

Final Abstract

Final Report Approved on September 22, 2026

M.L. 2023 Project Abstract

For the Period Ending June 30, 2026

Project Title: Assessing Status of Common Tern Populations in Minnesota

Project Manager: Annie Bracey

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Website: <https://www.nrri.umn.edu/>

Funding Source:

Fiscal Year:

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

Appropriation Amount: \$199,000

Amount Spent: \$186,457

Amount Remaining: \$12,543

Sound bite of Project Outcomes and Results

We developed a centralized database designed to streamline the management, curation, and synthesis of historical and contemporary data on Common Tern colonies in Minnesota, including standardized data collection protocols, printable datasheets, and checklists for field work. This shared space for researchers and managers will facilitate conservation efforts for Common Terns.

Summary of Project and Outcomes

In Minnesota, the Common Tern is listed as a threatened species and designated as a Species of Greatest Conservation Need. State conservation targets aim to maintain a breeding population of more than 1,000 pairs. Monitoring and management efforts now focus on three primary nesting sites: Interstate Island in western Lake Superior, Pelican Island in Leech Lake, and several islands and spits in Lake of the Woods. These colonies are managed by the Department of Natural Resources and the Leech Lake Band of Ojibwe. However, the consistency of monitoring and habitat management at these sites has varied over time depending on available funding and agency capacity. Key threats during the breeding season include competition for open, sandy nesting space from larger waterbirds, nest loss from high water levels and severe storms, and predation by avian and mammalian predators. Active habitat management is also

essential to prevent vegetation from overgrowing the bare sand and gravel areas terns prefer for nesting.

Our study results estimated the breeding population to be 654 pairs in 2024 and 610 pairs in 2025. Even when treating these figures as conservative minimums, due to potentially uncounted nests, the population remains well below recovery thresholds. Meeting long-term recovery goals requires a reliable monitoring program and accessible data-sharing tools to guide site management and prioritize restoration work. To facilitate this need, we established a standardized monitoring protocol with a flexible, tiered approach that can adapt to changing annual resources, alongside a centralized online database to give managers quick access to site-specific and statewide population and management data. See attached, a final report (Assessing Status of Common Tern Populations in Minnesota Final Technical Report), a document describing suggestions for future monitoring (Common Tern Standard Operating Procedures), and a link to the online database (Common Tern Database).

Project Results Use and Dissemination

Through other funding sources, we will host a partner meeting to demonstrate the database, highlighting what we were able to accomplish with partner support. We will also address next steps for ensuring colony stability at active sites. Additionally, we will present this resource to the Inland Common Tern Working Group at the upcoming Waterbird Society meeting and look for future funding opportunities to refine and expand this resource. We will continue to actively engage managers and provide guidance on use of the database and look for opportunities to share this information more broadly with the public.



Environment and Natural Resources Trust Fund

M.L. 2023 Approved Final Report

General Information

Date: October 9, 2026

ID Number: 2023-139

Staff Lead: Lisa Bigaouette

Project Title: Assessing Status of Common Tern Populations in Minnesota

Project Budget: \$199,000

Project Manager Information

Name: Annie Bracey

Organization: U of MN - Duluth - NRRI

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Project Reporting

Final Report Approved: September 22, 2026

Reporting Status: Project Completed & Additional Update Approved

Date of Last Action: September 22, 2026

Project Completion: June 30, 2026

Legal Information

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

Appropriation Language: \$199,000 the first year is from the trust fund to the Board of Regents of the University of Minnesota for the Natural Resources Research Institute in Duluth to assess the population status of Common Tern breeding colonies in Minnesota, implement management activities, and develop a standardized monitoring protocol and online database for accessing current and historic monitoring data to help prioritize conservation and restoration actions for this state-threatened species.

Appropriation End Date: June 30, 2026

Narrative

Project Summary: Common Tern populations across inland North America are significantly declining. Information on the status of breeding colonies in Minnesota is necessary to prioritize conservation and restoration actions.

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

Common Tern (*Sterna hirundo*) populations have declined significantly across inland North America since the 1970s. In Minnesota, the Common Tern is listed as a Species of Greatest Conservation Need (SGCN) and is state threatened. Habitat loss and degradation associated with water-level fluctuations, vegetation encroachment, and Ring-billed Gull (*Larus delawarensis*) competition are on-going issues. As a result, Common Terns are not currently nesting in Lake Mille Lacs, where they have nested since at least the late 1800s. Currently only three long-term breeding sites remain in the state which are located on Lake of the Woods, Leech Lake, and in the Duluth-Superior Harbor. Despite the importance of these breeding sites for sustaining a viable population of Common Terns in Minnesota, all except Lake of the Woods, continue to experience significant declines in the number of nesting pairs. Information on breeding success for these colonies is limited and the current population status is unknown. Therefore, a comprehensive assessment is critical to determine colony-specific threats, identify opportunities for increasing breeding season productivity, and to determine the current population status of this species in the state.

