Environment and Natural Resources Trust Fund

M.L. 2025 Approved Work Plan

General Information

ID Number: 2025-007

Staff Lead: Tom Dietrich

Date this document submitted to LCCMR: June 11, 2025

Project Title: Minnesota PlantWatch: Community Scientists Conserving Rare Plants

Project Budget: $1,086,000

Project Manager Information

Name: David Remucal

Organization: U of MN - Landscape Arboretum

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Project Reporting

Date Work Plan Approved by LCCMR: June 24, 2025

Reporting Schedule: March 1 / September 1 of each year.

Project Completion: June 30, 2028

Final Report Due Date: August 14, 2028

Legal Information

Legal Citation: M.L. 2025, First Special Session, Chp. 1, Art. 2, Sec. 2, Subd. 08a

Appropriation Language: $1,086,000 the first year is from the trust fund. Of this amount, $518,000 is to the Board of Regents of the University of Minnesota for the Minnesota Landscape Arboretum and $568,000 is to the commissioner of natural resources to enhance the Minnesota PlantWatch program to improve the conservation of Minnesota's natural resources and support community scientist-driven rare plant surveys and seed banking and preservation.

Appropriation End Date: June 30, 2028

Narrative

Project Summary: Grow MN PlantWatch to better enhance the conservation of Minnesota's natural resources by supporting community scientist-driven rare plant surveys and seed banking and investing Minnesotans in preserving their natural heritage.

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

Over 20% of Minnesota's native plant species are now considered rare, with 37 historic species now lost to Minnesota, and many more facing continual threats from development, disease and climate change. Rare species fill important ecological niches and act as indicators for habitat health. The Department of Natural Resources (DNR) tracks rare populations through the Natural Heritage Information System (NHIS); however, thousands of records are outdated or incomplete. Land managers and policymakers need current data to make effective, timely decisions and resource allocations.

Genetic diversity is crucial to species health and can encapsulate local adaptations and threat resistance. When populations decline or disappear, the lost genetic diversity can diminish species resilience against short or long-term threats. Without efforts, like seedbanking, to preserve genetic diversity, these genetic losses can be permanent.

MN PlantWatch addresses these issues by engaging volunteers to update these population records and bank seed in the University of Minnesota Landscape Arboretum's (UMLA) Rare Plant Seed Bank. This project is a popular and cost-effective community engagement approach, however, to increase its efficiency, effectiveness, and impact, we need to better incorporate private land and unverified observation records as well as improve resources for increased volunteer capacity and support.

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.

MN PlantWatch is a volunteer-based rare plant conservation project successfully piloted with ENRTF funding. It combines the DNR knowledge of rare species and data management, the seed banking expertise of UMLA and the power of passionate community scientists to increase our conservation impact. Expanding the current scope, capacity, and efficiency of this project will both amplify the utility of the NHIS data to agencies and organizations working to conserve rare species and increase the long-term preservation of rare species genetics.

Supported by our partners, we seek to increase our volunteer capacity and therefore project achievements by:
1. Surveying, updating, and reporting back to landowners/managers at least 60 priority records annually, while incorporating private land units to strengthen conservation impacts.
2. Expanding the UMLA Rare Plant Seed Bank by collecting and preserving seed from at least 20 priority populations annually.
3. Increasing volunteer capacity and support by implementing a digital platform to optimize staff-volunteer communication, coordination, and data management.
4. Training, coordinating, and supporting 50-75 community scientists annually, and increasing project outreach towards volunteers from diverse backgrounds and/or underserved communities.

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?

An amplified MN PlantWatch project enhances the conservation of Minnesota's natural resources by:
- Providing current rare species population data across the state to aid in research, planning, and decision-making for land managers/owners, conservation agencies, and policymakers.
- Preserving biodiversity by banking seed for long term preservation of rare species genetics while providing additional research opportunities for better scientific understanding of these species.

- Engaging community participation, providing purpose-driven outdoor opportunities for Minnesotans, and enhancing environmental education through hands-on conservation.
- Cost-effectively harnessing volunteer resources that enable conservation efforts of Minnesota's rare species and natural habitats.

