



Environment and Natural Resources Trust Fund

M.L. 2026 Draft Work Plan

General Information

ID Number: 2026-318

Staff Lead: Michael Varien

Date this document submitted to LCCMR: October 29, 2025

Project Title: United in Responding to CWD in Minnesota

Project Budget: \$2,200,000

Project Manager Information

Name: Tiffany Wolf

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Project Reporting

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

Project Completion: June 30, 2028

Final Report Due Date: August 14, 2028

Legal Information

Legal Citation:

Appropriation Language:

Appropriation End Date: June 30, 2028

Narrative

Project Summary: For our deer and the lives they sustain: integrating and deploying multidisciplinary tools against the expanding threat of chronic wasting disease to support informed and strategic responses.

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

Chronic Wasting Disease (CWD) is a fatal disorder caused by prions, whose unique durability allows them to persist in the environment for years. Where CWD has become established, deer populations have declined, land has been devalued, and hunting traditions disrupted. CWD is endemic in southeastern Minnesota and new cases continue to be detected elsewhere in the state. The threat of CWD has never been greater to the health of Minnesota's moose, elk, and deer, and the economies and lives they sustain. Previous strong bipartisan action has enabled discoveries to counter this threat to our natural resources. Thanks to pioneering investments in multidisciplinary CWD research, the Minnesota Center for Prion Research and Outreach (MNPOR) has contributed 5 patented CWD-detection technologies, 24 peer-reviewed publications, and collaborative outreach events reaching over 130,000 Minnesotans and Tribal members. In only a few years, we are making significant innovations in the areas of environmental prion detection and mitigation. MNPOR has forged an ongoing alliance with Tribal nations in Minnesota to enhance surveillance, co-develop coordinated response efforts, increase CWD knowledge, and encourage greater community participation in CWD control. The stage is set for us to advance into a new phase in the fight against CWD.

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.

Effective resource allocation for CWD management relies on integrating strong intelligence and advanced technologies. MNPOR aims to leverage its discoveries to enhance Minnesota's CWD surveillance, detection, and mitigation. We aim to build on previous RT-QuIC optimization efforts to study prion persistence and transport in environmental matrices like soil and dust, and integrate additional methodologies to validate prion detection. To better understand the geographic extent and ongoing transmission risk of CWD in Minnesota, we partner with natural resource managers at all levels, particularly Tribal natural resource agencies. These efforts include sustaining the CWD Tribal Surveillance Network, which plays a vital role in expanding CWD surveillance to benefit both Tribal and non-Tribal communities, as well as advancing live animal surveillance through ongoing deer research activities and spatial CWD modeling to understand how various factors contribute to or curb disease transmission. Finally, MNPOR will continue CWD outreach and education efforts, targeting new audiences with responsive educational materials to raise awareness and improve public engagement as disease dynamics continue to evolve.

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?

Outcomes include: continuation and creation of partnerships across Minnesota to fight CWD, ultra-sensitive environmental CWD testing and mitigation techniques, characterization of CWD outbreak risk, support of Tribal and state CWD surveillance and management activities, and expanded CWD public outreach materials for statewide distribution through electronic and in-person engagement. These outcomes will help mitigate CWD-related impacts to deer health, state economics, and associated livelihoods and cultures.

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: CWD prion contamination and spread

Activity Budget: \$712,885

Activity Description:

CWD prions are known to bind to soil and dust particles. We have developed new CWD detection protocols that facilitate environmental monitoring of CWD prions in these various matrices and will leverage these to expand our assessments of CWD prion contamination and transport. Previous soil testing of the Beltrami carcass dump site revealed prion contamination, therefore we propose ongoing testing of soil to characterize prion persistence over time. Lab-based assessments of dust particle size and associated binding capacity of CWD prions will be performed. This information will directly inform risk assessments surrounding airborne transmission of dust-borne CWD prions in both natural environments and farms. Active monitoring and assessment of CWD prion-bound dust particles will be conducted using both direct and indirect sampling via portable HEPA air filters, deployed in Beltrami and in CWD-detected and non-detected areas of the state.