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.

Minnesota's Common Tern breeding colonies are currently managed by the Minnesota Department of Natural Resources and Leech Lake Band of Ojibwe. However, the extent to which these colonies have been monitored and actively managed to mitigate habitat degradation has varied over time and largely been dependent on available funding and agency support. To achieve conservation goals for Common Tern, a robust monitoring program and access to data sharing resources is essential to inform best management practices and to prioritize conservation and restoration actions for this species in Minnesota. Our objectives are to: 1) conduct monitoring and management activities at the remaining three colonies to determine the current population status and assess whether or not population goals are being met, based on the state's recovery plan of maintaining $\geq 1,000$ pairs, 2) develop standardized monitoring protocols for managing Common Terns that will provide a tiered approach to data collection that can be adapted based on annual resource availability, and 3) develop an online database where historical (> 35 yrs) and current monitoring data will be archived and maintained.

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 work directly with wildlife managers at the main colony locations in Minnesota to facilitate monitoring and identify projects that will enhance site quality for nesting terns. This information will allow us to assess whether recovery goals are being met for this species and identify which factors may be limiting breeding success. We will develop standardized monitoring protocols and an online data management system to facilitate long-term monitoring and management goals. Results from this project will be shared with state and tribal agencies as well as federal government agencies working to conserve Common Terns.

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?

During the Project and In the Future

Activities and Milestones

Activity 1: Monitoring and Management Activities

Activity Budget: \$90,000

Activity Description:

We will work directly with project partners; Leech Lake Band of Ojibwe and Minnesota Department of Natural Resources, to identify priorities for long-term management and monitoring based on critical needs for sustaining individual colonies at Lake of the Woods, Leech Lake, and the Duluth-Superior Harbor. To do this, we will collect updated information on the number of nesting pairs, document nesting success, and describe site conditions at each colony. We will assess predation risk, nest site competition, and habitat characteristics at each colony and document annual breeding activity and overall colony productivity. We will use remote cameras to document predation events, document the number of co-nesting species, and document habitat features within the tern nesting area and surrounding area. We will also identify areas for vegetation removal and build nesting enclosures where feasible to prevent egg and chick predation. This information will improve knowledge of the status, distribution, and conservation needs of Common Terns in Minnesota. We will also work directly with Mille Lacs Band of Ojibwe who have historically managed and collected data at one of the most long-term active colonies in the state which has recently become inactive. They will provide input on historical information from Mille Lacs.

Activity Milestones:

Description	Approximate Completion Date
Summarize past and current monitoring efforts at breeding colonies	March 31, 2024
Conduct comprehensive bird and site monitoring and management	August 31, 2025
Identify factors limiting colony stability and prioritize management actions	June 30, 2026
Final report summarizing population status, monitoring data, limiting factors influencing colony stability, and future priorities	June 30, 2026

Activity 2: Develop a Standardized Monitoring Protocol

Activity Budget: \$39,000

Activity Description:

We will develop a standardized monitoring protocol to provide technical guidance to resource managers monitoring Common Terns. We will assess available data for active colonies and determine the type and frequency of data needed to assess population status and trends. This information will allow us to develop and implement a strategy for conducting surveys that will provide a tiered approach to data collection that can be adapted based on annual resource availability. The protocol will allow for varying levels of monitoring intensity while maintaining a baseline structure necessary for cross-colony comparisons. The resulting protocol can be made available to any agency interested in collecting data on Common Terns in the state or region which will aid in collaboration, data sharing, and data comparability. Developing a formalized protocol is essential for documenting monitoring and management activities in a manner that is reproducible and that provides different options based on agency objectives.

Activity Milestones:

Description	Approximate Completion Date
Develop data collection standard operating procedures for bird and site monitoring	September 30, 2024
Establish a comprehensive monitoring protocol	May 31, 2025
Determine key metrics needed for long-term monitoring of terns	December 31, 2025

Activity 3: Develop an online database and data sharing resource

Activity Budget: \$70,000

Activity Description:

We will develop a data sharing resource and web-based tools to facilitate management and conservation plans for Common Terns in Minnesota. Developing a shared database will provide access for a greater number and diversity of people directly engaged in conservation of this species and will enhance the capacity of the Minnesota Department of Natural Resources to provide information needed for effective wildlife conservation. Using a web-based resource for data storage will allow for instantaneous access to monitoring data and built-in features capable of producing basic summaries of annual monitoring efforts. The structure and function of the database will be designed for managers and developed with input from project partners and expert wildlife ecologists to ensure both a user-friendly format and data structure that can be directly incorporated into modeling efforts to meet management needs. Once the structure exists, we can seek additional resources to include data from other colonies in the state and throughout the region.

