

**Environment and Natural Resources Trust Fund  
2020 Request for Proposals (RFP)**

---

**Project Title:**

**ENRTF ID: 224-F**

Habitat Associations of Mississippi Bottomland Forest Marsh Birds

---

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

**Sub-Category:**

---

**Total Project Budget: \$** 295.336

**Proposed Project Time Period for the Funding Requested:** June 30, 2023 (3 yrs)

**Summary:**

This project will determine habitat associations of breeding bottomland forest birds in response to restoration actions along the Mississippi River at the Reno Bottoms outside Reno, MN.

**Name:** Luis Ramirez

**Sponsoring Organization:** National Audubon Society

**Job Title:** Director of Conservation

**Department:** Audubon Minnesota

**Address:** 1 W Water Street  
St. Paul MN 55107

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

**Email** lramirez@audubon.org

**Web Address:** http://mn.audubon.org/

---

**Location:**

**Region:** Southeast

**County Name:** Houston, Wabasha, Winona

**City / Township:** Caledonia, MN; Reno, MN

---

**Alternate Text for Visual:**

Reno Bottoms Upper Mississippi National Wildlife and Fish Refuge

<input type="checkbox"/>	Funding Priorities	<input type="checkbox"/>	Multiple Benefits	<input type="checkbox"/>	Outcomes	<input type="checkbox"/>	Knowledge Base	
<input type="checkbox"/>	Extent of Impact	<input type="checkbox"/>	Innovation	<input type="checkbox"/>	Scientific/Tech Basis	<input type="checkbox"/>	Urgency	
<input type="checkbox"/>	Capacity Readiness	<input type="checkbox"/>	Leverage	<input type="checkbox"/>		TOTAL	<input type="checkbox"/>	%



**PROJECT TITLE: Understanding bird-habitat associations on conservation lands across the Upper Mississippi River**

**I. PROJECT STATEMENT**

This project is designed to determine habitat associations of breeding bottomland forest birds in relation to forest condition and evaluate their response to habitat restoration actions. This understanding will allow manager and practitioners 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 now 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; and currently Audubon is leveraging Outdoors Heritage funds to implement more restoration. These efforts have been followed by the identification of the best restoration strategies to control invasive Reed Canary grass and establish early-successional forest. These management recommendations are improving our understanding of best practices for controlling promoting forest diversity. However, a better understanding of restoration impacts on wildlife communities is needed.

We propose to use techniques developed by Audubon and USACE at the Audubon Center in Riverlands, 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.

**II. PROJECT ACTIVITIES AND OUTCOMES**

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

**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



**Environment and Natural Resources Trust Fund (ENRTF)  
2020 Main Proposal Template**

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.

**ENRTF BUDGET: \$**

<b>Outcome</b>	<b>Completion Date</b>
<i>1. Completion of point count surveys</i>	<i>September 2022</i>
<i>2. Analysis of baseline bottomland forest species-specific bird-habitat relationships</i>	<i>January 2023</i>
<i>3. Evaluation of species-specific bird response to implemented restoration efforts</i>	<i>January 2023</i>
<i>4. Scenario modeling predicting bird response to future restoration efforts</i>	<i>January 2023</i>

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

**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.

**ENRTF BUDGET: \$295,336**

<b>Outcome</b>	<b>Completion Date</b>
<i>1. Completion of all survey bird points bird.</i>	<i>July 2022</i>
<i>2. Analysis of habitat used data.</i>	<i>January 2023</i>
<i>3. Evaluation of species-specific bird response to implemented restoration efforts</i>	<i>January 2023</i>
<i>4. Scenario modeling predicting bird response to future restoration efforts</i>	<i>January 2023</i>

**III. PROJECT PARTNERS AND COLLABORATORS:**

United States Army Corps of Engineers  
United States Fish and Wildlife Service  
Minnesota Department of Natural Resources

**IV. LONG-TERM IMPLEMENTATION AND FUNDING:**

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. The outcomes of this project will help to guide the investment of funds on the restoration and management of bottomland forest along the upper Mississippi River.

