Environment and Natural Resources Trust Fund

M.L. 2026 Draft Work Plan

General Information

ID Number: 2026-074

Staff Lead: Michael Varien

Date this document submitted to LCCMR: October 29, 2025

Project Title: Mapping Leech Lake Vegetation: A Closer Look

Project Budget: $478,000

Project Manager Information

Name: Raining White

Organization: Leech Lake Band of Ojibwe

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Project Reporting

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

Project Completion: June 30, 2029

Final Report Due Date: August 14, 2029

Legal Information

Legal Citation:

Appropriation Language:

Appropriation End Date: June 30, 2029

Narrative

Project Summary: Survey Leech Lake's aquatic plant community to better understand changes happening across Leech Lake and create an updated data set for agencies to reference.

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

Leech lake is culturally and economically important to those who live near and those who travel to fish, recreate, and enjoy the natural beauty of Minnesota's 3rd largest lake. The last comprehensive vegetation survey of Leech was completed in 2005 . Since 2005 there have been major changes to Leech Lake including increased shoreline development, more pressure on the fisheries, introduced aquatic invasive species and changes in the climate. A close look at the plant community will help steer management decisions and give direct insight to the ecology and overall health of Leech Lake. Aquatic vegetation is important for a healthy lake. Anglers, local citizens, and professionals have anecdotally noted changes in 'weed beds' including 'cabbage', manoomin or wild rice, and other vegetation. The introduction and subsequent increase of the rusty crayfish population is a possible factor in decreased vegetation cover which provides habitat for fish species of all life stages, water fowl, amphibians, reptiles, and invertebrates. The invasive Eurasian watermilfoil population has boomed in recent years and starry stonewort, an invasive macroalga, was confirmed present in 2022. Tribal and non-tribal wild rice gatherers are concerned about the health of rice beds in Leech, specifically in the Steamboat and Headquarters Bay.

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.

Aquatic vegetation is often mislabeled as 'weeds' by many Minnesotans. While some plants, particularly non-native species, can act invasively, native plants provide critical functions in the ecology of lakes. Aquatic vegetation helps balance water quality, provides habitat for multiple species of aquatic life, can provide food and medicine and can be visually pleasing. Aquatic plants are integral to healthy water. By cataloging the aquatic plant community, and comparing it to a 2002-2005 study, we can look at changes across these last 20 years. This data can help management activities including reassessing aquatic plant management (APM) permits, fishing regulations, water level control and AIS prevention.
This proposal would also like to collect interviews with those who use Leech Lake for subsistence, professionally, and recreationally.
Genetic mapping, specifically of Eurasian watermilfoil, will be valuable to AIS management on Leech and other infested lakes. Combined with vegetation surveys, managers can use this data to pinpoint populations within Leech for management meaningful management activities. The possibility of hybridization between native and non-native milfoil is known. Using genetics to identify milfoil will give a better understand of populations within Leech that otherwise can be difficult using traditional identification practices (eg. Taxonomic characteristics).

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?

Provide an updated inventory of aquatic vegetation of Leech Lake using the 2002-2005 survey points to compare vegetation 20 years later.
Collect traditional and local knowledge of a wide variety of Leech's stakeholders to compare to vegetation maps, lake use and increase awareness and public engagement.
Genetically categorize milfoil populations to determine non-native, native and hybrid species within Leech. Genetics can provide direction formanagement plans.

Project Location

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

Region(s): Central

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: Aquatic Plant Survey of Leech Lake

Activity Budget: $433,000

Activity Description:
Utilize crew(s) to survey Leech Lake using survey points from the 2002-2005 aquatic plant survey. Using previous, precise locations of the past comprehensive survey will give the project a more refined look at the plant community. Crews will use the rake toss method of survey preferred by the LLBO DRM, MN DNR and other research institutions. Crews will identify plants to the species and collect abundance metrics. If milfoil is found, crews will take a sample to submit for genetic testing. Milfoil samples will occur for both EWM and NWM, and samples will be taken throughout the defined bays of Leech. Surveys will be conducted from roughly Jun 15th to October 15th, depending on seasonal conditions. Outcome: Plant community survey of plots on leech lake based on the last full lake aquatic plant survey.

Activity Milestones:

Description	Approximate Completion Date
Plant ID workshop to train survey crew, local students, and other aquatic plant professionals.	July 31, 2026
Finish 1/3 of Surveys	September 30, 2026
Finish second third of surveys	September 30, 2027
Finish last third of surveys	September 30, 2028
Create & Share a complete plant survey results to species level & geolocation with stakeholders & general public	September 30, 2028

Activity 2: Genetic Testing of Milfoil

Activity Budget: $10,000

Activity Description:
Survey crews will submit both northern water milfoil and Eurasian watermilfoil, and any other suspected milfoil species, to a genetics lab to understand potential hybridization. Submission of samples will be continuous throughout the surveys, as milfoil is located and collected.