Activity Milestones:

Description	Approximate Completion Date
Compile historical monitoring data available from each breeding colony	December 31, 2025
Design a database structure that supports historical data	April 30, 2026
Develop web-based tools to produce basic summaries of annual monitoring data	May 31, 2026

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Tanya Roerick	Leech Lake Band of Ojibwe	Tanya Roerick will be responsible for the monitoring and management activities at the Leech Lake colony. Tanya along with Steve Mortensen who has been responsible for monitoring and management of Common Terns on Leech Lake for > 30 years will provide input to database development and standardized monitoring protocols.	Yes
Gaea Crozier and Amy Westmark	Minnesota Department of Natural Resources	Gaea Crozier and Amy Westmark are both Nongame Wildlife Program Biologists that will provide in-kind support for this project. They will provide technical guidance for decision making on design and functionality of the database as well as input to the standardized monitoring protocol.	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.

This project will provide foundational information necessary to assess the status of the Common Tern population in Minnesota by documenting threats to each colony, identifying opportunities to increase productivity, and developing data archiving resources and monitoring protocols to better detect population changes over time. Results from this project will be shared with state and tribal agencies as well as federal government agencies working to conserve Common Terns. We will provide a standardized monitoring protocol developed for long-term monitoring and provide access to data sharing resources essential for informing best management practices and to prioritize conservation and restoration actions for this species in Minnesota. These materials will be distributed to stakeholders and results will also be disseminated through webinars and through local, regional, and national conferences. We will acknowledge the ENRTF funding in signage and other public communications and outreach related to work associated with the project using the trust fund logo or inclusion of language attributing support from the trust fund as appropriate.

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?

Achieving conservation goals for a species, such as the Common Tern, that require long-term investment by resource managers obliges a commitment by project partners to work together to identify and secure any sources of funding that may be available to maintain or restore colonies into the future. The results of this project will provide management agencies that have historically and currently monitored and managed the colonies in Minnesota the tools necessary to create a robust monitoring program that can provide up-to-date critical information to inform best management practices and to prioritize conservation and restoration actions for this species in Minnesota.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Conserving Black Terns And Forster's Terns In Minnesota	M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 03o	\$198,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount	\$ Amount Spent	\$ Amount Remaining
Personnel										
Annie Bracey		Principal investigator; Project management and coordination.			25.1%	0.48		\$48,858	-	-
Alexis Grinde		Co-Principal investigator; assist with project management and coordination.			25.1%	0.16		\$19,565	-	-
Stephen Kolbe		Co-Principal investigator; assist with project management and coordination of field efforts..			22.3%	0.4		\$28,236	-	-
Francesca Cuthbert		Co-Principal investigator; assist with project management and coordination with partners.			25.1%	0.02		\$2,306	-	-
Todd Arnold		Co-Principal investigator; assist with project management and coordination of data and database management.			25.1%	0.04		\$8,587	-	-
TBD Researcher 2		Breeding colony bird and habitat assessments.			22.3%	0.16		\$9,048	-	-
Temp/Casual		Data collection and data entry.			7%	0.4		\$15,408	-	-
Graduate Student		Summer graduate student (GRA Y1 and Y2, no tuition benefits) to assist with data collection and analysis.			19.1%	0.02		\$835	-	-
							Sub Total	\$132,843	\$132,843	-
Contracts and Services										
Leech Lake Band of Ojibwe subcontract	Subaward	Leech Lake Wildlife Program common tern site maintenance and monitoring efforts during the 2024-2025 nesting season. This includes staff time to construct the nesting enclosure, maintain and conduct any maintenance needed on the enclosure, and time needed for common tern population monitoring.				0.04		\$12,358	-	\$12,358
Contractors Jeff Birchem and Fred Strand	Service Contract	Common Tern monitoring at Interstate Island and Lake of the Woods breeding colonies: \$23,000 annually for hiring a contractor for monitoring including:				0.4		\$44,800	\$44,800	-

