Environment and Natural Resources Trust Fund

2022 Request for Proposal

General Information

Proposal ID: 2022-248

Proposal Title: Wetland Restoration of UMLA's New Gateway Entry2

Project Manager Information

Name: Steven Van Natta

Organization: U of MN - Landscape Arboretum

Office Telephone: (612) 301-7723

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Project Basic Information

Project Summary: County/MnDOT improvements expand Highway 5 by 2025, addressing traffic/safety concerns. UMLA must move its gateway entry to "Wetlands 14 and 15", requiring restoration to these newly prominent areas.

Funds Requested: $174,000

Proposed Project Completion: June 30 2025

LCCMR Funding Category: Small Projects (H)

Secondary 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?

Region(s): Metro

What is the best scale to describe the area impacted by your work?

Region(s): Metro

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.

The University of Minnesota Landscape Arboretum (UMLA) plans to move its main public entrance to the intersection running opposite to Minnewashta Parkway, west of the current entrance. The new entrance will utilize an old roadway that lies among three wetland fragments totaling 11.6 acres of native wetlands (Attachment / Figure 1).

Biodiversity of native flora and fauna have declined in these wetlands and the surrounding uplands and has been replaced by non-native species. Specifically, the decline in native sedges (Carex spp.) formerly abundant in these wetlands may have contributed to population declines for butterfly species known to occur at the UMLA, including broad-winged (Poanes viator) and Dion skippers (Euphyes dion). Each of these species are known to use lake sedge (Carex lacustris) as a host plant.

Restoration will reduce non-native and invasive species near the new entrance road. These plant communities will be in an ideal location for highly visible wetland restoration to teach visitors about native plant communities and provide an example of a natural marsh community and native forests. The project will target restoration of native plants, especially sedges, to improve biodiversity and benefit native pollinator and insect communities.

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.

Funding will support ecological restoration planning and implementation of up to three years of management. Previous assessments were completed 10+ years ago. Additional information is needed before a restoration plan can be implemented. The goal is to restore the diverse native plant communities that will support other diverse species.

Restoration will begin with an assessment of vegetation and abiotic conditions in the area (to be completed/paid for independently and prior to grant period). Ecologists will visit the site to assess existing conditions and formulate a plan to reduce invasive species. A restoration plan will specify timing, chemical applications, and target areas for treatments. The plan will include recommendations to avoid native species currently present in the area to minimize non-target effects of certain treatments. Funding will support plan implementation.

Adaptive restoration management techniques will be used. Management activities will focus on treatments that minimize potential negative effects on native plants and animals wherever possible. Annual treatments will be implemented in small areas and assessed to determine effectiveness and potential non-target effects. Plans will be modified annually based on results of each assessment. It is expected that treatments will continue to gradually reduce invasive species throughout the area.

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?

The primary goals are to restore diverse plant and animal communities and provide public education. The target plant communities include wetlands dominated by native sedges and upland forests with native shrubs and herbaceous plants. This project will enhance biodiversity at the UMLA, which includes 1,200 acres, much of which is managed native habitats. The UMLA's 500,000 visitors and 500 active volunteers will be able to visit this restored area, learn about this wetland restoration project online and experience Minnesota native flora and fauna.

Activities and Milestones

Activity 1: Development of an adaptive management plan based on previous assessments of the communities and adjacent uplands

Activity Budget: $3,900

Activity Description:
Development of an adaptive management plan for wetlands 14 and 15 will rely on vegetation assessments conducted by Barr Engineering ecologists in 2021, and by Julia Bohnen and Susan Galatowitsch in 2012 (please refer to attachment). The assessments provided vital information on dominant plant species, invasive species, and high-quality indicator species. Current conditions, vegetation and hydrology were documented to the degree practical during the one-day field visits.

From data collected, existing condition maps showing the vegetation communities and summary of vegetation in each map unit, Barr Engineering ecologists will support the development of an adaptive management plan. In July 2022, ecologists will meet with UMLA staff and other University of Minnesota (UMN) staff to review field assessment results and discuss key considerations for restoration planning. The deliverable is a plan with sufficient detail to guide restoration contractors and UMLA staff. The management plan will include invasive species removal activities (mowing, spot treatments and biocontrol), conservation activities for high-quality indicator species (native seedbank assessments and protection) and native species planting recommendations based on Native Vegetation Establishment and Enhancement Guidelines from the Board of Soil and Water Resources.

Activity Milestones:

Description	Completion Date
Development of a adaptive management restoration plan, based on prior vegetation assessment and field work	July 31 2022

Activity 2: First year (7/2022) management activities to remove invasive species within initial treatment areas and continue assessments for next steps

Activity Budget: $56,700

Activity Description:
Management activities will begin July 2022 based on recommendations made in the restoration plan developed in Activity 1. Contractors will treat invasive species with spot-treatment herbicide applications within a portion of the area as defined during assessments. Timing of treatment and methods will depend on target species for removal and presence of desirable native vegetation.
Three invasive species are expected to be managed with the following methods. First, reed canary grass (Phalaris arundinacea) would be treated with a grass-specific herbicide or mowing in the summer followed with a late season foliar overspray. Second, non-native cattails (Typha angustifolia or T. x glauca) would be treated with spot-treatment or hand-wicking herbicide with two separate treatments in a given area. Third, common buckthorn (Rhamnus cathartica) would be treated in the fall by hand-pulling or cutting and treating the stumps with herbicide. The specific timing and methods may be modified depending on 2021 assessments and management planning.
Herbicide applications would be directed by an experienced restoration ecologist and completed by a knowledgeable ecological restoration contractor. Assessments would be completed near the end of the growing season to help begin planning for 2023. Project activities/education will be shared on the UMLA website.