Activity Milestones:

Description	Approximate Completion Date
Beltrami soil sampling through 2026 (6 total years of soil archived from Beltrami since 2021)	November 30, 2026
Lab-based air-borne prion experiments completed	June 30, 2027
Dust sampling at Beltrami dump site completed	October 31, 2027
2022-2026 archived Beltrami soil sample testing completed	December 31, 2027
RT-QuIC analysis of field-collected dust samples	June 30, 2028
Summary report of major findings of prion persistence in soil and dust particles	June 30, 2028

Activity 2: Sustaining the CWD Tribal Surveillance Network

Activity Budget: \$507,506

Activity Description:

CWD surveillance efforts in Minnesota have been primarily focused on areas of high risk (e.g., near a CWD-positive farm) or in CWD management zones where CWD has already been detected. Because of the threat of CWD to food sovereignty and Tribal culture related to deer harvest, nine Tribal and two intertribal natural resource agencies have been conducting surveillance for CWD on Tribal lands since 2020. This cooperative CWD surveillance program, which includes MNPRO collaborative support, is based on shared leadership and resources to aid Tribal management agencies in achieving their community's goals for CWD detection and control. Collectively, these efforts have expanded the geographic breadth of CWD surveillance in the state of Minnesota. Unfortunately, inconsistent Federal funding is threatening the sustainability of this program, which impacts Tribal sovereignty in the stewardship of natural resources and compromises overall surveillance for CWD in the state. Thus, funding is sought to ensure consistency in CWD surveillance that aligns with Tribal agencies' developed/developing CWD management plans and supports Tribal hunting communities that have come to rely on this service in the protection of a culturally important subsistence species.

Activity Milestones:

Description	Approximate Completion Date
Provide resources to cooperating Tribes	August 31, 2026
Samples collected and tested for CWD ELISA/IHC testing - 2026 season	January 31, 2027
Develop seasonal surveillance report	April 30, 2027
Provide resources to cooperating Tribes	August 31, 2027

Samples collected and tested for CWD ELISA/IHC testing - 2027 season	January 31, 2028
Develop seasonal surveillance report	April 30, 2028

Activity 3: Characterizing the spread of CWD in Minnesota

Activity Budget: \$753,596

Activity Description:

CWD continues to be detected in new locations across Minnesota. Ongoing surveillance in areas of new detections has uncovered additional detections in some locations but not others. It is unclear what factors contribute to these observed patterns. Thus, MNPRO will leverage a variety of tools and data sets to examine factors that may contribute to CWD transmission and outbreak establishment. For example, MNPRO has supported ante- and postmortem CWD screening of collared wild deer in areas of the greater metro area near (within 15 mi) the most recent CWD detection in Minnesota. This is in conjunction with LCCMR-supported research of wild deer movements led by Meggan Craft's lab in partnership with Three Rivers Park District and Shakopee Mdewakanton Sioux Community. We propose to continue to screen collared cervids of any study site across the state using a variety of biological samples by RT-QuIC. Further, with previous LCCMR funding, we created a spatial model of CWD to enhance understanding of environmental factors that contribute to transmission. We will integrate that information into new statistical and transmission models of CWD to better understand outbreak potential in different locations.

Activity Milestones:

Description	Approximate Completion Date
Input data assembled for CWD outbreak modeling across different MN landscapes	December 31, 2026
Preliminary results of a spatially-explicit statistical model CWD outbreak emergence	December 31, 2027
RT-QuIC test results of antemortem/postmortem samples collected from deer collaring studies	May 31, 2028
Estimates of sensitivity and specificity of antemortem testing for CWD	June 30, 2028
Report to MNBAH and MNDNR antemortem CWD test performance and outbreak emergence model.	June 30, 2028

Activity 4: CWD Outreach and Education Activities

Activity Budget: \$226,013

Activity Description:

Thanks to previous ENTRF funding, we developed CWD outreach materials for multiple communities, advanced MNPRO's website, distributed stakeholder newsletters, and connected with 130,000+ people. Annual events (e.g., Minnesota State Fair, Governor's Deer Hunting Opener, Minnesota Deer and Turkey Classic, Shakopee Mdewakanton Sioux Community Earth Day and other Tribal community events), where we have consistently had quality engagements by connecting MNPRO scientists with our Minnesota communities, will continue to play a key role in connection.