After material is analyzed, results will be published in story map and other publications to inform stakeholders and other natural resource agencies for potential management efforts related to non-native milfoil found within Leech Lake.

Activity Milestones:

Description	Approximate Completion Date
Compile & Share information about genetic differences in native and non-native milfoils in Leech Lake	September 30, 2028
Receive genetic results	December 31, 2028
Complete mapping locations of milfoil within Leech Lake using survey points	December 31, 2028

Activity 3: Collect Community Input on the state of Leech Lake

Activity Budget: $35,000

Activity Description:
Conduct interviews with citizens who utilize Leech Lake to understand changes of the health of Leech Lake. These interviews will provide insight to the public perception to Leech Lake's health, management, and changes of use of the

lake. This project will collect common themes using phrases and keywords and relate interviews to specific areas of the lake using GIS. Interviewees will be provided a honorarium for their participation and input their input will guide final outcomes of the results.

Activity Milestones:

Description	Approximate Completion Date
Identify Interview participants	March 31, 2027
Complete interviews	March 31, 2028
Create product (interactive map) that relates interviews with Leech Lake's geography.	December 31, 2028

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.
The partnerships that the Division of Resource Management (DRM) for Leech Lake Band of Ojibwe (LLBO) will benefit with the sharing of this information. Cass County as well as the MNDNR's Region 1 staff will be informed of findings as they occur. MNDNR EWR Staff out of Brainerd have stated support for this project and will offer labor and expertise throughout the lifespan of this grant. Not only will this information be available in it's raw form directly from surveys but can be put together and analyzed by various agencies.

The final outcome of this project will be a story map or similar to a production of all aspects of this project. This will give an easily accessible and digestible piece of media for experts and citizens alike. This map will provide an overview of findings in the lake's plant community as well as hosting interviewee's responses with correlation to areas of the Lake. This will provide input as well as showcasing that citizens and people who enjoy the lake will be heard.

This project hopes to share the importance of vegetation and it's place in a lakes ecosystem. This project will also highlight the changes of the vegetation, including the introduction and spread of aquatic invasive species as well as habitat loss due to environmental and human factors.

All ENRTF and LCCMR logos will be displayed clearly and prominently on any publication, maps, lectures, power points, articles and all other products produced using these grant funds. A thank you and acknowledgement of LCCMR and the funds provided will also be included in the afore mentioned products.

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?
Results from this proposal will be shared with agencies and stakeholders working on Leech Lake including the MNDNR, Cass County, and LLBO. Genetic identification of milfoils will influence AIS management. Giving a voice to local stake holders in the forms of interviews will strengthen public awareness and engagement. This funding is needed to take on such a project of this size as agencies listed above currently do not have budget or capacity to complete a lake wide veg survey. This data will benefit on going work being done by each respective agency using traditional funding methods.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Project Lead		Lead Surveyor, organizer, grant administrator			30%	1.5		$130,000
Seasonal Aquatic Plant Specialist 1		Assist project lead with surveys, data collection			30%	1.5		$91,000
Seasonal Aquatic Plant Specialist 1		Assist project lead with data collection and processing			30%	1.5		$91,000
Seasonal Aquatic Plant Specialist 2		Data management, surveys, preserve specimens for herbarium, GIS			30%	1.5		$91,000
							Sub Total	**$403,000**
Contracts and Services								
University of Montana	Service Contract	Genetic mapping of milfoils collected during survey. Quoted at 100 samples for $5000 minimum for whole lake sampling. Lab fees, sample kits. Priced for 140 samples at $50/sample.		X		0		$7,000
New York Botanical Garden	Service Contract	Lead a freshwater macroalga class & identification of characeae samples down to species. Chara is a common macro alga that can be difficult to identify to species level. NYBG will provide expert support in identification services and will travel to Leech Lake to provide identification training at in-person workshops.		X		0		$5,000
							Sub Total	**$12,000**
Equipment, Tools, and Supplies								
	Equipment	2 GPS	to record survey locations.	X				$1,500
	Equipment	Tablet	Tablet will make data entry and collection more efficient.	X				$2,000
	Capital Equipment	Boat with motor and trailer for large lake survey crew	Leech is a large lake with difficult variables to navigate including weather and depth. Aquatic plant surveys also	X				$50,000

