



Environment and Natural Resources Trust Fund

2025 Request for Proposal

General Information

Proposal ID: 2025-007

Proposal Title: Minnesota PlantWatch: Community Scientists Conserving Rare Plants

Project Manager Information

Name: David Remucal

Organization: U of MN - Landscape Arboretum

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Project Basic Information

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.

ENRTF Funds Requested: \$1,086,000

Proposed Project Completion: June 30, 2028

LCCMR Funding Category: Methods to Protect or Restore Land, Water, and Habitat (F)

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

Narrative

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(DNR) tracks rare populations through the Natural Heritage Information System (NHIS); however, thousands of records are outdated or incomplete.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.

Activities and Milestones

Activity 1: Survey and Track Rare Plant Species Across Minnesota

Activity Budget: \$327,000

Activity Description:

MN PlantWatch will continue to conduct rare plant surveys. Each year of funding will include species prioritization, assignment development, survey and data collection, data quality control and database management, and dissemination of results. 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 (such as iNaturalist). Volunteers will be assigned to collect population survey data, with a goal of at least 60 high priority records visited annually. Data collected 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 collected through this project 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:

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. Collected seed will be dried, cleaned, counted, curated, periodically tested for viability, and appropriately stored for seed banking by staff and volunteers. 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
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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:

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, we 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 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:

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, host online and in-field trainings for new recruits, support volunteers on plant survey and seed collection assignments, and review volunteer data management processes, recruitment, and communications. We will maintain 50-75 volunteers engaged with the program. In addition to annual field trainings, each year we will host a full-day annual season review and training event, 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

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 have established ongoing project funding for the community scientist 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

Project Manager and Organization Qualifications

Project Manager Name: David Remucal

Job Title: Curator of Endangered Plants

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

Dr. Remucal is the Curator of Endangered Plants at the Minnesota Landscape Arboretum where he has developed and managed the Plant Conservation Program since its inception in 2013. A graduate of Carleton College, he received his PhD in plant reproductive ecology and evolution from the University of Colorado. He will provide overall project direction. As manager of the Plant Conservation Program, he has demonstrated the ability to manage and develop budgets, direct volunteers and staff, work with stakeholders, coordinate with remote and local partners, communicate program information and results to a variety of audiences, and expand the scope and influence of the MLA Conservation Program. As part of outreach and education for the program, he teaches and presents to multiple groups every year and works to reach a broad audience around the state. The Plant Conservation Program strives to work with a broad coalition of partners for its work, engaging with regional NGOs, federal, state and local governmental agencies and researchers and groups nationally and internationally-based. Remucal and the Plant Conservation Program has parlayed previous LCCMR grants into a nationally-recognized orchid research and conservation program, as well as a valuable partner organization for Minnesota-based groups working in native resources conservation.

Organization: U of MN - Landscape Arboretum

Organization Description:

The U of MN Landscape Arboretum, founded in 1958, is a 1,200-acre premier northern garden that includes 28 specialty gardens, 45 plant and tree collections, 18 model landscapes and natural areas, and an extensive collection of northern hardy plants. Located 35 minutes west of Minneapolis-St. Paul, the Arboretum's 12.5 miles of garden paths and hiking trails welcome 500,000 visitors each year who are inspired by their explorations of nature, the many seasonal displays and exhibits, and hands-on educational programming. The Arboretum's mission is to welcome, inform and inspire all through outstanding displays, protected natural areas, horticultural research and education. Its vision is to be the premier northern landscape arboretum, welcoming all to enjoy, learn from and connect with nature.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Curator of Endangered Plants		Principal Investigator - Project management, volunteer training, seed collection			37.1%	0.6		\$82,500
Conservation Botanist		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 Manager Coordinator		Manage seed bank intake and initial germination testing to verify viability			33.5%	1.2		\$119,000
Field Botanist		Seed collection, volunteer field training and support for plant identification and field methods			33.5%	1.5		\$148,000
UMLA Seasonal Field Assistant		Assist in all aspects of the project, especially learning to work with volunteers and conservation of rare plants			33.5%	1.11		\$60,000
							Sub Total	\$539,500
Contracts and Services								
MN Department of Natural Resources	Sub award	Staff salary for volunteer recruitment, coordination, and training, fieldwork, and data/website management. Contract includes \$365000 for unclassified staff salary, \$17517 for in-state travel, \$5000 for field and training supplies, \$70000 for website development and \$42483 for Direct and Necessary standard contract costs for DNR.		X		3.9		\$500,000
Annual contract for database software	Professional or Technical Service Contract	Database software specifically designed for seed bank management and living collection curation				-		\$6,000
Venue rental for annual volunteer retreat training and review event	Professional or Technical 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

							Sub Total	\$507,500
Equipment, Tools, and Supplies								
	Tools and Supplies	Seed banking supplies	Supplies needed for the collection, preparation and storage of seed material in the long-term seed bank.					\$2,000
	Tools and Supplies	Volunteer supplies	Supplies needed for volunteer field work					\$3,600
							Sub Total	\$5,600
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	120 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					\$28,000
							Sub Total	\$28,000
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
		Staff Wilderness First Aid Training - 8 staff for 2 year certifications	Training for staff in specialized wilderness first aid techniques (above					\$2,400

			and beyond normal First Aid/CPR certifications)					
		Food and beverages (50 people)	Needed for annual season review and training event (full-day event to provide updated training and program information for 50 people)	X				\$3,000
							Sub Total	\$5,400
							Grand Total	\$1,086,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Contracts and Services - MN Department of Natural Resources	Sub award	Staff salary for volunteer recruitment, coordination, and training, fieldwork, and data/website management. Contract includes \$365000 for unclassified staff salary, \$17517 for in-state travel, \$5000 for field and training supplies, \$70000 for website development and \$42483 for Direct and Necessary standard contract costs for DNR.	DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. HR Support (\$9,391), Safety Support (\$1,318), Financial Support (\$3,749), Communication Support (\$1,528), IT Support (\$25,360), and Planning Support (\$1,137).
Other Expenses		Food and beverages (50 people)	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

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

Administrative Use

Does your project include restoration or acquisition of land rights?

No

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 proposal:

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