Environment and Natural Resources Trust Fund

M.L. 2024 Approved Work Plan

General Information

ID Number: 2024-150

Staff Lead: Tiffany Schaufler

Date this document submitted to LCCMR: June 7, 2024

Project Title: Improving Aquatic Plant Knowledge for Healthy Waters

Project Budget: $198,000

Project Manager Information

Name: Holly Bernardo

Organization: MN DNR - Ecological and Water Resources Division

Office Telephone: (651) 259-5048

Email: holly.bernardo@state.mn.us

Web Address: https://www.dnr.state.mn.us/ewr/index.html

Project Reporting

Date Work Plan Approved by LCCMR: June 20, 2024

Reporting Schedule: June 1 / December 1 of each year.

Project Completion: June 30, 2027

Final Report Due Date: August 14, 2027

Legal Information

Legal Citation: M.L. 2024, Chp. 83, Sec. 2, Subd. 03m

Appropriation Language: $198,000 the second year is from the trust fund to the commissioner of natural resources to collect foundational data on Minnesota's native aquatic plant biodiversity through new and enhanced lake surveys and to disseminate results to state resource managers, scientists, and the public.

Appropriation End Date: June 30, 2027

Narrative

Project Summary: Enhance knowledge of Minnesota's native aquatic plant biodiversity, the backbone of healthy aquatic systems, by delivering data products that support conservation, protection and management for decision-makers and scientists.

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

There is a critical, ongoing need to conserve Minnesota's 10,000+ lakes and other aquatic systems. Aquatic plants are an important indicator of quality, yet we lack basic inventories of the native plants that occupy most of these systems throughout the state. Thanks to previous ENRTF appropriations, the Minnesota Biological Survey (MBS) has delivered over 2,000 aquatic plant lake surveys. Lake quality and function are under constant and increasing pressures. Native aquatic plants provide ecosystem services like natural water filtration, and recreational opportunities through game fish and wildlife habitat. Those functions are at risk of disruption from climate change, which is changing hydrological patterns, and increasing development, which is reducing and degrading natural shorelines. This proposal will enhance our knowledge of the extent, abundance, and viability of native and rare aquatic plant populations. Expanding these foundational data are critical to informing protection, conservation, and management decisions, as well as many other decisions made in both the public and private sector that affect water quality, water-based recreation, and waterfowl and other wildlife management.

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.

This project proposes to build on previous aquatic plant surveys. First, we will enhance rare plant surveys at 55 lakes last surveyed more than 20 years ago to include information on population extent, abundance, and viability. This information is often lacking in aquatic plant data, but needed for decision-making because healthy, sustainable native plant biodiversity provides better ecosystem services and best maintains function. This will bring aquatic rare plant species records up to the same level of detail available for many terrestrial plant species. Second, we will conduct 30 aquatic plant surveys in new locations, including high-quality lakes in areas of the state lacking initial survey data, river shorelines, backwaters, and sandbars. Expanding the types of data collected and incorporating new target systems will provide this critical information to a wider audience of scientists and decisions-makers. Lastly, we will deliver data directly to the people who need and use aquatic plant biodiversity information. We will enter, curate, and disseminate data through MN Geospatial Commons, DNR LakeFinder, DNR Rare Species Guide, and the DNR Natural Heritage Information System. Interpretations of this information will be delivered through technical guidance, field workshops, and other standard DNR public events and media.

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?

Results from MBS ENRTF appropriations are used broadly statewide. Applications that contain MBS aquatic plant data include: revisions to Minnesota's list of endangered, threatened and special concern species, rare species databases and the DNR's Rare Species Guide used by aquatic plant managers (e.g. for aquatic invasive species control), designation of the DNRs Lakes of Biological Significance (which directly relies on lake plant richness and rare plant locations), the DNR Watershed Health Assessment Framework for Lakes tool, the Biodiversity Atlas of the Minnesota Bell Museum Herbarium, and technical support tools for a variety of purposes (e.g. lakeshore management).