		\$20,000 - contractor's time for surveys and report writing \$3,000 - mileage reimbursement and boat expenses								
							Sub Total	\$57,158	\$44,800	\$12,358
Equipment, Tools, and Supplies										
	Tools and Supplies	Monitoring supplies	Colony survey equipment. Drone batteries (6 @ 200 ea.) = \$1,200. Trail cameras and SD cards (12 @ 220 ea.) = \$2,640. Banding supplies = \$500					\$2,806	\$2,657	\$149
	Tools and Supplies	Fencing Supplies	Needed to construct a fenced in enclosure for nesting birds at Leech Lake. This includes u-posts, fencing, wire, and hardware).					\$1,000	\$1,000	-
							Sub Total	\$3,806	\$3,657	\$149
Capital Equipment										
							Sub Total	-	-	-
Acquisitions and Stewardship										
							Sub Total	-	-	-
Travel In Minnesota										
	Miles/ Meals/ Lodging	Monitoring supplies	Hotels for field season (double occupancy) 28 nights @ 100 / night = \$2800. Travel to and from field sites: 4070 miles x 0.70/mile = \$2849. Per Diem for field technicians 28 @ \$45.00 / day = \$1260. Boat use = \$500					\$5,193	\$5,157	\$36

							Sub Total	\$5,193	\$5,157	\$36
Travel Outside Minnesota										
							Sub Total	-	-	-
Printing and Publication										
							Sub Total	-	-	-
Other Expenses										
							Sub Total	-	-	-
							Grand Total	\$199,000	\$186,457	\$12,543

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount	\$ Amount Spent	\$ Amount Remaining
State						
In-Kind	Minnesota Department of Natural Resources	In-kind Support from MN DNR: from Nongame Wildlife Staff (estimated 40hrs at \$50/hr). Estimated \$2,000. Letter from DNR was received	Secured	\$2,000	\$2,000	-
In-Kind	Natural Resources Research Institute	Internal funding from the Natural Resources Research Institute was used for professional development to cover out-of-state travel expenses for Annie Bracey to present at the International Waterbird Society meeting in Traverse City MI Sept 29 - Oct 2, 2025.	Secured	\$2,000	\$2,000	-
			State Sub Total	\$4,000	\$4,000	-
Non-State						
In-Kind	UMN unrecovered indirect costs are calculated at the UMN negotiated rate for research of 55% modified total direct costs.	Indirect costs are those costs incurred for common or joint objectives that cannot be readily identified with a specific sponsored program or institutional activity. Examples include utilities, building maintenance, clerical salaries, and general supplies. (https://research.umn.edu/units/oca/fa-costs/direct-indirect-costs)	Secured	\$102,551	\$102,551	-
In-Kind	Leech Lake Band of Ojibwe	Leech Lake Band of Ojibwe will provide in-kind contributions as effort, equipment, and supplies.	Secured	\$15,000	\$15,000	-
			Non State Sub Total	\$117,551	\$117,551	-
			Funds Total	\$121,551	\$121,551	-

Attachments

Required Attachments

Visual Component

File: [f9a30761-701.pdf](#)

Alternate Text for Visual Component

Title reads "Assessing Status of Common Tern Population in Minnesota".

Three text boxes summarize problem, solution and outcomes associated with project.

Pictures include three pictures of Common Tern, a map of colony locations in the state, and two pictures of breeding colonies....

Supplemental Attachments

Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
Minnesota Department of Natural Resources In-Kind Letter	c4dfbe5b-9df.pdf
Leech Lake Band of Ojibwe letter of support	f65af7c0-942.pdf
UMD Sponsored Projects Administration transmittal letter	ba4beb02-c18.pdf
Background check certification	26f25353-48a.pdf
2024 Lake of the Woods Report Summary	3453bbb1-2a1.pdf
2024 Lake Superior Report Summary	a0d9896f-90a.pdf
2025 Lake of the Woods Field Season Report	e336e1f6-3b0.pdf
2025 Lake Superior Common Tern Field Work Report	843c93cc-735.pdf
Assessing Status of Common Tern Populations in Minnesota Final Technical Report	61419aa4-36e.pdf
Common Tern Standard Operating Procedures	a6d7f588-52f.pdf

Media Links

Title	Link
Common Tern Database	https://waterbirddatabase.org/

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

There are no differences between the proposal and work plan to report.

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 understand that travel expenses are only approved if they 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 understand the UMN Policy on travel applies.

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

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?

