



Environment and Natural Resources Trust Fund

2022 Request for Proposal

General Information

Proposal ID: 2022-006

Proposal Title: Minnesota's Volunteer Rare Plant Conservation Corps

Project Manager Information

Name: David Remucal

Organization: U of MN - Landscape Arboretum

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Project Basic Information

Project Summary: Establish a volunteer corps to survey, monitor and bank seed for rare plant populations around the state, enhancing the effectiveness and efficiencies of conservation efforts of multiple stakeholders across Minnesota.

Funds Requested: \$859,000

Proposed Project Completion: June 30 2025

LCCMR Funding Category: Methods to Protect, Restore, and Enhance 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.

Roughly one-quarter of Minnesota's diverse flora (1,900 plant species) is described as rare (see Visual Aid). These plants are invaluable components of the state's biodiversity and natural heritage but are declining or vulnerable to loss at an increasing rate. In fact, over 100 native plant species once known from Minnesota are now completely gone and 60 species have five or fewer known populations in the state. Currently, groups like the Minnesota Department of Natural Resources (MN-DNR) and the University of Minnesota Landscape Arboretum (UMLA) conduct rare plant surveys and seedbanking but the need and urgency for conservation outpace what those programs can do with available funding and staff. Additionally, rare plant conservation efforts around the state are largely uncoordinated between groups, thus inefficient and less effective.

Other states or regions (i.e. WI, IL, CA, New England, etc.) have countered these issues with successful establishment of rare plant volunteer corps. They recruit and train volunteers to survey and monitor rare plant populations, and in more advanced cases collect seed for preservation banking. Minnesota lacks a comprehensive coordinated state-wide surveying and seedbanking rare plant survey and seedbanking program that could be utilized for current and increasing needs.

What is your proposed solution to the problem or opportunity discussed above? i.e. What are you seeking funding to do? You will be asked to expand on this in Activities and Milestones.

To address these problems, we proposed to establish a volunteer-based Minnesota Rare Plant Conservation Corps to assist groups like the MN-DNR and UMLA. The Corps will dramatically increase capacity to survey, monitor, and protect MN's invaluable rare plants.

A large corps of citizen botanists from across the state would be recruited, trained, coordinated. Volunteers will lead and assist in rare plant surveys, monitoring and seedbanking efforts. Managed by a team of UMLA and MN-DNR biologists, this program would call upon MN residents, interested in plant conservation, to collect vital data needed to protect rare plants and build on data already available at UMLA, MN-DNR and the UMN Bell Herbarium. This Corps will also tap into groups like the MN Master Naturalists and the Minnesota Native Plant Society, thus pulling together existing resources and people in a coordinated effort. This data collection effort will be paired with seed collection to establish a statewide long-term rare plant seed bank which is an expansion of UMLA's existing long-term seed bank.

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?

This project will bring together the strengths and expertise of several groups in the state, to magnify their already significant separate current conservation efforts and create a robust infrastructure to manage and continue this increased effort to protect Minnesota's native flora.

1. Develop and coordinate a corps of plant volunteers – training new and returning volunteers annually to support a continual corps of 50 active citizen botanists.
2. Prioritize and collect data on rare species, targeting 50 or more historical or anecdotal rare plant records of most need annually.
3. Establish multiple long-term seed banks for the highest priority species.

Activities and Milestones

Activity 1: Development and Training of Rare Plant Conservation Corps

Activity Budget: \$259,600

Activity Description:

Volunteers will go through a training process that will include proper plant identification, data collection and field techniques. Training will happen on an annual/semi-annual basis. Once new volunteers are trained there will be refresher trainings for returning volunteers to enhance knowledge and build community. Because the environments in which rare plants are found are often fragile, training will also include proper field etiquette and the importance of minimizing impact on both plants and environment. In-person training will be done when possible, but because of the geographic spread of potential volunteers, online training modules will also be used.

The Rare Plant Corps would expand upon the small group of volunteers MN-DNR currently trains for rare plant surveys by increasing DNR and UMLA staff time dedicated to training and volunteer coordination. The Corps would also be highly efficient as it would utilize institutional knowledge and training infrastructure from the Minnesota Master Naturalists as well as botanical expertise available in the Minnesota Native Plant Society.

Activity Milestones:

Description	Completion Date
Finalize training materials for in person and online platforms	December 31 2022
Train the first cohort of volunteers	June 30 2023
Establish a corps of 50 active volunteers by the end of the granting period	June 30 2025

Activity 2: Rare Plant Corps Survey Rare Species Across the State

Activity Budget: \$256,800

Activity Description:

UMLA and MN-DNR staff and other stakeholders will help develop a priority list of locations for field surveys based on species' need and status. Rare Plant Corps volunteers will begin by surveying old records (>20 years old) of rare plant populations from data in various repositories, including the MN-DNR databases and UMN Bell Herbarium. They will also survey unverified locations from anecdotal records based on priorities.

Data collected by the Rare Plant Corps will be entered to the MN-DNR Natural Heritage Information System, the state's long-standing most comprehensive source of data on Minnesota's rare species, native plant communities, and other natural features. This volunteer corps will be able to add vital data to this database which has been an important resource for multiple different groups over many years with minimal increase in staff time and resources.