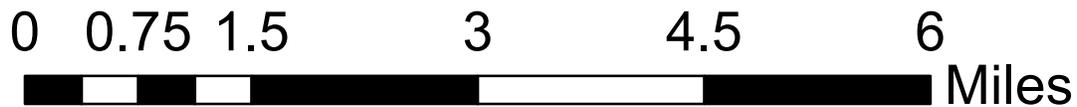
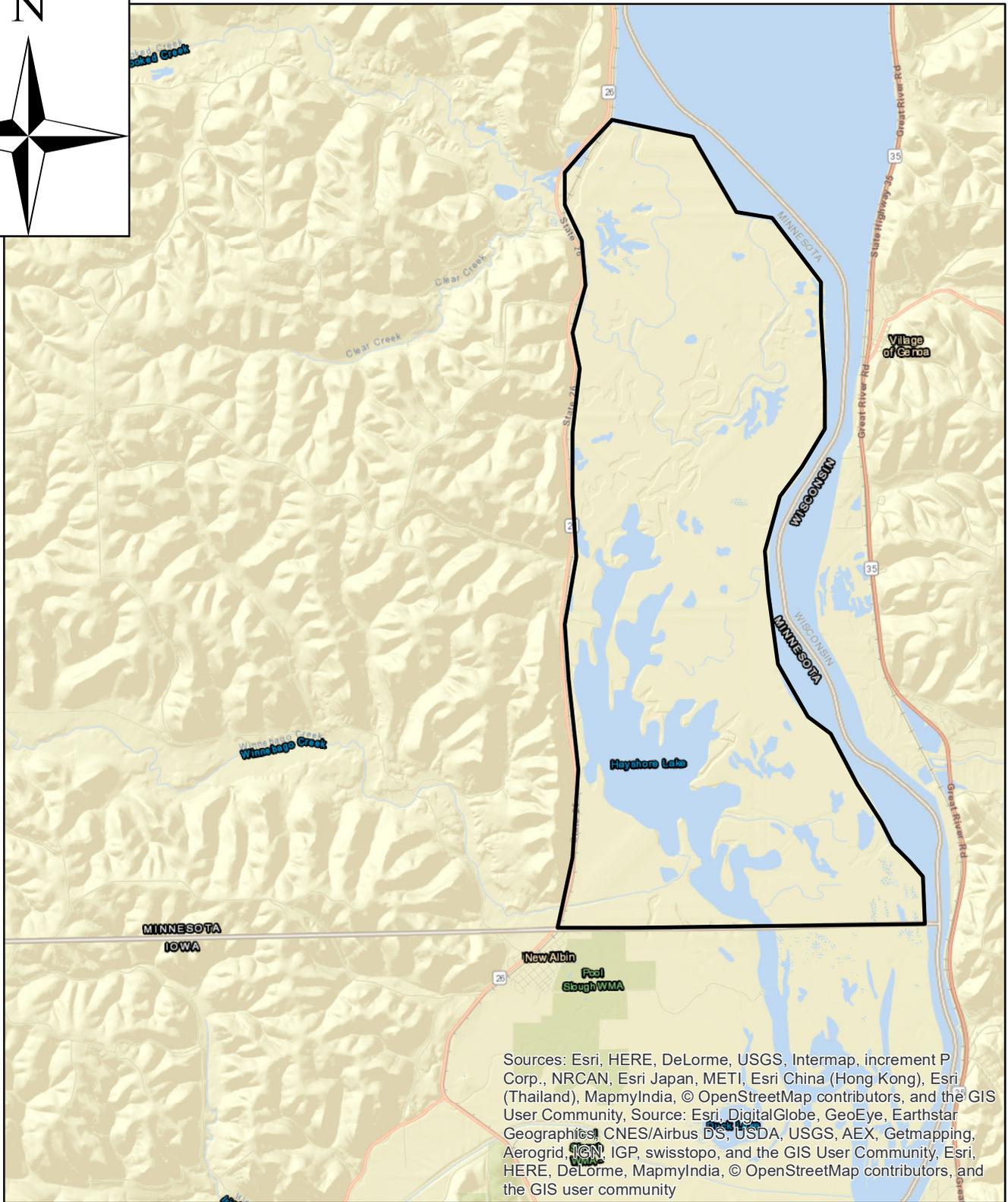
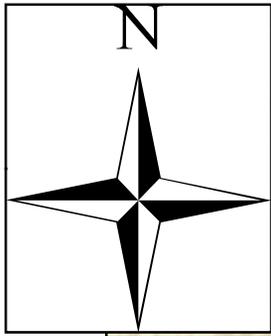
**Attachment A: Project Budget Spreadsheet**  
**Environment and Natural Resources Trust Fund**  
**M.L. 2020 Budget Spreadsheet**



**Legal Citation:**  
**Project Manager:** Luis Ramirez  
**Project Title:** Habitat associations of breeding bottomland forest birds along the Mississippi River  
**Organization:** Audubon Minnesota  
**Project Budget:** \$295,336  
**Project Length and Completion Date:** Three-years, June 2023  
**Today's Date:** 3/14/2019

