Environment and Natural Resources Trust Fund

2026 Request for Proposal

General Information

Proposal ID: 2026-491

Proposal Title: Improving Wetland Restoration Outcomes through a University-Led Center

Project Manager Information

Name: Christian Lenhart

Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences

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Project Basic Information

Project Summary: Analysis and planning would be done to improve wetland restoration strategies in Minnesota. Short classes will be developed and long-term monitoring sites supported to inform restoration outcomes, focusing on peatlands.

ENRTF Funds Requested: $272,000

Proposed Project Completion: June 30, 2028

LCCMR Funding Category: Small Projects (G)
Secondary Category: Water (B)

Project Location

What is the best scale for describing where your work will take place?
Region(s): Metro, Central, NE,

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

Narrative

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

Minnesota has been a leader in wetland restoration policy, particularly in peatland science. However there are numerous problems with restoration including poor outcomes in certain wetland functions and disproportionate restoration of easily-restored types such as shallow marshes. The shortcomings of wetland mitigation include poor quality and success compared to natural wetlands. Many types are not restored as much, nor as successfully such as wet prairies and sedge meadows. There is also insufficient funding to achieve our state and regional restoration goals so there is a need to strongly focus our efforts on the strategies and locations that provide the most benefit. Peatland restoration has recently risen up in importance in Minnesota, and globally, yet initial peatland restoration projects in the state could use improvement both ecologically and in terms of the water quality and climate change mitigation functions they provide. One missing piece to more widespread wetland restoration assessment is a organization or group that can focus solely on wetland restoration success from a neutral, third-party perspective. The Wetland Restoration Center can provide this convening role from an unbiased perspective and help to refine our wetland restoration and prioritization approaches to maximize the benefits for the State of Minnesota.

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.

Through a combination of tools, research, outreach and planning we will improve state wetland strategies and restoration approaches working with the key organizations in the state. The Wetland Restoration Center will serve as a key resource for state agencies in providing neutral, third-party assessment of wetland restoration approaches and outcomes. We will work to update and revise the state wetland restoration strategy developed by The Nature Conservancy and further it with key state agencies. After initial draft plan development, we will convene partners and other organizations working in this field (such as the Society for Ecological Restoration) to develop a consensus on the best strategies moving forward. Using tools such as the Wetland Restoration Effectiveness Tool (WRET) and other restoration assessment methodologies (such as the hydrogeomorphic approach (HGM). We'll assess a subset of existing restoration projects around the state. A key part of our strategy is to invest in several long-term monitoring and demonstration sites to track restoration outcomes over longer time spans and to provide venues for wetland training courses for both professionals and students.

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 have three main outcomes proposed for this project:
1. Provide an updated and enhanced state-wide wetland restoration strategy working with the Board of Soil and Water Resources (BWSR), TNC and other local and state organization. This will help to focus resources on project types and geographies that are most beneficial
2. Develop a plan to utilize and maintain long-term monitoring and outreach sites for wetland restoration (including Sarita wetland, Sax-Zim Bog, Cedar Creek Ecosystem Science Reserve and others)
3. Create an outreach and education plan for the to support the needs of wetland restoration in the State of Minnesota

Activities and Milestones

Activity 1: Develop an enhanced and updated state-wide wetland restoration strategy working with BWSR, TNC and other key groups

Activity Budget: $120,000

Activity Description:
We'll work to further refine, enhance and promote a new state-wide restoration strategy which was started by The Nature Conservancy in 2024 to improve wetland and peatland restoration outcomes in Minnesota. We will start out with a thorough review of past wetland plans and strategies including TNC's Peatland Playbook, BWSRs' 2008 state-wide strategy, and other relevant state or regional guides from the MN DNR and the US Fish & Wildlife Service. We'll conduct GIS analyses using multiple variables including the existing restorable wetland index (RWI) developed by NRRI at the University of Minnesota. The work will be done by two university staff people and one graduate student. We will develop the draft strategy in 2026 working with partners to outline the strategy, starting with a planning meeting in December 2026. The draft plan will go out to a large partner group for comment in 2027. We'll present the strategy at public meetings and refine it for a final strategy by spring 2028.

