Environment and Natural Resources Trust Fund

M.L. 2023 Approved Work Plan

General Information

ID Number: 2023-072

Staff Lead: Michael Varien

Date this document submitted to LCCMR: June 1, 2023

Project Title: Mapping Migratory Pitstops in Minnesota

Project Budget: $340,000

Project Manager Information

Name: Dale Gentry

Organization: Audubon Minnesota

Office Telephone: (651) 888-2994

Email: dale.gentry@audubon.org

Web Address: https://mn.audubon.org/

Project Reporting

Date Work Plan Approved by LCCMR: June 22, 2023

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

Project Completion: July 31, 2026

Final Report Due Date: September 14, 2026

Legal Information

Legal Citation: M.L. 2023, Chp. 60, Art. 2, Sec. 2, Subd. 03c

Appropriation Language: $340,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with the National Audubon Society, Minnesota office, to identify avian migratory stopover sites, develop a shared decision-support tool, and publish guidance for conserving migratory birds in Minnesota. This appropriation is available until June 30, 2027, by which time the project must be completed and final products delivered.

Appropriation End Date: June 30, 2027

Narrative

Project Summary: Identifying Avian Migratory Stopover Sites to provide foundational information necessary for the conservation of migratory birds.

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

A landmark 2019 study showed North American bird populations have declined by nearly one-third; a loss of three billion birds since 1970. A review of the declining species reveals one unifying trait, migration. Migratory birds face unique challenges each spring and fall as they complete a series of long flights separated by periods of resting and refueling at migratory stopover sites. Reversing the declines of migratory birds requires conserving these migratory stopover sites in addition to suitable habitat for breeding and overwintering. However, in part because an analysis of the use of different habitat patches by migrant birds has never been done, most avian conservation work in Minnesota focuses on breeding habitats. At the northern terminus of the Mississippi River migratory corridor and containing the boreal forest breeding grounds of so many long-distance migrants, Minnesota is an important region for migratory birds. Regional landbird conservation plans from Partners in Flight, the U.S. Fish and Wildlife Service, and Audubon all highlight the importance of mapping stopover sites as a critical missing component for full life cycle conservation. This project begins to fill that gap and provide data necessary to support the conservation of the migratory birds Minnesotans cherish.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

Using three cutting-edge technologies – Doppler weather radar (capable of detecting birds in flight), observation data from eBird (a widely used community science bird observation program), and nano-tagging (i.e. very small radio transmitters) four focal species of conservation concern, we will collect data to map and classify the use of migratory stopover sites and prioritize high use sites for conservation in Minnesota. There is a clear need to both understand migration patterns and to communicate those understandings to our partners and the public. We will achieve both by developing a web-based interactive decision support tool and an adaptive management plan to share with partners and the public to guide the conservation of stopover sites and migratory birds in Minnesota.

Funding from the ENRTF will support the collection and analysis of the data on migration patterns, the development of a sharable web-based decision support tool, and the written adaptive management action plan. We will reapply for funds from the U.S. Fish and Wildlife Service to support the Doppler radar analysis with Dr. Jeffry Buler of the University of Delaware, an internationally recognized expert on the analysis of Doppler radar for the study of migratory birds.

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?

Audubon Minnesota will produce a publicly available interactive web-mapping tool to give land managers access to our spatial prioritization analysis and guide the conservation prioritize of state, federal and private conservation groups.

We will also write a publicly available Blueprint for Conservation of Minnesota's Migratory Birds to guide the conservation work of Audubon, federal and state agencies, and other partners working to conserve birds in Minnesota. These resources will allow Minnesota to expand our conservation work beyond critical breeding habitats to include critical migratory stopover sites as well.

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

In the Future

Activities and Milestones

Activity 1: Develop baseline understanding of avian use of stopover sites in Minnesota.

Activity Budget: $60,000

Activity Description:
We will collect and analyze data from three sources (nano-tagged birds, radar, and ebird) that will all be used to identify stopover sites to inform the decision support tool and adaptive management plan.