Project Location

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

County(s): Aitkin, Big Stone, Carver, Cass, Itasca, Nicollet, Sibley,

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

County(s): Aitkin, Big Stone, Carver, Cass, Itasca, Sibley, Nicollet,

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Aquatic Plant Data Collection

Activity Budget: $163,000

Activity Description:
MBS will expand on the aquatic plant surveys conducted through the ML21 and previous appropriations. First, we will increase the types of data collected at previously surveyed sites where data are greater than 20 years old. We will conduct an intensive search in these previously noted locations to delineate additional suitable habitat to confirm species occurrence, and estimate population size and viability (i.e. population condition or health). Priority will be given to areas of the state where natural shorelines and aquatic systems are under greatest threat. These expanded data will bring aquatic rare species records up to the same level of detail available for many terrestrial plant species. Second, we will include habitat types and areas of the state that have not been surveyed by targeting high quality systems such as lakes, river shorelines, backwaters and sandbars in southern Minnesota.

Activity Milestones:

Description	Approximate Completion Date
Conduct rare plant population assessments on 25 lakes	November 30, 2025
Surveys for native and rare aquatic plants at 15 new locations	November 30, 2025
Conduct rare plant population assessments on 30 lakes	November 30, 2026
Surveys for native and rare aquatic plants at 15 new locations	November 30, 2026

Activity 2: Data Management, Dissemination and Technical Guidance

Activity Budget: $35,000

Activity Description:
Provide analysis and interpretation of results for Activity 1. These data will contribute to rare species databases and information, such as the Natural Heritage Information System, The Bell Museum's Biodiversity Atlas, Minnesota Conservation Explorer, and the DNR's Rare Species Guide. They will contribute directly to lake quality and health information such as the list of Lakes of Biological Significance and DNR Watershed Health Assessment Framework for Lakes tool. They will also contribute to a variety of conservation, protection and management decisions for native aquatic plant species and communities through technical guidance (e.g., to watershed districts, lakeshore associations, aquatic invasive species managers, and/or local units of government) and summarized lake taxa lists and spatial data available in Minnesota Geospatial Commons and DNR's LakeFinder.

Activity Milestones:

Description	Approximate Completion Date
2025 Biological specimens prepared and submitted to the Bell Museum	June 30, 2026
2025 Aquatic plant survey data, field notes, photos entered into DNR databases.	June 30, 2026
2026 Biological specimens prepared and submitted to the Bell Museum	June 30, 2027
2026 Aquatic plant survey data, field notes, photos entered into DNR databases.	June 30, 2027
Technical guidance (e.g.'s biological reports, presentations) delivered.	June 30, 2027

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Dr. George Weiblen	UMN Bell Museum	Biological specimen curation and delivery of related project outcomes through the online MN Biodiversity Atlas.	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.
MBS data are stored primarily in the DNR Natural Heritage Information System with aquatic data also distributed via the list of Lakes of Biological Significance and the DNR Watershed Health Assessment Framework for Lakes tool. Many GIS datasets are publicly delivered through MN Geospatial Commons (https://gisdata.mn.gov/) and within the DNR via the standard GIS data delivery system, QuickLayers. Data on state-listed aquatic species are available through agreements with the requesting agency and the DNR, a data request form is available online: http://www.dnr.state.mn.us/nhnrp/nhis.html. MBS delivers data to national and international audiences through NatureServe (https://www.natureserve.org/) with much of these data accessible through their Explorer website (https://explorer.natureserve.org/). MBS often delivers data in response to requests from researchers at academic institutions, government agencies, and other organizations.

Many products are available on the DNR and MBS websites (www.dnr.state.mn.us/mbs/index.html) including MBS procedures, program and project updates, maps, reports, and references on biodiversity sampling techniques and methods. MBS web pages are updated with new information and have links to associated resources. MBS also communicates program and project highlights through the DNR and partner programs' Facebook pages.

Aquatic plant biological collections are deposited at Minnesota repositories, primarily at the University of Minnesota's J.F. Bell Museum of Natural History. As part of a larger network of museums and biological collections, these cooperators are essential to the documentation, permanent curation, and sharing of MBS results. MBS biological specimens are publicly available to view digitally through the Bell Museum's Biodiversity Atlas (https://bellatlas.umn.edu/). MBS and museum staff meet periodically to address curatorial, data management, and specimen and data sharing needs.