Activity Milestones:

Description	Approximate Completion Date
planning meeting	December 31, 2026
draft plan	December 31, 2027
final plan	March 31, 2028

Activity 2: Development of a plan to utilize and maintain long-term monitoring and outreach restoration sites

Activity Budget: $60,000

Activity Description:
Develop procedures and plan for supporting four to six long-term restoration sites. The objective of this activity is to support and help maintain long-term monitoring and/or assessment of wetland restoration projects in Minnesota. Many of the lessons learned about wetland restoration take many years, if not decades to become clear. Many restoration projects appear successful after two-three years but may change over time especially in regards to plant community composition. The sites will include different restoration project types including marshes (Sarita wetland), wet meadows (Spring Peeper meadow), peatlands (Sax-Zim Bog) and riparian types at Cedar Creek and elsewhere. We will develop a cohesive plan for their use in outreach, both for public and student field trips. The outcomes of the monitoring will be used to inform the statewide restoration strategy and focal areas. For example, the monitoring outcomes may suggest the need for different seeding or planting strategies or different water levels to be established by outlet structures. We will evaluate the outcomes of the long-term monitoring to assess how useful the results are and if the scope or scale needs to be adjusted to better inform wetland restoration and management.

Activity Milestones:

Description	Approximate Completion Date
Lead initial planning session with partner groups	November 30, 2026
Development of long term monitoring plans and procedures	June 30, 2027
Evaluation of year 1-2 monitoring results	March 31, 2028

Activity 3: Development of training courses

Activity Budget: $92,000

Activity Description:

We will develop a plan for short courses including the curricula for 2-3 short classes on technical or policy aspects of wetland science, restoration and / or assessment. The objective of developing short courses is to perform outreach to educate existing and future wetland professionals to improve the outcomes of wetland restoration in the State of Minnesota. This may include courses on the following topics: wetland restoration evaluation; prioritization techniques, monitoring and assessment techniques. During this grant period, we will outline one and develop one course that will be offered in 2028. The training course will have a field component of one-three days with a complementary online component to allow for posting of information and learning beyond the field work period. To evaluate the training courses we'll seek feedback from peer reviewers at the University of Minnesota on the course and content and via student evaluation forms, once the course(s) are taught.

Activity Milestones:

Description	Approximate Completion Date
develop outline of training coursese	June 30, 2027
complete training courses	June 30, 2028

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?

We will coordinate closely with TNC to further develop the state wetland restoration strategy which has been outlined already. (Dr. Lenhart has appointments with both TNC and the University of Minnesota). The U of M may provide a low level of base support to maintain staff over time. Findings from the project will be posted on the BBE Departmental website and promoted at meetings and conferences around the state, such as the Water Resources Conference. We will also work closely with non-profit organizations working on wetland issues such as the Society for Wetland Scientists and Society for Ecological Restoration.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Quantifying Environmental Benefits of Peatland Restoration in Minnesota	M.L. 2023, , Chp. 60, Art. 2, Sec. 2, Subd. 08l	$754,000

Project Manager and Organization Qualifications

Project Manager Name: Christian Lenhart

Job Title: Research Associate Professor

Provide description of the project manager's qualifications to manage the proposed project.

Dr. Lenhart co-authored several widely-used management guides in Minnesota including the Aquatic Organism Passage Handbook for MnDOT (2019) and the book "Ecological Restoration in the Midwest". Chris has been leading wetland assessment and restoration projects for over twenty years. He has successfully managed over $2 million dollars in grants at the University of Minnesota including projects on treatment wetlands, wetland buffers and peatlands. Currently he is leading the peatland restoration effectiveness study for LCCMR which has led to new insights into improving restoration outcomes. He led the development of the Wetland Restoration Effectiveness Tool which is widely used by local governments for predictions of project benefits for BWSR. Since 2010 he has advised or is advising twenty graduate students and supervised tens of undergraduates on wetland, stream and water quality research projects. He has also led assessment and design of stream and wetland restoration projects and contributes to hydrologic and water quality monitoring efforts for The Nature Conservancy's Minnesota, ND, & SD chapter.

Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences

Organization Description:

In the College of Food, Agricultural and Natural Resources Sciences (CFANS) at the University of Minnesota, we look at the bigger picture. When we envision a better tomorrow, it includes disease-resistant crops, products that protect our health, lakes free from invasive species, and much more. We use science to find answers to Minnesota and the world's challenges and solve tomorrow's problems. Almost 93 percent of students who earn CFANS undergraduate degrees find jobs in their career field or enter graduate school within six months of graduation.

The Department of Bioproducts and Biosystems Engineering, in CFANS, discovers and teaches solutions for the sustainable use of renewable resources and the enhancement of the environment. We discover innovative solutions to address challenges in the sustainable production and consumption of food, feed, fiber, materials, and chemicals by integrating engineering, science, technology, and management into all degree programs.

We have a public impact through community engagement and extension efforts. We develop and deliver high quality,

regionally and nationally-recognized research-based programs to meet current and emerging needs of industry and communities. We also have a long-standing tradition of close partnerships with alumni, industry professionals, organizations, government agencies, donors, and community members.
https://bbe.umn.edu/biobrief

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Lead PI		Principal Investigator, coordinate the research efforts, design experiments and write project reports			36.6%	0.6		$97,056
Graduate Student		Conduct experiment and analysis, education			83.6%	1		$58,946
Undergraduate students		Experiment set up and take down, assist other personnel			0%	0.18		$6,550
Professional Researcher		scientific staff, working on experimental design and data collection			36.6%	0.9		$92,391
							Sub Total	**$254,943**
Contracts and Services								
							Sub Total	**-**
Equipment, Tools, and Supplies								
	Equipment	to include a laptop computer, soil augers, gloves, sample holders. cost breakdown: supplies, laptop #2400, augers $1,500 sampling gear $2000 glove, muck boots, etc, $2130	for teaching short courses and field work at monitoring sites					$8,030
	Tools and Supplies	water chemical probe	teaching and testing					$2,027
							Sub Total	**$10,057**
Capital Expenditures								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**

Travel In Minnesota								
	Miles/ Meals/ Lodging	mileage and per diem expenses; approximately 4 trips to each of 5 sites (20 trips x $250 each). Each trip costs an estimated $120 mileage and $130 lodging.	to determine and visit Center's monitoring sites					$5,000
	Conference Registration Miles/ Meals/ Lodging	1 conference, 2 people - registration 1000, 3 nights hotel $750, transportation $100, per diem $150	to share results with peers and raise awareness across MN of wetland benefits					$2,000
							Sub Total	**$7,000**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$272,000**

Classified Staff or Generally Ineligible Expenses

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

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	**-**
Non-State				
Cash	We are applying to the University of Minnesota to fund the basic operations of the Wetland Restoration Center.	for staff time for administrative functions, board setup and meetings and related functions	Pending	$40,000
			Non State Sub Total	**$40,000**
			Funds Total	**$40,000**

Total Project Cost: $312,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: 2f75c8a0-f40.pdf

Alternate Text for Visual Component

A summary of the wetland restoration center's three main activities for the proposal are shown, statewide planning, long-term monitoring, and development of training courses. These are geared at improving wetland restoration outcomes in the State of Minnesota....

Supplemental Attachments

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

Title	File
letter of authorization to submit	948475db-7d2.pdf
Audit	f991feb1-54e.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

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?

Yes

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

Yes

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF? If so, describe here (1) the source and estimated amounts of any revenue and (2) how you propose to use those revenues:

Yes, 1)short course fees, $10,000; 2) We will reinvest those funds for the long-term monitoring program

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 proposal:

Wendy Moylan, BBE Department, University of Minnesota

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

N/A