Yes, Sponsored Projects Administration (UMD)

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

Yes, I understand

Work Plan Amendments

Amendment ID	Request Type	Changes made on the following pages	Justification For Amendment Request (word limit 75)	Date Submitted	Approved	Date of LCCMR Action
1	Amendment Request	• Budget • Other • Budget - Personnel • Budget - Professional / Technical Contracts • Budget - Capital, Equipment, Tools, and Supplies • Budget - Travel and Conferences	We are reducing travel because much of the work we anticipated we would need to help with was done by service contractors. We also are able to reduce personnel because we will not have a graduate student working on the project during the summer. Fred Strand will also be helping with more of the work including with data quality control and development of standardized operating procedures which will require more effort on his part.	February 7, 2025	Yes	February 14, 2025
2	Amendment Request	• Budget - Personnel • Budget - Professional / Technical Contracts • Budget - Capital, Equipment, Tools, and Supplies • Budget - Travel and Conferences • Budget - Non-ENRTF Funds Contributed	We are requesting funds to be moved from lab supplies, travel, and professional services to personnel salary & fringe. We did not need as much funding as anticipated for travel due to having more virtual check-ins with managers and fewer colony visits. The cost of supplies was also lower than expected and all work associated with service contracts have been closed out. Moving funds to personnel will be used to finalize data products and deliverables.	May 11, 2026	Yes	May 12, 2026
3	Amendment Request	• Budget • Other • Attachments • Budget - Personnel • Budget - Professional / Technical Contracts • Budget - Non-ENRTF Funds Contributed	We are requesting \$3,067 to be moved from subaward costs to personnel salary and fringe. The funds were no longer needed for the subaward and were instead used to support personnel costs associated with finalizing project activities, data products, and deliverables prior to the project's end date. We also reduced our unrecovered indirect cost commitment to reflect that the full	September 9, 2026	Yes	September 15, 2026

			\$199,000 in anticipated project costs was not expended.			
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Additional Status Update Reporting

Additional Status Update August 18, 2026

Date Submitted: September 9, 2026

Date Approved: September 15, 2026

Overall Update

This was completed.

Activity 1

This activity was previously marked complete.

(This activity marked as complete as of this status update)

Activity 2

This activity was previously marked complete.

(This activity marked as complete as of this status update)

Activity 3

This activity was previously marked complete.

(This activity marked as complete as of this status update)

Dissemination

This was completed.

Status Update Reporting

Final Status Update August 14, 2026

Date Submitted: September 9, 2026

Date Approved: September 15, 2026

Overall Update

Throughout the duration of this project, we have communicated directly with wildlife managers at the primary Common Tern colonies in Minnesota to coordinate field work logistics, including providing materials for enclosures and using a drone to take aerial imagery of two main colonies at Lake of the Woods during two breeding seasons. In addition to coordinating monitoring efforts, we have also worked together to identify all known historical records of breeding common terns in Minnesota, which have been archived in the online database created for this project. We have developed the standardized operating procedures for monitoring common terns and a user manual for navigating the database, both of which are available through the database (<https://waterbirddatabase.org/>). We have provided a summary of the project results in a final report (see attached: Assessing Status of Common Tern Populations in Minnesota Final Technical Report) and we will be sharing our final products with project partners during a virtual meeting at the end of September.

Activity 1

We have worked with project partners to monitor and manage the remaining active Common Tern colonies. We have documented breeding activity at each of the three remaining active nesting locations in 2024 - 2026, documenting predation events and assessing the impact of co-nesting species on colony productivity. Habitat management was co-occurring during nest monitoring activities at each site and comprehensively documented in annual seasonal reports which are available via the online database. Summaries of all monitoring and management activities that occurred during this project as well as historical records of these activities are archived in the online database. For each, charts can be created through an online tool that describes the types of management actions that have occurred over the years, how effective they have been, and which factors are most likely associated with colony declines. This information can be accessed in the online database (<https://waterbirddatabase.org/>) and has also been summarized in the final report (see Attachments).

(This activity marked as complete as of this status update)

Activity 2

We have developed a standardized monitoring protocol (SOP) which provides technical guidance to resource managers monitoring Common Terns. We used a tiered approach to data collection that can be scaled based on resource availability and management or research goals. The SOP provides information for three different levels of monitoring: low, medium, and high intensity. For each tier, we describe the focus, effort, and accuracy that the monitoring will provide. We also describe the primary questions can be addressed at each level of monitoring and describe core metrics that can be collected to assess colony status and productivity. We also provide suggestions for when to conduct surveys based on phenology and the number of intended visits. The SOP also provides details about the types of management strategies that can be implemented at each colony depending on site-specific needs. Links to datasheets and checklists are also provided in this document as well as available directly in the online database. The SOP can be found in the Attachments 'Common Tern Standard Operating Procedures'.