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: Survey and Track Rare Plant Species Across Minnesota

Activity Budget: $327,000

Activity Description:
UMLA = $124,000 / DNR = $203,000
MN PlantWatch will continue to conduct rare plant surveys. Each year of funding will include species prioritization (shared responsibility), assignment development (DNR), survey and data collection (shared), data quality control and database management (DNR), and dissemination of results (shared). Staff will establish species priorities based on previous work, age of the records, potential for finding new populations, and conservation needs, as well as expanding our use of other community-sourced data (e.g. iNaturalist). Volunteers will be assigned to collect population survey data, with a goal of 60 high priority records visited annually. Data will include population size, plant community and landscape information and site conditions. Data will be disseminated through the NHIS database and directly to land managers or owners. These data will provide crucial information about individual populations and the current statewide status of these species, including the emergence of specific threats. With minimal increase in staff time and resources, MN PlantWatch will populate this database which has been an important resource for multiple different groups over many years. Data will be available to land managers, researchers, and policymakers to support sound decision-making regarding rare species conservation at the local and statewide levels.

Activity Milestones:

Description	Approximate Completion Date
Complete the first-year survey and review cycle	December 31, 2025
Complete the second-year survey and review cycle	December 31, 2026
Complete the third-year survey and review cycle	December 31, 2027
Begin the fourth-year survey and review cycle	June 30, 2028

Activity 2: Preserve Rare Plant Species Genetics in a Long-Term Seedbank

Activity Budget: $300,000

Activity Description:
ULMA = $275,000 / DNR = $75,000
Genetic diversity is crucial to species health because it encapsulates local adaptations and threat resistance. When populations decline or disappear, the lost genetic diversity can diminish the species' resilience to short or long-term threats such as disease or climate change. Collecting seed from multiple populations of the same species across its range can mitigate for losses by capturing a significant portion of these genetic variations. Long-term seed banks provide genetic repositories for individual species and support research opportunities to better understand these species and their conservation.

Very few of Minnesota's rare plant populations are currently preserved in a long-term seedbank. Staff will work with specially trained MN PlantWatch volunteers to revisit surveyed sites and collect viable seed from at least 20 priority populations annually (shared). Collected seed will be dried, cleaned, counted, curated, periodically tested for viability, and appropriately stored for seed banking by staff and volunteers (UMLA). The main repository for seed is the UMLA Rare Plant Seed Bank, and a portion of each seed collection will also be backed up at the National Lab for Genetic Resource Preservation in Fort Collins.

Activity Milestones:

Description	Approximate Completion Date
Expand seed cleaning volunteers to at least 2 volunteers to process increased banking effort.	August 31, 2025
Complete the first-year seed collection and storage cycle.	December 31, 2025
Complete the second-year seed collection and storage cycle.	December 31, 2026
Complete the third-year seed collection and storage cycle.	December 31, 2027
Begin the fourth-year seed collection and storage cycle	June 30, 2028

Activity 3: Develop and Manage a Digital Platform for Volunteers

Activity Budget: $110,000

Activity Description:
UMLA = $20,000 / DNR = $90,000
When relying on many different volunteers to conduct community science, it is important to standardize data collection processes to minimize user-introduced variance and to provide fundamental support for users with a wide range of experience. MN PlantWatch is currently developing digital tools to improve field data collection; however, this system is limited in scope and does not support the full needs of the project. To better manage the large volumes of sensitive data collected through this project, and to provide a user-friendly project interface, DNR staff (with UMLA support) intend to develop a project-specific online digital platform. The proposed platform will provide a vital link between our current data collection tools, the volunteer, and staff. It will be designed to support individual volunteer accounts to securely access online trainings, receive assignments, submit data, view accomplishments, and interact with other volunteers (to find survey partners or organize group outings, for example). Additionally, it will provide a platform for project coordinators in both institutions to communicate with volunteers, manage project data behind-the scenes, and seamlessly integrate our data into the NHIS database.

Activity Milestones:

Description	Approximate Completion Date
Survey MN PlantWatch community scientists to gather input on project communication and data entry needs.	November 30, 2025
Develop digital platform for volunteer and data management.	November 30, 2026
Refine data entry system based on user input.	November 30, 2026
Annually review data entry use by volunteers, improving as necessary.	November 30, 2027

Activity 4: Engage, Develop and Train MN PlantWatch Community Scientists

Activity Budget: $349,000

Activity Description:
UMLA = $149,000 / DNR = $200,000
MN PlantWatch trains volunteers for surveys and seed collections through a combination of pre-field and in-person field trainings conducted by staff. Our partnerships with the Minnesota Native Plant Society and the Minnesota Master Naturalists provide a source of interested and often skilled community scientists. Volunteer retainment increases project efficiency, builds skillsets over time, and boosts the quality and consistency of collected data. Group trainings and small group surveys improve survey data quality, volunteer morale, and safety.