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET		Budget	Amount Spent	Balance
<b>BUDGET ITEM</b>				
<b>Personnel (Wages and Benefits)</b>		\$ 274,180	\$ -	\$ 274,180
Minnesota Director of Conservation, 1 person, 50% FTE, 3 years, 76% salary, 24% fringe (\$168,300)				
Conservation Science Associate, 1 person, 25% FTE, 3 years, 76% salary, 24% fringe (\$44,550)				
Office Administrator, 1 person, 10% FTE, 3 years, 76% salary, 24% fringe (\$13,860)				
Engagement Director, 1 person, 10% FTE, 3 years, 76% salary, 24% fringe (\$31,680)				
Quantitative Ecologist, 1 person, 5% FTE, 3 years, 76% salary, 24% fringe (\$15,840)				
<b>Professional/Technical/Service Contracts</b>				
2 Field Technicians @ 20 per hour, 100 hours per year @ 3 years		\$ 12,000	\$ -	\$ 12,000
<b>Equipment/Tools/Supplies</b>				
Binoculars (8 @ \$200)		\$ 1,600	\$ -	\$ 1,600
				\$ -
				\$ -
<b>Capital Expenditures Over \$5,000</b>				
		\$ -	\$ -	\$ -
<b>Fee Title Acquisition</b>				
		\$ -	\$ -	\$ -
<b>Easement Acquisition</b>				
		\$ -	\$ -	\$ -
<b>Professional Services for Acquisition</b>				
		\$ -	\$ -	\$ -
<b>Printing</b>				
Reports		\$ 500	\$ -	\$ 500
<b>Travel expenses in Minnesota</b>				
Site-based travel around Caledonia @ 1,000 miles per years @56 cents per mile		\$ 5,040	\$ -	\$ 5,040
Travel from St. Paul to Caledonia 4 round trips per year @ 322 miles @56 cents per mile		\$ 2,016		\$ 2,016
<b>Other</b>				
		\$ -	\$ -	\$ -
<b>COLUMN TOTAL</b>		\$ 295,336	\$ -	\$ 295,336
<b>SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT</b>				
	<b>Status (secured or pending)</b>	<b>Budget</b>	<b>Spent</b>	<b>Balance</b>
<b>Non-State:</b>				
McKnight Foundation	Pending	\$ 200,000	\$ -	\$ -
USFWS	Pending	\$ 125,000		
US Army Corps of Engineers	Pending	\$ 60,000		
<b>State:</b>				
<b>In kind:</b>				
Audubon indirect charges (24.66%)		\$ -	\$ -	\$ -
<b>Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS</b>				
	<b>Amount legally obligated but not yet spent</b>	<b>Budget</b>	<b>Spent</b>	<b>Balance</b>
Maximize Value of Water Impoundments to Wildlife. Legal Citation: M.L. 2017, Chp. 96, Sec. 2, Subd. 06f	\$86,696	\$195,000	\$108,304	\$86,696

# Reno Bottoms Unit Showing State Boundaries



## **Project Manager**

Luis Ramirez is the Director of Conservation for Audubon Minnesota and Upper Mississippi River. Luis has a PhD in applied ecology and has spent several years working with ranchers, farmers, government and NGOs on conservation of cranes, waterfowl, grassland birds. Before joining the National Audubon Society, Luis worked as a Rocky Mountains/Great Plains program director for the Denver Zoo where he built and implemented collaborations with U.S. Fish and Wildlife Service and the Rio Mora National Wildlife Refuge.

---

## **Organization Description**

Audubon protects birds and the places they need, today and tomorrow. For more than a century, Audubon has built a legacy of conservation success by mobilizing the strength of its network to connect people with nature and empower them to protect it. A potent combination of science, education, and policy expertise merges in efforts ranging from protection and restoration of local habitats to the implementation of policies that safeguard birds, other wildlife, and the resources that sustain us all.

Our work, guided by our 2016-2020 strategic plan, is organized by 5 key conservation priorities:

- **Coasts** – Protect the most important breeding, stopover, and wintering sites for birds. Protect San Francisco Bay, Delaware River Basin, Arctic and Gulf of Mexico. Implement and influence adaptation strategies for 300,000 acres of coastal wetlands and marshes.
- **Working Lands** – Collaborate with landowners, land managers, government agencies, and private industry to increase the quality of habitat on privately managed lands. Protect Greater Sage-Grouse conservation plans, California’s Central Valley and Eastern Forests, and make one billion acres of working lands do double duty as bird habitat.
- **Water** – Engage the public on issues surrounding water rights and water quality; restore habitats along rivers, wetlands, and deltas. Restore Salton Sea, Colorado River Basin, Great Lakes and the Everglades, and activate 40,000 advocates on water conservation measures.
- **Climate** – Protect the places that birds need by encouraging efforts at the local, state and federal levels that mitigate impacts of a changing climate on bird habitat and migratory patterns. Engage 100,000 Americans to plant 1 million native plants to benefit climate-threatened birds.
- **Bird-Friendly Communities** – Utilize our network across thousands of communities to make them healthy and safe for birds including planting 10 million native plants for birds.

Audubon’s national, state, and local work is coordinated and mutually reinforcing. Field offices serve as local organizing points for conservation objectives, policy goals, and activation of our 1 million members and 463 chapters, allowing Audubon to be local everywhere.