Environment and Natural Resources Trust Fund

M.L. 2020 Approved Work Plan

General Information

ID Number: 2020-029

Staff Lead: Corrie Layfield

Date this document submitted to LCCMR: August 19, 2021

Project Title: Habitat Associations of Mississippi Bottomland Forest Marsh Birds

Project Budget: $275,000

Project Manager Information

Name: Rob Schultz

Organization: Audubon Minnesota

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Project Reporting

Date Work Plan Approved by LCCMR: August 20, 2021

Reporting Schedule: April 1 / October 1 of each year.

Project Completion: July 31, 2024

Final Report Due Date: September 14, 2024

Legal Information

Legal Citation: M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 08g

Appropriation Language: $275,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with the National Audubon Society, Minnesota office, to evaluate habitat associations of bottomland forest birds in response to restoration actions to better target restoration efforts for wildlife. This appropriation is available until June 30, 2025, by which time the project must be completed and final products delivered.

Appropriation End Date: June 30, 2025

Narrative

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

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.

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

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	September 30, 2023
Analysis of baseline bottomland forest species-specific bird-habitat relationships	January 31, 2024
Evaluation of species-specific bird response to implemented restoration efforts	January 31, 2024
Scenario modeling predicting bird response to future restoration efforts	January 31, 2024

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	July 31, 2023
Analysis of habitat used data	January 31, 2024
Evaluation of species-specific bird response to implemented restoration efforts	January 31, 2024
Scenario modeling predicting bird response to future restoration efforts	January 31, 2024

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
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
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
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

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.
Audubon Minnesota will work with the National Audubon Society science division to analyze the results of the surveys and prepare a final report of findings that will be disseminated to internal and external partners to inform future habitat restoration work and priorities in Minnesota. We anticipate that the findings will be presented by Audubon staff at future regional meetings and conferences of conservation professionals and agencies that work on the Mississippi River.

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

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified 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				
Cash	USFWS - $125,000 USACE - $60,000	Project restoration and collaboration	Potential	$185,000
In-Kind	Audubon indirect charges (24.66%)	(No description provided)	Potential	-
			Non State Sub Total	**$185,000**
			Funds Total	**$185,000**

Attachments

Required Attachments

Visual Component

File: 2f8e439d-b30.pdf

Alternate Text for Visual Component

Project handout...

Financial Capacity

File: 40787497-7b7.pdf

Board Resolution or Letter

Title	File
Audubon Minnesota Board Letter	644c318b-1cf.pdf
Background Check Certification	13d28319-c6f.pdf

Optional Attachments

Support Letter or Other

Title	File
Map of Project Area Focus - Reno Bottoms	ee99ca71-3f1.pdf
ENRTF background check	24211d52-295.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

We have reviewed all components for accuracy and have added dissemination details for this project.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I agree to the Commissioner's Plan.

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

No

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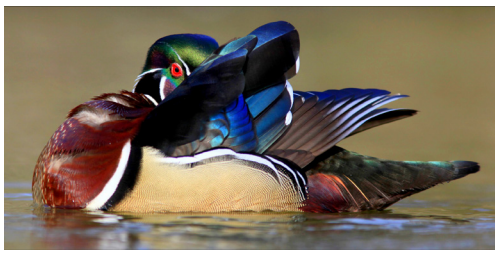
David Mitrou, Great Backyard Bird Count

Rebecca Field

Red-shouldered Hawks (top photo) and Cerulean Warblers (above) are classified as Species of Greatest Conservation Need by the MN DNR. Red-shouldered Hawks have seen a steep decline and Cerulean Warblers are quickly disappearing, with their population crashing by 70 percent.



Wood Ducks feed and nest within floodplain forests.

Ensuring High Return on Investment for Mississippi River Forest Restoration

Project Title: Understanding bird-habitat associations on conservation lands across the Upper Mississippi River
Project ID: 224-F

The science around floodplain forest restoration is relatively new, and is challenging because forests are often inaccessible. Audubon Minnesota is working cooperatively with partners including the University of Minnesota and the Minnesota Department of Natural Resources to develop methods to restore these habitats by controlling reed canary grass and increasing the diversity of tree species within floodplain forests.

Measuring restoration impacts to birds like Cerulean Warblers positions our work to save declining species by adapting our approach. A wide range of conservation professionals across Minnesota will use results from these surveys to implement well-tested approaches to managing invasive plants and choosing resilient tree types for restoration projects. We will become more effective and efficient in fine-tuning our floodplain forest restoration techniques.

Ensuring High Returns on Investment for Forest Restoration

Urgency and Knowledge Base – Many floodplain-forest dependent birds have seen sharp population declines in recent decades as a result of habitat loss. Audubon Minnesota is known for collaboration, science-based planning, and bird conservation.

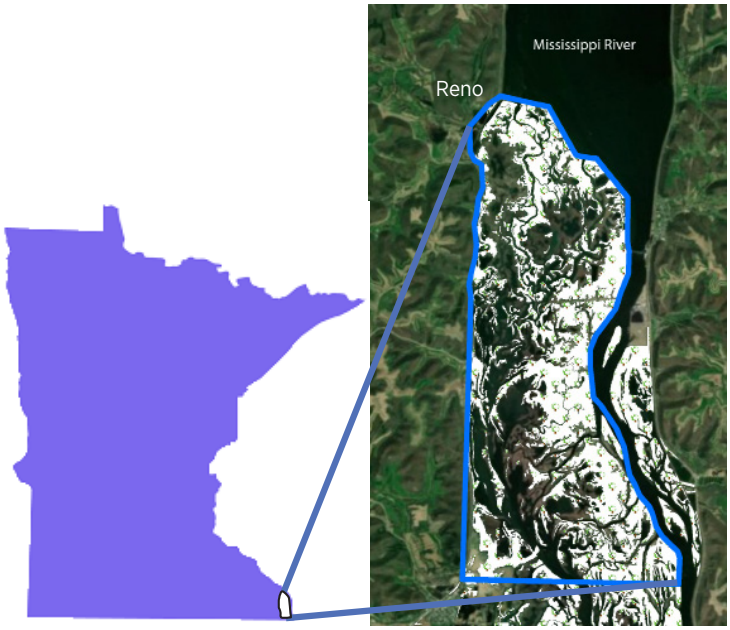
Scientific Basis – We need to monitor to understand how to best support bird population growth. Habitat restoration dollars are used to restore wetlands effectively and efficiently, which will also improve flood control, sediment and pollutant filtration, recreation opportunities, and much more.

Capacity and Readiness – Audubon Minnesota will launch an Upper Mississippi River citizen science effort as part of this project. Audubon is also partnering with U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. Geological Survey, the MN DNR, University of Minnesota and others to implement landscape-level conservations plans for the Mississippi River.

Leverage – Federal agencies, The Outdoor Heritage Fund, and The McKnight Foundation are just a few of the funders that are supporting the overall effort on floodplain forest conservation. This project will help to keep Audubon Minnesota situated in a competitive position to pursue diverse funding.

Extent of Impact - Reno Bottoms is a forest within the floodplain of the Mississippi River in southeast Minnesota. **The map below shows the land area that will be directly impacted by restoration efforts.** However, restoration assessment techniques will be used across the whole Upper Mississippi basin to improve the impact of restorations and forest management.

Already, Audubon Minnesota has worked with partners to restore more than 1500 acres of floodplain forest and advance the science of conservation planning in the Upper Mississippi River valley.



Map Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community