We will work with partners to accomplish milestones one and two, nano-tagging our selected focal species, by the end of the fall of 2024. The data produced by the nano-tagged birds will allow us to map the regional migration paths of our focal species (milestone 3).

Milestone four is dependent on securing funds for our collaboration to collect radar data to develop maps of bird density and mean population change in spring and fall. If we aren't not able to fund that part of the project, we will proceed without the radar data using an alternative statistical method (see research addendum).

The final map (milestone 5) will integrate ebird data will the partner, radar, and tagging data to develop statewide maps of ranked stopover sites.

Activity Milestones:

Description	Approximate Completion Date
Identify nano-tagging strategies, locations, and partners.	October 31, 2023
Complete nano-tagging of focal species	November 30, 2024
Develop maps of the regional migration patterns of the four nano-tagged focal species	November 30, 2025
Develop maps of predicted bird density and mean population change in spring and fall	January 31, 2026
Integrate data from different sources to rank stopover sites	January 31, 2026

Activity 2: Development of the web-based migration mapping resource and decision support tool.

Activity Budget: $140,000

Activity Description:
The Conservation Manager will work with the Audubon Spatial Data Analyst to integrate our new data with existing relevant data from within Audubon and other stakeholders to inform a scoring system that will rank stopover sites based on importance for birds and conservation opportunities.

The Conservation Manager will also support the GIS Analyst, who will lead the development of an interactive web map tool which will be used to communicate the results of the data compilation to land managers. The Conservation Manager will seek feedback from land managers and stakeholders throughout this process to identify stopover habitat conservation projects which will be integrated into the final products.

Once the web resources are complete, Audubon Minnesota's Conservation Manager and Engagement Manager will convene meetings to share the conservation decision support tool with state and regional conservation stakeholders and with the public.

Activity Milestones:

Description	Approximate Completion Date
Convene meetings with state conservation partners to identify priorities for the decision support tool	December 31, 2024
Create GIS layers of stopover site prioritization and bird composition outputs	January 31, 2026
Complete production of the web resources and decision support tool	January 31, 2026

Activity 3: Developing and publish a blueprint for conservation of migratory birds in Minnesota

Activity Budget: $140,000

Activity Description:
The Conservation Manager will oversee a literature search and data gathering and analysis process to support the development of a Blueprint for the Conservation of Migratory Birds in Minnesota. They will work with Audubon's Engagement Manager to develop a stopover habitat survey for land managers and then work with an advisory team to identify land managers and stakeholders who will be recipients of the survey. The survey will be used to identify threats and conservation opportunities at a wide variety of stopover sites throughout Minnesota.

The results of this survey and the developing spatial prioritization will be used to guide discussions with regional stakeholders about the design and content of the Blueprint. The outcomes of these meetings will guide the development of the blueprint which will identify priority regions and species where conservation action is most critical, and suggest conservation goals and activities that will help us achieve our conservation goals. The Conservation Manager will seek feedback from land managers and other stakeholders throughout this process to ensure the final products meet their needs.

Activity Milestones:

Description	Approximate Completion Date
Create annotated bibliography from study of migration literature.	March 31, 2024
Design and share stopover habitat survey	August 31, 2024
Convene meetings with state conservation partners to identify priorities for finished product	March 31, 2025
Publish the Blueprint for Conservation of Minnesota's Migratory Birds	January 31, 2026