Each year for the funding cycle of this grant, staff will conduct outreach and education activities for recruitment (shared), host online (DNR) and in-field trainings (shared) for new recruits, support volunteers on plant survey and seed collection assignments (shared), and review volunteer data management processes, recruitment, and communications (shared). We will maintain 50-75 volunteers engaged with the program via DNR's volunteer network. In addition to

annual field trainings, each year we will host a full-day annual season review and training event (UMLA), bringing volunteers together in person to review the prior field season and receive updated training or program information for the upcoming year.

Activity Milestones:

Description	Approximate Completion Date
Complete the first-year volunteer recruitment, training, deployment, and review cycle.	December 31, 2025
Complete the second-year volunteer recruitment, training, deployment, and review cycle.	December 31, 2026
Complete the third-year volunteer recruitment, training, deployment, and review cycle.	December 31, 2027
Begin the fourth-year volunteer recruitment, training, deployment, and review cycle.	June 30, 2028

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Holly Bernardo	Minnesota Department of Natural Resources	Will work with UMLA to train, coordinate, and lead volunteers. Will oversee data entry and management, and development of digital project platform in collaboration with MNIT.	Yes
Scott Milburn	Minnesota Native Plant Society	Source of vast botanical knowledge to be able to train conservation corps volunteers, especially in regards to advanced training.	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.
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. MN PlantWatch staff will continue to present the project before public groups. including large scale venues as the Minnesota State Fair. Both the Landscape Arboretum and the Minnesota DNR have publications and audiences they can reach to educate about the effort and accomplishments of this project, especially websites that have information and recruitment material for potential volunteers. We also will disseminate information to current volunteers through a web portal allowing for quicker and more efficient communication with volunteers.
MBS data are primarily stored in the DNR Natural Heritage Information System. Data on state and federal-listed 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 also often delivers data in response to requests from researchers at academic institutions, government agencies, and other organizations.

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?
Both the community science survey project and the seedbank are designed to be long-term entities, this proposal helps with establishing the volunteer group and effectively managing the information and data this will produce. The Arboretum and DNR are committed to maintaining their long-term conservation priorities as embodied in this proposal and establishing ongoing project funding for supporting the community scientists and seed bank to accomplish this.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Preserving Minnesota's Only Ball Cactus Population	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08d	$103,000
Minnesota's Volunteer Rare Plant Conservation Corps	M.L. 2022, , Chp. 94, Art. , Sec. 2, Subd. 08a	$859,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Curator of Endangered Plants (UMLA)		Principal Investigator - Project management, volunteer training, seed collection			37.1%	0.6		$82,500
Conservation Botanist (UMLA)		Manage and train volunteers, in partnership with DNR position. Also managing seed collection and advising on species prioritization.			37.1%	1.2		$130,000
Seedbank Coordinator (UMLA)		Manage seed bank intake and initial germination testing to verify viability			33.5%	1.2		$119,000
Field Botanist (UMLA)		Seed collection, volunteer field training and support for plant identification and field methods			33.5%	1.5		$148,000
Intern (DNR)		Assist with field surveys and seed banking activities.			0%	0.3		$25,000
Community Science Coordinator (DNR)		Manage and train volunteers, in partnership with MLA position. Primarily responsible for population surveys, data systems and management, volunteer coordination and leading temporary staff (intern and CCMI placement).			28%	3		$300,000
							Sub Total	**$804,500**
Contracts and Services								
MNIT (State of Minnesota IT - DNR)	Internal services or fees (uncommon)	Website development for enhanced volunteer usability.				0.2		$70,000
Annual contract for database software (UMLA)	Service Contract	Database software specifically designed for seed bank management and living collection curation				0		$6,000
Venue rental for annual volunteer retreat	Service Contract	Venue rental for annual season review and training event (full-day event to provide updated training and program information for 50 people)				0		$1,500