(This activity marked as complete as of this status update)

Activity 3

We have developed a web-based tool to facilitate management and conservation plans for Common Terns in Minnesota. The database provides managers with real-time access to information on the status of Common Tern populations. Access is restricted to authorized organizations and individuals who contribute data. All contributors have full control of

user access, which includes viewing rights only, contributor, editor, or administrator access. These permissions are in place to ensure each organization has control of data access. The online database has information about the project and why it is critical to conservation of Common Terns in Minnesota and throughout their breeding range. The database provides a comprehensive User Manual, SOP and associated datasheets, a list of publications related to Minnesota colonies, and technical reports provided by colony managers. Data tables house information on mark-recapture, breeding status, nest monitoring, and management actions. The 'Upload' tab allows managers to upload new and historical records quickly and easily. The download tab similarly allows users with appropriate permissions to download their colony data. The standardized formatting and flexible structure allows for easy expansion of this database to include colonies outside of Minnesota, which will be useful for making conservation decisions on regional or continental scales.

(This activity marked as complete as of this status update)

Dissemination

We will hold a virtual meeting with project partners in September to showcase the database, describing in detail what we were able to accomplish with partner support, in terms of accessing, formatting, and archiving historical and contemporary data. We will also solicit feedback on the information we provided in the monitoring and management SOPs. This meeting will help determine what tools project partners find the most useful and to determine how likely organizations will be to continue to use and contribute data to this database going forward. We will also discuss what the next steps should be to ensure future colony stability at the remaining active sites. Identifying future priorities will help guide the next steps in maintaining and improving this resource over time. We will present this resource to the Inland Common Tern Working Group at the next Waterbird Society meeting in November, 2026 and look for ways to fund future development and expansion of this resource. We will continue to actively engage managers and provide guidance on use of the database going forward. All activities that will occur after the appropriation end date (6/30/26) will be paid for with other funding sources.

Status Update Reporting

Status Update April 1, 2026

Date Submitted: April 3, 2026

Date Approved: April 28, 2026

Overall Update

The major update for this reporting period is that we have nearly completed a draft of the Standard Operating Procedures that will be shared with our project partners to comment on before the end of the project. We will also plan to present to them and share with them the online data management system associated with this project before the project end date to incorporate any additional feedback. We currently have a beta version of the online data management system in place and are working with project partners to quality control, standardize, and compile historical data from colonies across MN. This continues to be a major focus of the effort.

Activity 1

In 2025, we completed our second year of monitoring at each of the three colony locations. We collected information on the number of nesting pairs, documented nest success, and described site conditions at each colony (milestone 2). We assessed and implemented management actions to reduce predation by co-nesting species (e.g., constructed of nesting enclosures), and managed vegetation. These management actions reduced predation risk and enhanced site quality (milestone 3). Remote cameras documented predation events and drones estimated nesting numbers at remote sites. Results from the 2025 field season have been summarized in reports from Lake of the Woods and the Duluth-Superior harbor (see attachments). Unfortunately, the colony at Leech Lake had another year with zero productivity due to lack of suitable nesting habitat and competition with co-nesting species. Major update for Activity 1 since last update: We completed standardization and curation of historical and current monitoring data from each colony (milestone 1). Milestone 4 will be complete at the end of the project.

Activity 2

We continue to improve our initial draft of a standardized monitoring protocol for monitoring and managing common terns in MN. Due to the varied nature of each colony (e.g. logistical constraints of intensive monitoring at some sites and different factors influencing colony success) we are working with partners both within Minnesota and throughout the inland breeding area (Great Lakes region and including boreal Canada) to determine what is feasible and necessary to collect to be able to effectively monitor and assess population status. We have also reached out to waterbird experts across N. America to get feedback on the best strategy for ensuring data consistency, comparability, while also making it feasible for managers who have limited time and resources. Therefore milestones 1-3 are all currently being drafted and revised and will continue to be until the project is completed. Update since last report: we are continuing to focus on our final products for the online database and development of the SOPs. We anticipate those will be near final by mid-May. We anticipate using the remaining project duration to refine products based on partner input.

Activity 3

We have been working on building the data management system which remains in a beta-testing phase. We have formatted all of the available data from Lake of the Woods, the Duluth-Superior colonies, Leech Lake, and Mille Lacs, all of which have now been entered into the database (milestone 1 complete). We have completed milestone 2, designing a database structure that supports historical and current data. Milestone 3 will be completed at the end of the project but we are continuing to develop the web-based data management system which will include built-in graphics and summaries to help managers visualize and report on site status annually. Update since last report, the online database is being tested by others to ensure any errors or bugs are fixed prior to project end, so this is an ongoing task that will continue until the project ends.

Dissemination

Since the last report, we have presented aspects of this project to the Itasca Waters group as part of their Practical Water Wisdom seminar series (April 1, 2026) and also presented this project to the North American Inland Working Group meeting (March 20, 2026). We will use this platform to continue to engage with managers across North America to develop a Conservation Working Plan for this species. The work being done in this project will help to lay the groundwork for expansion of monitoring and management for this species. We will continue to engage with people as we finalize this project in the coming year.