Roughly a third of respondents to our post-engagement survey at these events indicated they first learned about prion basics, testing information, identifying the disease, and persistence in the environment for the first time at our exhibits. To expand our efforts, we will look beyond self-initiated engagements from groups with which we have already enjoyed great success - public schools, Hmong communities, and conservation citizens/organizations. We will update MNPRO's existing print and digital educational materials, and create new materials to engage expanded audiences. To evaluate outreach effectiveness, we will employ several key metrics, namely our post-engagement survey and digital engagement metrics.

Activity Milestones:

Description	Approximate Completion Date

Plan and hold at least 2 CWD outreach events throughout Minnesota in 2026	December 31, 2026
Develop analysis tools to collect data on outreach impact. Secure IRB approval prior to distribution.	February 28, 2027
Plan and hold at least 3 CWD outreach events throughout Minnesota in 2027	December 31, 2027
Plan and hold a mini-symposium highlighting MNPRO discoveries to stakeholders	May 31, 2028
Synthesize outreach impact data, report overall impact of outreach activities.	May 31, 2028
Maintain, curate, update educational materials in light of annual state-wide CWD developments.	June 30, 2028

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Peter Larsen	University of Minnesota	Co-Primary Investigator. Larsen will assist with the development, oversight, and execution of all center-related research and outreach activities.	Yes
Marc Schwabenlander	University of Minnesota	Co-Primary Investigator. Schwabenlander will coordinate center-level research and outreach projects, facilitate stakeholder connections, and connect MNPRO research activities to the public.	Yes
Stuart Lichtenberg	University of Minnesota	Co-Investigator. Lichtenberg will assist with the development, oversight, and execution of all center-related research and outreach activities.	Yes
Tanya Roerick	Leech Lake Band of Ojibwe	Roerick is a long-term collaborator with MNPRO. She will lead all activities taking place on the Leech Lake Reservation, particularly related to surveillance for CWD detection.	Yes
Sarah Ruffing	Red Lake Band of Chippewa Indians	Ruffing is a long-term collaborator with MNPRO. She will lead all activities taking place on the Red Lake Reservation, particularly related to surveillance for CWD detection.	Yes
Doug McArthur	White Earth Nation	McArthur is a long-term collaborator with MNPRO. He will lead all activities taking place on the White Earth Reservation, particularly related to surveillance for CWD detection.	Yes
Mike Schrage	Fond du Lac Band of Lake Superior Chippewa	Shrage is a long-term collaborator with MNPRO. He will lead all activities taking place on the Fond du Lac Reservation, particularly related to surveillance for CWD detection.	Yes
Meggan Craft	University of Minnesota	Collaborator. PI of ongoing deer movement and disease study in the Twin Cities metro area.	No
James Forester	University of Minnesota	Collaborator. Co-PI of ongoing deer movement and disease study in the Twin Cities metro area.	No
Steven Hogg	Three Rivers Park District	Collaborator. Management partner for ongoing deer movement and disease study in Carver Lake and Elm Creek parks.	No
Colin Yoder	University of Minnesota	Co-Investigator. Dr. Yoder has been managing the coordination and support of the Tribal CWD Surveillance Network over the past 3 years. He will lead Activity 2.	Yes

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 methods and approach taken will be of broad interest to those tasked with characterizing and managing the potential risks associated with CWD, and the findings critical to the work of our own state and tribal agencies in protecting our wild deer herds and the surrounding ecosystem. Findings will be shared directly with state and tribal agencies through project reports. We will also use the following opportunities to share methods and findings more broadly:

1. dissemination via the MNPRO website: <https://mnpro.umn.edu/>
2. presentation at local, regional, and national scientific, management, and public/stakeholder meetings
3. publication of findings in peer-reviewed scientific and / or professional journals
4. dissemination to the media via press releases and UMN Research Briefs
5. testimonials to LCCMR and other policy platforms

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?