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Jeff Buler - potential	University of Delaware	Dr. Buler and his students will analyze doppler weather radar data to develop maps of bird migration patterns. Those maps will be integrated with the maps we will develop from banding and ebird data. Funding for this partnership is not yet confirmed.	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.
We will involve our partners at state and federal agencies and other conservation NGOs at multiple stages in the development of these resources. In the early stages we will hold planning meetings with our stakeholders to discuss how to make these outputs as useful as possible and to identify the data sources and data analysis tools that will be used during the process. During the development stage we will continue to meet with partners to refine the analysis and inputs. Shortly before completion of the project, we will develop a plan to communicate our findings to the public and to our partners. This will include making the resources available on our website, sending links and electronic copies to our partners, and dissemination to Audubon's 10,000+ members in the state through our email network. Finally, we will hold meetings with key partners to discuss how to use our products to modify our bird conservation strategies to improve our conservation outcomes. Partners that will play an active role in the development of these resources includes, but is not limited to, the Minnesota DNR, U.S. Fish and Wildlife Service, the Upper Mississippi/Great Lakes Joint Venture, NRCS, experts in our public and private universities, and other partner NGOs involved in bird conservation and land management in Minnesota including the Nature Conservancy, American Bird Conservancy, and Hawk Ridge Bird Observatory.

The Environment and Natural Resources Trust Fund will be acknowledged through use of the trust fund logo or attribution language on all print and electronic media, publications, signage, and other communications and outreach related to the project.

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 work be funded?
This project will inform migratory bird habitat conservation efforts across Minnesota. It will produce a finished product that will not require future funding to complete. The conservation plan and the decision support tool will be available to our partners and the public on Audubon's website. We will host information-sharing meetings with our partners in the region to discuss new conservation opportunities that will arise from our work. This project will increase the impact that Outdoor Heritage, and other funds, have already had in restoring and enhancing Minnesota's most critical habitats.

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
Local Planning and Implementation Efforts for Bird Habitat	M.L. 2017, Chp. 96, Sec. 2, Subd. 05e	$280,000

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								
Conservation Manager		Project manager			30%	1.2		$108,000
Spatial data analyst		Integrate and interpret auxiliary forms of data			30%	0.45		$40,000
GIS analyst		Develop decision support tool			30%	0.75		$75,000
MN Outreach Coordinator		Coordinate partner meetings and communicate findings with public			30%	0.3		$26,000
Conservation Science Associate		Support data integration and collection			30%	0.3		$36,000
							Sub Total	**$285,000**
Contracts and Services								
TBD	Professional or Technical Service Contract	Catching an nanotagging birds				0.6		$35,000
							Sub Total	**$35,000**
Equipment, Tools, and Supplies								
	Equipment	Nano-tags - 60 tags at $240/tag plus an activator for $158	The nano-tags will track the location of migratory birds with the Motus tower network					$15,000
							Sub Total	**$15,000**
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								

							Sub Total	**-**
Travel In Minnesota								
	Miles/ Meals/ Lodging	8 trips, 125 miles each (on average), 8 days of meals	trips to meetings with partners to discuss design of decision support tool					$2,500
	Conference Registration Miles/ Meals/ Lodging	3 conference registration ($500/each), 800 miles driving (.56/mile), 12 days of meals ($56/day)	Share our research findings with to increase the effectiveness of conservation					$2,500
							Sub Total	**$5,000**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$340,000**

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 (14.66% on modified base)	Secured	$6,175
In-Kind	Audubon	GIS analyst	Secured	$30,937
In-Kind	Upper Mississippi/Great Lakes Joint Venture	Radar analysis	Potential	$100,000
			Non State Sub Total	**$137,112**
			Funds Total	**$137,112**

Attachments

Required Attachments

Visual Component

File: 7814a3ea-2a3.docx

Alternate Text for Visual Component

The visuals highlight the need to map migratory pitstops and show the locations of the NEXRAD radar sites....

Financial Capacity

File: 2bcdcca7-ed3.pdf

Board Resolution or Letter

Title	File
Audubon MN Board Letter of Support	74a0bc23-643.docx

Optional Attachments

Support Letter, Photos, Media, Other

Title	File
Background Check	ade6a284-e3d.pdf
Audubon mig science approved research addendum	6f30d353-86e.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

I uploaded the approved research addendum, moved the background check form, and made slight changes to the activities and milestones to acknowledge our options in case we don't ultimately fund the radar study. We also corrected the title.

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