Status Update Reporting

Status Update October 1, 2025

Date Submitted: October 11, 2025

Date Approved: December 1, 2025

Overall Update

We continue to work directly with wildlife managers at the main colony locations in MN (Leech Lake, Lake of the Woods, St. Louis River Estuary, Duluth, MN) to monitor nesting common terns. We have now collected two field seasons of data (2024-2025). These monitoring efforts will be used to provide an update on the population status of this species in MN. We have been actively identifying and implementing strategies at each colony to reduce predation risk and to enhance habitat quality, you can see these efforts in the attachments provided. We have been drafting the standardized monitoring procedures using input from regional experts. These SOPs can be implemented across the state and region. We will continue to draft and refine the SOP throughout the course of this project. We currently have a beta version of the online data management system in place and are working with project partners to quality control, standardize, and compile historical data from colonies across MN. This continues to be a major focus of the effort.

Activity 1

In 2025, we completed our second year of monitoring at each of the three colony locations. We collected information on the number of nesting pairs, documented nest success, and described site conditions at each colony (milestone 2). We assessed and implemented management actions to reduce predation by co-nesting species (e.g., constructed of nesting enclosures), and managed vegetation. These management actions reduced predation risk and enhanced site quality (milestone 3). Remote cameras documented predation events and drones estimated nesting numbers at remote sites. Results from the 2025 field season have been summarized in reports from Lake of the Woods and the Duluth-Superior harbor (see attachments). Unfortunately, the colony at Leech Lake had another year with zero productivity due to lack of suitable nesting habitat and competition with co-nesting species. We continue to meet with project partners managing each colony, independently, via remote conference to discuss project goals, show them the database, and to get input about how the online management system will be useful to them going forward. We are continuing to actively curate the historical and current monitoring data from each colony (milestone 1). Milestone 4 will be complete at the end of the project.

Activity 2

We continue to draft a standardized monitoring protocol for monitoring and managing common terns in MN. Due to the varied nature of each colony (e.g. logistical constraints of intensive monitoring at some sites and different factors influencing colony success) we are working with partners both within Minnesota and throughout the inland breeding area (Great Lakes region and including boreal Canada) to determine what is feasible and necessary to collect to be able to effectively monitor and assess population status. We have also reached out to waterbird experts across N. America to get feedback on the best strategy for ensuring data consistency, comparability, while also making it feasible for managers who have limited time and resources. Therefore milestones 1-3 are all currently being drafted and revised and will continue to be until the project is completed.

Activity 3

We have been working on building the data management system which remains in a beta-testing phase. We have formatted all of the available data from Lake of the Woods, the Duluth-Superior colonies, Leech Lake, and Mille Lacs, which will be entered into the database by November 2025 (milestone 1). We have completed milestone 2, designing a database structure that supports historical and current data. Milestone 3 will be completed at the end of the project but we are continuing to develop the web-based data management system which will include built-in graphics and summaries to help managers visualize and report on site status annually.

Dissemination

We continue to meet with project partners virtually and in-person to discuss how to refine the online data management system. We will continue to meet as the database is becoming finalized. We presented this project, highlighting the online database management system at the Common Tern Symposium which was held at The International Waterbird Society annual meeting in Traverse City, MI (Sept 29 -Oct 3, 2025). We also solicited input on the Standardized Monitoring Protocol at this meeting, which brought together tern researchers from around the world. Attendees at the meeting were very excited about the data management system and all of the work that is being done as part of this project. An inland nesting Common Tern Working Group is currently being developed. We will use this platform to continue to engage with managers across North America to develop a Conservation Working Plan for this species. The work being done in this project will help to lay the groundwork for expansion of monitoring and management for this species. We will continue to engage with people as we finalize this project in the coming year.

Status Update Reporting

Status Update April 1, 2025

Date Submitted: April 2, 2025

Date Approved: July 2, 2025

Overall Update

We have been working with wildlife managers at the main colony locations in MN (Leech Lake, Lake of the Woods, Duluth-Superior Harbor) to monitor nesting common terns. We collected one field season of data (2024) and we are preparing for the next field season (May - Aug 2025). These monitoring efforts will be used to provide an update on the population status of this species in MN. We have been actively identifying and implementing strategies at each colony to reduce predation risk and to enhance habitat quality. We have been drafting the standardized monitoring procedures, which can be implemented across the state and region. We will continue to draft and refine the SOP throughout the course of this project. We currently have a beta version of the online data management system in place and are working with project partners to quality control, standardize, and compile historical data from colonies across MN. This is a major focus of the efforts currently.