Results stemming from MNPOR's research activities will be shared with local, regional, and national partners and will be published in peer-reviewed journals, as well as shared with the public through our outreach activities. We also work to secure external funding for MNPOR functions. In particular, we are pursuing federal funds from the National Institutes of Health, National Science Foundation, Department of Defense, and the United States Department of Agriculture (USDA). We anticipate our latest research will help to secure significant external funds which will drive MNPOR's activities for the greater good of Minnesota's natural resources.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
CWD Prion Research in Soils	M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 20a5	\$336,000
Establishing a Center for Prion Research and Outreach	M.L. 2022, , Chp. 94, Art. , Sec. 2, Subd. 03k	\$3,877,000
Chronic Wasting Disease Prion Soil Research	M.L. 2022, , Chp. 94, Art. , Sec. 2, Subd. 03n	\$732,000
Emerging Issue: CWD Prions in Minnesota Waters	M.L. 2022, , Chp. 64, Art. , Sec. 2, Subd. 20b-1	\$164,000
White-Tailed Deer Movement and Disease in Suburban Areas	M.L. 2024, , Chp. 83, Art. , Sec. 2, Subd. 03u	\$699,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Principal investigators		Project manager and co-leads			36.6%	2.8		\$423,907
Co-investigators		Scientific leads for specific activities			36.6%	0.56		\$73,168
Research scientists		Scientists leading MNPRO wetlab and epidemiology projects and other laboratory staff			32.3%	7.3		\$726,810
Project management/administration/communication		Manage and maintain the operations of project activities; develop and maintain platforms for internal and external MNPRO communications			32.3%	2.24		\$227,675
Graduate students/residents		Graduate students and residents to perform research on CWD spread, persistence, diagnostic performance, and supporting surveillance			82%	4.2		\$237,082
Undergraduate students		Undergraduate students to perform research within the main MNPRO laboratory and to assist with field-work.			0%	0.5		\$10,000
Research scientist		Biorepository and database manager			36.6%	0.4		\$39,013
							Sub Total	\$1,737,655
Contracts and Services								
Equipment repair	Service Contract	Consultant Services - Equipment repair to support laboratory experiments and analysis				0		\$26,100
Waste disposal company (TBD)	Service Contract	CWD Dumpster rental for 3 Tribal Nations use (Activity 2)				0		\$4,000
NAHNL laboratory (Colorado State University or alternate)	Service Contract	CWD ELISA/IHC testing service for Tribal surveillance (Activity 2)		X		0		\$30,000

University of MN Veterinary Diagnostic Lab	Internal services or fees (uncommon)	Tissue extraction and Tribal deer head disposal (Activity 2)			0		\$18,666
University of MN Biotechnology Resource Center and Center for Metabolomics and Proteomics	Internal services or fees (uncommon)	Services to provide protein production (RT-QuIC assay), and mass spectrometry for prion detection (Activities 1,3)			0		\$13,000
Fond du Lac Natural Resource Management Division	Subaward	Enacting and managing the CWD surveillance program associated with their Tribe (Activity 2)			0.12		\$22,112
White Earth Natural Resources Department	Subaward	Enacting and managing the CWD surveillance program, and field validation of CWD diagnostic test associated with their Tribe (Activities 2)			0.1		\$26,603
Leech Lake Department of Natural Resources	Subaward	Enacting and managing the CWD surveillance program, and field validation of CWD diagnostic test associated with their Tribe (Activities 2)			2		\$83,892
Red Lake Department of Natural Resources	Subaward	Enacting and managing the CWD surveillance program, and field validation of CWD diagnostic test associated with their Tribe (Activities 2)			0.4		\$39,623
Software licensing fees	Service Contract	Software licenses are needed to support analysis and visualization of generated data.			-		\$8,900
						Sub Total	\$272,896
Equipment, Tools, and Supplies							
	Tools and Supplies	PPE including gloves, eyewear, disposable gowns, protein and DNA extraction kits, reagents, chemicals, antibodies for prion detection and visualization, RT-QuIC supplies including 96-well plates, 384-well plates, thioflavin-T, etc.; sample collection/storage. Each RT-	Lab supplies for day to day operation of MNPRO lab and field work				\$139,449