									Amount
training and review event (UMLA)									
CCMI Individual Placement (DNR)	Subaward	Volunteer training and support (create assignments, plant ID guides, etc.), field work for surveys and seed collection, data entry and QAQC, general assistance to Coordinator.					1.5		$100,000
								Sub Total	**$177,500**
Equipment, Tools, and Supplies									
	Tools and Supplies	Seed banking supplies (UMLA) - These include collection envelopes, desiccant material and containers, seed cleaning tools, germination testing supplies and media and seed storage containers.	Supplies needed for the collection, preparation, testing and storage of seed material in the long-term seed bank.						$2,000
	Tools and Supplies	Volunteer supplies (UMLA) - field gear including safety and protective gear such as first aid kits, insect protection and sun protection; and data collection supplies and tools (clipboards, paper, field tape measures, pin flags, etc.), field plant identification supplies (field glasses, field guides, plant press material)	Field tools and equipment needed for typical field work for volunteers for both safety and data collection purposes						$3,600
	Tools and Supplies	Volunteer supplies (DNR) - field gear including safety and protective gear such as first aid kits, insect protection and sun protection; and data collection supplies and tools (clipboards, paper, field tape measures, pin flags, etc.), field plant identification supplies (field glasses, field guides, plant press material)	Field tools and equipment needed for typical field work for volunteers for both safety and data collection purposes						$7,000
								Sub Total	**$12,600**
Capital Expenditures									
								Sub Total	-
Acquisitions and Stewardship									
								Sub Total	-

Travel In Minnesota								
	Miles/ Meals/ Lodging	UMLA - 90 trips (60 overnight), 250 mi, 1 person per trip, $182.50 for lodging/meals per trip, $0.56/mile	Mileage reimbursement, food and lodging for training, seed collecting, and surveying trips for UMLA staff					$20,000
	Miles/ Meals/ Lodging	DNR - Travel for a 2-person crew for 2 field seasons to sample 120 sites (60 overnight), one site per day; 15,000 miles. Vehicles ($10,496), lodging ($13,800), and meals ($7,500) in accordance with the Commissioner's Plan.	Mileage reimbursement, food and lodging for training, seed collecting, and surveying trips for DNR staff and CCMI placement.					$29,320
							Sub Total	$49,320
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
		Staff Wilderness First Aid Training (UMLA) - 8 staff for 2 year certifications	Training for staff in specialized wilderness first aid techniques (above and beyond normal First Aid/CPR certifications)					$2,400
		Food and beverages (50 people) (UMLA)	Needed for annual season review and training event (full-day event to provide updated training and program information for 50 people)	X				$3,000
		Direct & Necessary (DNR)	DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. HR Support ($7,946), Safety Support ($1,116), Financial Support ($3,495), Communication Support ($1,528), IT Support ($21,459), and Planning Support ($1,137).	X				$36,680
							Sub Total	$42,080

							Grand Total	$1,086,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Other Expenses		Food and beverages (50 people) (UMLA)	Because this is a full-day event and a large percentage of the volunteers will be attending from outside of the metro area we will need to provide a meal for the group
Other Expenses		Direct & Necessary (DNR)	DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. HR Support ($7,946), Safety Support ($1,116), Financial Support ($3,495), Communication Support ($1,528), IT Support ($21,459), and Planning Support ($1,137).

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
In-Kind	Heritage Enhancement	10% of a DNR staff time to data collection and training support for 3 years	Pending	$37,500
In-Kind	General Fund	10% of a DNR staff time to data collection and training support; 5% of a DNR staff time to project coordination, supervision and support. For three years each.	Pending	$56,250
In-Kind	Reinvest in MN	5% of a DNR staff time to project coordination, supervision and support for three years.	Pending	$18,750
			State Sub Total	**$112,500**
Non-State				
In-Kind	UMLA Foundation	Additional staff time for UMLA employees	Pending	$135,000
In-Kind	UMLA Foundation	Greenhouse infrastructure and staff services	Pending	$5,250
			Non State Sub Total	**$140,250**
			Funds Total	**$252,750**

Total Project Cost: $1,338,750

This amount accurately reflects total project cost?

    Yes

Attachments

Required Attachments

Visual Component

File: 42855485-b89.pdf

Alternate Text for Visual Component

Draft visual showing major partners and stakeholders of this project and how they will contribute to strengthening and managing the volunteer program....

Supplemental Attachments

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

Title	File
Letter of Support - Minnesota Master Naturalists	91748f0b-175.pdf
UMN Sponsored Projects Administration endorsement letter	abdca5a3-ae3.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

Activity descriptions modified to detail distribution of responsibilities between two budgeted partners as discussed with LCCMR staff. Budget was also modified as such after converting DNR contract to itemized budget items. Dissemination plan added. Added requested changes to budget category items.

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?
>	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:

>	Angel Miner (UMLA); Holly Bernardo (MN DNR); Deanna Leigh (MN DNR)

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