Activity 1

In 2024, we completed our first year of monitoring at each of the three colony locations. We collected information on the number of nesting pairs, documented nest success, and described site conditions at each colony (milestone 2). We also assessed and implemented management actions to reduce predation by co-nesting species (e.g., constructed nesting enclosures), and managed vegetation at each site. These management actions reduced predation risk and enhanced site quality (milestone 3). We also used remote cameras to identify predators. Results from the 2024 field season have been summarized in reports from Lake of the Woods and the Duluth-Superior harbor and have been uploaded to the attachments page (2024 Lake of the Woods Report Summary, 2024 Lake Superior Report Summary). The colony at Leech Lake had zero productivity in 2024 due to water-level fluctuations. We have also meet with project partners managing each colony, independently, via remote conference to discuss project goals, show them the database, and to get input about how the online management system will be useful to them going forward. We are actively curating historical and current monitoring data from each colony (milestone 1). Milestone 4 will be complete at the end of the project.

Activity 2

We have begun to draft a standardized monitoring protocol for monitoring and managing common terns in MN. Due to the varied nature of each colony (e.g. logistical constraints of intensive monitoring at some sites and different factors influencing colony success) we are working with partners to determine what is feasible and necessary to collect to be able to effectively monitor and assess population status. We have also reached out to waterbird experts across N. America to get feedback on best strategy for ensuring data consistency, comparability, while also making it feasible for managers who have limited time and resources. Therefore milestones 1-3 are all currently being drafted and revised and will continue to be until the project is completed.

Activity 3

We have been working on building the data management system which is currently in a beta-testing phase. We have uploaded data from Lake of the Woods and the Duluth-Superior colonies and anticipate having historical data from Leech Lake and possibly Mille Lacs in the database by November 2025 (milestone 1). We have completed milestone 2, designing a database structure that supports historical data. This continues to be modified as new data from different sources is made available. Milestone 3 will be completed at the end of the project but we are continues to develop the web-based data management system.

Dissemination

We have met with project partners virtually and in-person to discuss how to develop the online data management system and incorporate their historical monitoring data. We met with MN DNR, Leech Lake Band of Ojibwe and Mille Lacs Band of Ojibwe and will continue to meet as the database is developed. We will be presenting the online database management system at a Common Tern Symposium at The Waterbird Society annual meeting in Traverse City, MI in Sept-Oct 2025. We will also solicit input on the Standardized Monitoring Protocol at this meeting which brings together tern researchers from around the world.

Status Update Reporting

Status Update October 1, 2024

Date Submitted: October 1, 2024

Date Approved: October 2, 2024

Overall Update

This status update is waived per guidance from LCCMR staff provided on August 13, 2024

Activity 1

This status update is waived per guidance from LCCMR staff provided on August 13, 2024

Activity 2

This status update is waived per guidance from LCCMR staff provided on August 13, 2024

Activity 3

This status update is waived per guidance from LCCMR staff provided on August 13, 2024

Dissemination

This status update is waived per guidance from LCCMR staff provided on August 13, 2024

Status Update Reporting

Status Update April 1, 2024

Date Submitted: April 3, 2024

Date Approved: May 30, 2024

Overall Update

We have met with project partners twice since the project began to develop goals and discuss past challenges. We have personnel and site plans in place for the 2024 field season where we will document site conditions and monitor birds using in-person and drone-assisted protocols. We are in the process of formalizing the SOP for the Lake Superior tern colony and will use that as a template for the other sites. We have begun to work on developing an online database and plan to have a beta-version ready by fall 2024.

Activity 1

We have had two full-group meetings and several site-specific meeting with project partners to discuss monitoring plans for this field season and to identify past and current monitoring efforts and challenges. We have purchased the materials needed to construct the nesting enclosure at Lake of the Woods and have ensured all project partners have the materials needed for monitoring and management activities for this field season. Current site monitoring and management is scheduled to begin in May 2024 and continue through August 2024.

Activity 2

We have begun to formalize a standard operating protocol for the Lake Superior colony (Interstate Island) and will incorporate modifications for the other colonies after the first field season. We will the information from this year to guide any recommended modifications to monitoring and management plans going forward, if needed.

Activity 3

We have started to compile historical data from Interstate Island to build the database, since this site has consistently collected the most comprehensive data. We will then add historical data from the other colonies once it has been tested and modified for the other colonies. We anticipate to have a beta-version available to test and upload historical data by fall 2024.

Dissemination

There have not been any dissemination activities to report to date. This will change as we continue to build the project and share with managers and others.