		QuIC plate, which holds 10-20 samples, depending on the sample type (environmental vs tissue) costs \$400 in materials and reagents. Thus, \$60,000 allows us to test ~150 plates (or ~700 environmental samples in Activity 1 and ~280 tissue samples in Activity 2). We anticipate approximately \$40,000 for additional laboratory supplies for experimentation, sampling and sample archival, as well as approximately \$40,000 in field supplies (including disposable environmental samplers and PPE for field crews).						
	Equipment	Small molecular lab operation equipment consisting of pipettes, vortex machines, mini-centrifuges, micro-scales, etc.	Small equipment to perform the molecular research					\$16,000
							Sub Total	\$155,449
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Travel for MNPRO staff and researchers; ~4 trips (overnight stays throughout the state) with 2-6 people per year	Conduct research, meet with stakeholders/partners, public outreach events, etc. Activities 1-4.					\$10,000
							Sub Total	\$10,000
Travel Outside Minnesota								
	Conference Registration Miles/	Funds for 1 MNPRO scientists to present research at a	To present research findings to the scientific community	X				\$5,000

	Meals/ Lodging	scientific conference, once per year	at a professional conference. Activity 1,3,4.					
							Sub Total	\$5,000
Printing and Publication								
	Publication	Fees for 2-3 open-access peer-reviewed publication of research results	Funds for MNPRO scientists to publish research findings in open-access peer-reviewed journals					\$8,000
	Printing	Outreach materials, surveys, reports, booklets, posters, models	Educating Minnesota's public and disseminating research results throughout the state					\$6,000
							Sub Total	\$14,000
Other Expenses								
		Outreach event fees for approximately 5 major outreach events (e.g., state fair, MN Deer and Turkey show)	Costs associated with participating in outreach events (booth fees, entrance, etc.)					\$5,000
							Sub Total	\$5,000
							Grand Total	\$2,200,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Contracts and Services - NAHLN laboratory (Colorado State University or alternate)	Service Contract	CWD ELISA/IHC testing service for Tribal surveillance (Activity 2)	NAHLN Laboratories are those that are USDA accredited for regulatory testing. University of MN Veterinary Diagnostic Laboratory is the only NAHLN laboratory within MN, but it does not offer CWD testing and instead outsources CWD testing to Colorado State University's NAHLN laboratory. Thus, we will work directly with CSU to conduct the necessary testing.
Travel Outside Minnesota	Conference Registration Miles/Meals/Lodging	Funds for 1 MNPRO scientists to present research at a scientific conference, once per year	Conferences in the associated fields of research are held throughout the U.S. This will allow colleagues in these fields to learn how MNPRO is leading the way in CWD research, while also allowing MNPRO scientists to connect and collaborate with these scientists.

Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount
State				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

Total Project Cost: \$2,200,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [b0414518-eac.pdf](#)

Alternate Text for Visual Component

Visual Component noting previous LCCMR-supported MNPRO discoveries and proposed work....

Supplemental Attachments

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

Title	File
Support Letter - Leech Lake Band of Ojibwe	69b0433f-36e.pdf
Support Letter - Fond du Lac Band of Lake Superior Ojibwe	59bca180-bee.pdf
Support Letter - Red lake Band of Chippewa	7c0f27cf-40a.pdf
Demonstration of 990 Exemption Requirements	f65094ad-d2c.pdf
Audit Report	8294ce52-2bc.pdf
Evidence of Good Standing with the Secretary of State	64f41d8e-0b5.pdf
Support Letter - White Earth Nation	8d25c3e0-1e5.pdf
University Endorsement	1f12a01f-5f8.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

We reduced the project timeline from 3 years to 2 years, eliminated 3 activities (previous Activities 1, 6 and 7), as well as the scope of current Activities 1, 3, and 4 to accommodate the reduced budget.

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?

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?

No

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

Yes, Sponsored Projects Administration

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:

Peter Larsen, University of Minnesota

Marc Schwabenlander, University of Minnesota

Stuart Lichtenberg, University of Minnesota

Tonya Sieler, University of Minnesota

Thomas Seiler, University of Minnesota

Mikael Elias, 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

Yes, I understand