The Minnesota Environment and Natural Resources Trust Fund (ENRTF) will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgement Guidelines.

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?
MBS data, products, and technical guidance have proven foundational in societal and scientific applications. In addition to ENRTF, MBS receives operational funding from General Fund, Heritage Enhancement Fund, Reinvest in Minnesota Fund (newly obtained for MBS in 2022), Federal State Wildlife Grants, Fish & Game Fund, and federal funds. DNR is developing strategies to sustainably fund MBS, recently completing a 10-year strategic plan for the program. MBS will continue to address relevant needs and add value to existing ENRTF investments through biological surveys; biodiversity

monitoring; outreach and product delivery; informing conservation planning and decisions; and targeting under-surveyed systems.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Minnesota Biological Survey	M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 03a	$1,500,000
Minnesota Biological Survey	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 03e	$1,500,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Plant Ecologist/Botanists		Aquatic plant surveys, data and specimen processing, data synthesis, analysis and dissemination.		X	28%	1.6	X	$147,200
							Sub Total	**$147,200**
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
	Tools and Supplies	Field equipment will be reused from previous projects to the extent possible. Additional supplies needed include boat parts and repair, waterproof notebooks, insect/tick repellent, watercraft safety supplies; measuring tools such as calipers; GPS unit; plant, specimen collecting and preservation supplies.	Supplies needed to conduct field work, collect data and specimens.					$5,000
							Sub Total	**$5,000**
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Travel for a 1 person crew for 2 field seasons to sample 85 sites, one site per 1-2 days; 15,000 miles. Vehicles ($7,064), lodging ($19,324), and meals ($2,475) in accordance with the Commissioner's Plan.	This will require one vehicle and one boat for the summer to access sites across the state; the team will need access to lodging/hotels while in transit during the week; and					$28,870

			reimbursement for meals while in transit.					
							Sub Total	**$28,870**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
		Direct and necessary costs to cover HR support ($2,935), Safety Support ($610), Financial Support ($2,588), Communication Support ($2,123), IT Support ($7,637), and Planning Support ($1,036).	These funds are needed to pay other DNR personnel for things like HR and IT.					$16,930
							Sub Total	**$16,930**
							Grand Total	**$198,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Personnel - Plant Ecologist/Botanists		Aquatic plant surveys, data and specimen processing, data synthesis, analysis and dissemination.	Classified position **Classified :** The position was originally hired entirely to support previous ENRTF projects. However, the positions' longevity (>3 years) and now mix of funding no longer qualifies for the State's LCCMR unclassified exemption. The positions' unique skills and expertise are required to successfully complete this ENRTF project. The positions' funding over the course of the grant will not change, there is not another source of funding to replace the ENRTF funding for this position at this time; thus, ENRTF funds will not be replacing or decreasing the amount of non ENRTF sources of funds spent on the position during the project period. When the project period ends, the positions' ENTRF funding will end, and the ENTRF approved complement of the agency reduced accordingly.

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
Cash	Heritage Enhancement	Senior ecologists who lead and provide oversight to field survey efforts and associated analysis. Associated operations budget.	Pending	$35,000
Cash	General Fund	A portion of MBS program management and supervision; office space; program operations.	Pending	$15,000
			State Sub Total	**$50,000**
Non-State				
			Non State Sub Total	**-**
			Funds Total	**$50,000**

Attachments

Required Attachments

Visual Component

File: fda0dde1-1db.pdf

Alternate Text for Visual Component

Project summary with a map showing priority areas for surveys, a picture of an aquatic plant, and an example of an enhanced population extent map....

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

1 - Dissemination information was added as requested.
2 - Project location was updated as requested.
3 - A request was added to allow the use of funds for classified staff; see that section for justification.
4 - Project location was changed to individual counties as requested.
5 - Milestones for Activities 1 & 2 were broken into accomplishments for individual field seasons (summer 2025 data collection versus summer 2026 data collection).

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, 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?

No

Does the organization have a fiscal agent for this project?

No

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing $10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No