies. Andrew’s knowledge of birds and bird habitats of southeast Minnesota - and his ability to coordinate with a wide range of partners - have been invaluable to Audubon’s work.

**Organization:** Audubon Minnesota

**Organization Description:**Audubon Minnesota was established in 1979 and is the state office of the National Audubon Society, one of the oldest conservation organizations in the world. For the last 40 years, Audubon Minnesota has been at the forefront of critical conservation issues that will impact us for generations to come.

While we are one of 23 Audubon state offices, we establish our own statewide conservation projects, generate our own funding, and have an 11-member state Board of Directors who meet quarterly. Our state office mission is, “To conserve and restore natural ecosystems in Minnesota, focusing on birds and their habitats for the benefit of humanity and the earth’s biological diversity.” Today there are 24,000 Audubon members in Minnesota and 13 geographically-based chapters from the Mississippi Headwaters Audubon Chapter in Bemidji to Zumbro Valley Audubon Chapter in Rochester.

## **Budget Summary**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Category / Name** | **Subcategory or Type** | **Description** | **Purpose** | **Gen. Ineli gible** | **% Bene fits** | **# FTE** | **Class ified Staff?** | **$ Amount** |
| **Personnel** |  |  |  |  |  |  |  |  |
| Minnesota Director of Conservation |  | Project Director |  |  | 24% | 1.5 |  | $168,000 |
| Conservation Science Associate |  | Project Coordinator |  |  | 24% | 0.75 |  | $44,550 |
| Office Adminstrator |  | Project Support |  |  | 24% | 0.3 |  | $13,860 |
| Engagement Director |  | Project Outreach and Report Production |  |  | 24% | 0.15 |  | $11,630 |
| Quantative Ecologist |  | Data Processing |  |  | 24% | 0.15 |  | $15,840 |
|  |  |  |  |  |  |  | **Sub Total** | **$253,880** |
| **Contracts and Services** |  |  |  |  |  |  |  |  |
| Field Technician | Professional or Technical Service Contract | Field technician @ $20 per hour for 100 hours (3 years) |  |  |  | 0.3 |  | $6,000 |
| Field Technician | Professional or Technical Service Contract | Field Technician @ $20 per hour, 100 hours for 3 years |  |  |  | 0.3 |  | $6,000 |
|  |  |  |  |  |  |  | **Sub Total** | **$12,000** |
| **Equipment, Tools, and Supplies** |  |  |  |  |  |  |  |  |
|  | Equipment | Binoculars | To conduct bird surveys, for bird identification |  |  |  |  | $1,600 |
|  |  |  |  |  |  |  | **Sub Total** | **$1,600** |
| **Capital Expenditures** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Acquisitions and Stewardship** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Travel In Minnesota** |  |  |  |  |  |  |  |  |
|  | Miles/ Meals/ Lodging | Site-based travel around Caledonia @ 1,000 miles per years @56 cents per mile | Site-based travel around Caledonia |  |  |  |  | $5,000 |
|  | Miles/ Meals/ Lodging | Travel from St. Paul to Caledonia 4 round trips per year @ 322 miles @56 cents per mile | Staff travel to project site from St. Paul |  |  |  |  | $2,020 |
|  |  |  |  |  |  |  | **Sub Total** | **$7,020** |
| **Travel Outside Minnesota** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Printing and Publication** |  |  |  |  |  |  |  |  |
|  | Publication | Final Report | Summarize and communicate the details and findings of the work |  |  |  |  | $500 |
|  |  |  |  |  |  |  | **Sub Total** | **$500** |
| **Other Expenses** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
|  |  |  |  |  |  |  | **Grand Total** | **$275,000** |

### **Classified Staff or Generally Ineligible Expenses**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category/Name** | **Subcategory or Type** | **Description** | **Justification Ineligible Expense or Classified Staff Request** |

### **Non ENRTF Funds**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Specific Source** | **Use** | **Status** | **Amount** |
| **State** |  |  |  |  |
|  |  |  | **State Sub Total** | **-** |
| **Non-State** |  |  |  |  |
| In-Kind | Audubon indirect charges (24.66%) | (No description provided) | Potential | - |
| Cash | USFWS - $125,000USACE - $60,000 | Project restoration and collaboration | Potential | $185,000 |
|  |  |  | **Non State Sub Total** | **$185,000** |
|  |  |  | **Funds Total** | **$185,000** |

## **Attachments**

### **Required Attachments**

#### ***Visual Component***

File: [2f8e439d-b30.pdf](https://lccmrprojectmgmt.leg.mn/media/map/2f8e439d-b30.pdf)

#### ***Alternate Text for Visual Component***

Project handout

#### ***Financial Capacity***

File: [40787497-7b7.pdf](https://lccmrprojectmgmt.leg.mn/media/financial_capacity/40787497-7b7.pdf)

#### ***Board Resolution or Letter***

|  |  |
| --- | --- |
| **Title** | **File** |
| Audubon Minnesota Board Letter | [644c318b-1cf.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/644c318b-1cf.pdf) |

### **Optional Attachments**

#### ***Support Letter or Other***

|  |  |
| --- | --- |
| **Title** | **File** |
| Map of Project Area Focus - Reno Bottoms | [ee99ca71-3f1.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/ee99ca71-3f1.pdf) |

## **Administrative Use**

**Does your project include restoration or acquisition of land rights?**
 No

**Does your project have patent, royalties, or revenue potential?**
 No

**Does your project include research?**
 Yes

**Does the organization have a fiscal agent for this project?**
 No