			require a boat with space for crew and survey gear as well as room to lay out aquatic plants for ID.					
	Tools and Supplies	White HDPE Developing Tray x 6, Gas for boat & Truck, Fieldmaster Aquavue Uderwater Viewer x 2, Waders x 3, Herbarium supplies (blotter paper, cotton paper, wax paper), etc	these will enable survey methods to be done properly and effeciently.					$8,500
	Equipment	Cooler x 2, personal flotation devices x 4 , shipping for milfoil samples,	to process and expediate shipping and sampling of milfoil and other species for genetic testing and herbarium specimens.					$1,000
							Sub Total	**$63,000**
Capital Expenditures								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
							Sub Total	**-**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$478,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Contracts and Services - University of Montana	Service Contract	Genetic mapping of milfoils collected during survey. Quoted at 100 samples for $5000 minimum for whole lake sampling. Lab fees, sample kits. Priced for 140 samples at $50/sample.	The University of Montana houses the Thum Lab, where Dr Thum and his research assistants have developed methods for efficient processing and submission of milfoil material to be genetically tested. They provide a milfoil mapping program which shows milfoil genetic diversity for better considerations for management. After consulting with MAISRC, they recommended this lab. As far as I can find this work is not being done at the level of Thum Lab, with costs and efficiency taken into account, within Minnesota.
Contracts and Services - New York Botanical Garden	Service Contract	Lead a freshwater macroalga class & identification of characeae samples down to species. Chara is a common macro alga that can be difficult to identify to species level. NYBG will provide expert support in identification services and will travel to Leech Lake to provide identification training at in-person workshops.	The NYBG Employed Dr Ken Karol, a world renowned expert on the macro alga chara. Dr Ken Karol is consider a leading expert on chara identification, a species extremely hard to identify to the species level without expert guidance and in some cases genetic testing. The ability and willingness of Dr Karol to provide training and identification expertise will provide accurate surveying within Leech Lake which is home to at least 6 chara species currently known. Dr Ken Karol has since retired from the NYBG since the original submission of this grant, but wishes to remain involved if possible through his potential next employer.
Equipment, Tools, and Supplies		2 GPS	GPR to record survey sites accurately.
Equipment, Tools, and Supplies		Tablet	Tablet required for efficient data collection.
Equipment, Tools, and Supplies		Boat with motor and trailer for large lake survey crew	LLBO DRM will continue to monitor and manage lakes within the Reservation past this grant cycle. Leech Lake has 3 of the 10 largest lakes in MN and does management activities on all. The DRM plants dept. currently has a boat that is older and cannot handle much wind while on Leech Lake or similar sized lakes. DRM has trucks with towing capacity and mechanic on staff to maintain assets. **Additional Explanation :** LLBO DRM will continue to monitor lakes within the Reservation past this grant cycle. Leech Lake has 3 of the 10 largest lakes in MN and does management activities on all. The DRM plants dept. currently has a boat that is older and cannot handle much wind while on Leech Lake or similar sized lakes. DRM has trucks with towing capacity and mechanic on staff to maintain assets. A dedicated watercraft for this project will allow the execution of grant goes more effecient.

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
In-Kind	DNR Game & Fish	In-kind support to help with surveys and data analysis	Pending	$60,000
			State Sub Total	**$60,000**
Non-State				
In-Kind	Federal (Self-Governance)	Leech Lake Band of Ojibwe Division of Resource Management will provide in-kind support in the form of: administration/ program management (Plants Program Director), vehicle provided for grant activities (2018 Ford F150), high resolution imagery services as needed (drone flights), building/facility use, software (ArcPro for GIS services, data collection, interview editing)	Pending	$60,000
			Non State Sub Total	**$60,000**
			Funds Total	**$120,000**

Total Project Cost: $598,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: ea87f667-926.pdf

Alternate Text for Visual Component

Brief overview of grant, map of 2002 survey points....

Board Resolution or Letter

Title	File
TribalAuthorizationLetter_Placeholder_LLBO	dddcaa44-06c.docx
LCCMR Letter_LeechLakeVeg_final_with_requesteddollars... Received 03-21-2025	26f5bb28-b60.pdf
Tribal Council Resolution Authorization	e744994a-440.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

Reduce payment to NYBG's Dr Ken Karol for characeae identification, will host one work shop with Dr Karol and use tele services for any ID, consolidate equipment and supplies line items, add lccmr logo and acknowledgment, justify contracts with NYBG and University of Montana.

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?

N/A

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

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this project:

Kate Hagsten (Leech Lake Band of Ojibwe, Division of Resource Management)

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