Activity Milestones:

Description	Completion Date
Establish initial species priorities for data collection and seedbanking	August 31 2022
Survey at least 40 high priority records of greater than 25 years in age	November 30 2023
Annual end-of-year review for volunteers and internal review of priority list and volunteer systems	December 31 2023
Survey at least 60 high priority records of greater than 20 years in age	November 30 2024
Enter data into MN-DNR Natural Heritage Information System	November 30 2024

Activity 3: Collect seed from rare plant species across the state for long-term seedbanking

Activity Budget: \$342,600

Activity Description:

Building on the increased survey information this program will produce, UMLA staff and advanced trained volunteers will collect seed from species derived from internal and external stakeholder priority lists, to bank in the UMLA long-term seed bank. This will be a huge influx of seeds and data for the UMLA seed bank program and will stretch existing UMLA seedbanking capacities. For this activity, UMLA will enhance current staff and its existing volunteer corps to clean, process, package and manage seed collections and expand infrastructure and information systems to manage the influx of seed. Seed collections will be backed up (i.e., a portion of a seed collection sample is stored at an alternate facility) under the current UMLA agreement with the National Lab for Genetic Resource Preservation in Fort Collins.

Activity Milestones:

Description	Completion Date
Develop or license a database to manage increased data needs for seedbanking and testing.	August 31 2022
Bank seed from at least 30 high priority populations from the state of Minnesota	October 31 2023
Expand seed banking infrastructure to handle increased seedbanking storage needs.	October 31 2023
Bank seed from additional at least 35 high priority populations from the state of MN	October 31 2024

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Bruce Carlson	Minnesota Department of Natural Resources	Will be working with UMLA to train and lead volunteer corps. Will be managing the data entry and management of the volunteer corps survey data.	Yes
George Weiblen	UMN Bell Museum/Herbarium	The Minnesota Biodiversity Atlas houses much of the data the volunteer corps will be using to perform survey work. The Atlas database will benefit directly from the verification work performed by this corps, greatly increasing the accuracy of the data housed.	No
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 be funded?

Both the volunteer corps and the seed bank are designed to be long-term entities, this proposal helps with initial start-up costs associated with establishing a volunteer corps 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 program funding for the volunteer corps and seed bank to accomplish this.

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 two previous LCCMR grants into a nationally-recognized orchid research and conservation program.

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			36.5%	1.2		\$112,000
Plant Conservation Program Associate		Manage and train volunteers, in partnership with DNR position. Also managing seed collection and advising on species prioritization.			31.8%	2.4		\$151,000
Greenhouse Technician		Manage seed bank intake and initial germination testing to verify viability			31.8%	2.4		\$132,000
Field Botanist		Seed collection, volunteer field training and support for plant identification and field methods			8%	0.78		\$35,000
UMLA Intern		Assist in all aspects of the program, especially learning to work with volunteers and conservation of rare plants			8%	0.69		\$21,000
DNR Program Coordinator		Volunteer recruitment, coordination, training, data management and entry			30%	3		\$314,098
							Sub Total	\$765,098
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
	Tools and Supplies	Seed banking supplies - UMLA	Supplies needed for the collection, preparation and storage of seed material in the long-term seed bank.					\$4,000
							Sub Total	\$4,000
Capital Expenditures								

		Annual contract for database software - UMLA	Database software specifically designed for seed bank management and living collection curation					\$6,000
		Seed bank freezer - UMLA	Additional large freezer to house additional seed bank influx					\$12,000
							Sub Total	\$18,000
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	120 trips (90 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, surveying and monitoring trips for UMLA staff					\$34,000
	Miles/ Meals/ Lodging	54 trips (41 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, surveying and monitoring trips for DNR staff					\$15,000
							Sub Total	\$49,000
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
		DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. HR Support (\$4,993), Safety Support (\$773), Financial Support (\$4,194), Communication Support (~\$1,311), IT Support (\$10,622), and Planning Support (~\$1,008).	DNR Direct & Necessary					\$22,902

							Sub Total	\$22,902
							Grand Total	\$859,000

Classified Staff or Generally Ineligible Expenses

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

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

Attachments

Required Attachments

Visual Component

File: [3b2b143e-7ef.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....

Optional Attachments

Support Letter or Other

Title	File
UMN Master Naturalists Letter of Support	5e367e3c-aa2.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

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?

Yes, Sponsored Projects Administration

Minnesota's Volunteer Rare Plant Conservation Corps



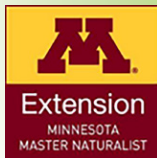
MN Biological Survey

- Natural Heritage Information System
- Survey expertise



UMN Landscape Arboretum

- Long-term rare plant seed bank
- Conservation research



MN Master Naturalists

- Statewide trained naturalist volunteers
- Training expertise



MN Native Plant Society

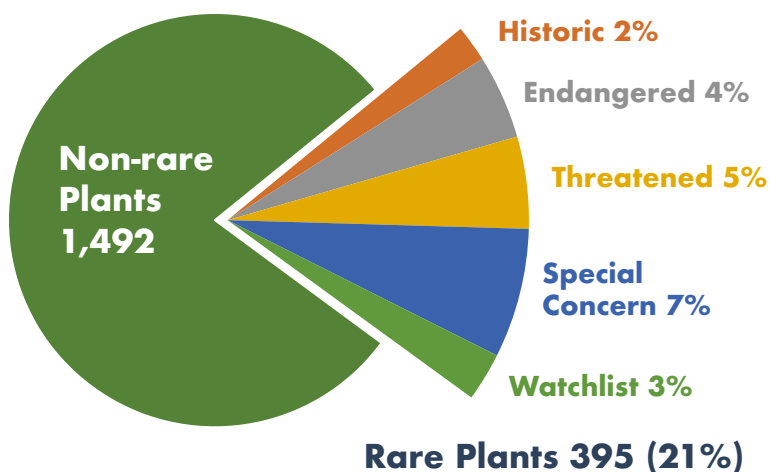
- Avid amateur and professional botanists focused on MN



UMN Bell Herbarium

- Repository of wealth of recent and historical plant records

MN Native Plant Species



Bringing these groups together and creating a volunteer plant conservation corps will:

- update vital old records
- discover new populations
- bank valuable genetic resources
- increase the success of conservation efforts across the state