Activity Milestones:

Description	Completion Date
Reduction in cover of invasive species present in restoration areas	November 30 2022
Project activities/education will be shared on the UMLA website.	November 30 2022

Activity 3: Second year (2023) management to follow-up in 2022 treatment areas; ensure native reestablishment; and expand treatment areas

Activity Budget: $56,700

Activity Description:
Management activities in 2023 would begin as described in the restoration plan and modified based on 2022 assessments. Additional assessments would be completed in June 2023 to determine the success of 2022 treatments and the need for follow-up treatments. The restoration plan would be adapted according to the findings of the assessment.
The first priority of management activities in 2023 would be to follow-up within the 2022 treatment areas, to ensure success in those areas. We are expecting to install some native plants or seed to supplement diversity and to support native species that will help to compete with invasives and facilitate reestablishment. However, natural reestablishment will be preferred if natives are already present, as expected in many portions of the site.
Management treatments will continue into additional areas as identified in the restoration plan and modified according to subsequent assessments. Contractors will treat invasive species with spot-treatment herbicide applications based on methods similar to treatments in 2022, but modified based on success and known problems. The assessments of all areas treated in 2022 and 2023 will be completed again near the end of 2023 to begin planning for 2024. Project activities/education will be shared on the UMLA website.

Activity Milestones:

Description	Completion Date
Reduction in cover of invasive species present in restoration areas.	November 30 2023
Project activities/education will be shared on the UMLA website.	November 30 2023

Activity 4: Third year (2024) management to follow-up in previous treatment areas; ensure native reestablishment; and expand treatment areas, as appropriate.

Activity Budget: $56,700

Activity Description:
Management activities in 2024 would begin as described in the restoration plan and modified based on previous assessments. Additional assessments would be completed in June 2024 to determine the success of 2022 treatments and the need for follow-up treatments. The restoration plan would be adapted according to the findings of the assessment.
The first priority of management activities in 2024 would be to follow-up within the previous treatment areas. Additional native plants would be installed, as appropriate with consideration for the survival of those planted in 2023, if any. If invasive species within the previous treatment areas are regenerating, those would be treated again, or a new plan would be developed to improve control methods. The 2022 treatment areas should have a low prevalence of invasive species and management in that area should be minimal to avoid re-establishment of natives.
Remaining areas of invasive species would be treated in 2024 as needed. Control measures would be further refined to minimize damage to existing natives. Vegetation assessments would still occur to inform future management decisions. Follow-up maintenance of these areas is expected after 2024 using best practices developed from 2022-24. Project activities/education will be shared on the UMLA website.

Activity Milestones:

Description	Completion Date
Reduction in cover of invasive species present in restoration areas.	November 30 2024
Project activities/education will be shared on the UMLA website.	November 30 2024

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Susan Galatowitsch	University of Minnesota	Review vegetation assessment information gained from Barr Engineering Make recommendations on projects moving forward.	No
Julia Bohnen	University of Minnesota	Review vegetation assessment information gained from Barr Engineering Make recommendations on projects moving forward.	No
Erin Buchholz	UMN Landscape Arboretum (UMLA)	Review vegetation assessment information gained from Barr Engineering Make recommendations on treatment applications: Chemical application timing & techniques.	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?

The project will be implemented through contractors and UMLA staff. Funding will support initial restoration work in 3 years by hiring professional restoration ecologists and specialists to assess the site, plan the implementation, complete removal activities, and begin long-term management. UMLA staff will assist and learn maintenance methods.

UMLA will support ongoing maintenance. After grant completion, UMLA will fund staff to manage the area - preventing invasive species establishment and growth. Alongside other UMLA restoration efforts, donors will be invited to support ecological restoration activities and maintenance. This new entrance will be a focal point and used to attract donors.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Pollinator Education Center at the Minnesota Landscape Arboretum	M.L. 2014, Chp. 226, Sec. 2, Subd. 09f	$615,000
Preserving Minnesota's Native Orchids - Phase 2	M.L. 2018, Chp. 214, Art. 4, Sec. 2, Subd. 08h	$259,000

Project Manager and Organization Qualifications

Project Manager Name: Steven Van Natta

Job Title: Horticulture Manager

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

Steve Van Natta is an ASHS Certified Professional Horticulturalist and GCSA Certified Golf Course Superintendent. Steve has worked at the UMLA for 7 years in a Horticulture Manager role, overseeing 60 staff members and hundreds of volunteers each year. He is an experienced Horticulturalist with a demonstrated history of working in the environmental services industry. Steve has successfully managed 14 Wetland and Upland Prairie Restorations projects in the Golf construction industry and MNLA site. Skilled in IPM Pest Control, Environmental Awareness, Horticulture, Agronomy, Equipment Mechanics, Irrigation and Best Management Practices in Golf Course Maintenance. Strong professional with a Bachelor of Science (BS) focused in Horticulture from University of Wisconsin-River Falls.

Organization: U of MN - Landscape Arboretum

Organization Description:

The U of MN Landscape Arboretum (UMLA), 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, UMLA'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. UMLA'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.

The UMLA was borne out of the UMN's Horticultural Research Center and is an established, nationally recognized research institution that includes a Plant Conservation Program focused on developing and implementing conservation strategies for imperiled native MN plants. This project will enhance biodiversity at the UMLA, much of which is managed in native habitats. UMLA's 500,000 annual visitors and 500 active volunteers will be able to visit this restored area among others to experience Minnesota's native flora and fauna.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Steve Van Natta/P.I./P&A		Principal Investigator - Horticulture Manager, Project Manager			36%	0.15		$15,169
Richard DeVries/Civil Service		Landscape Gardener			31.8%	0.3		$20,654
Fernando Hernandez/Civil Service		Landscape Gardener			31.8%	0.3		$17,272
Assistant Gardener/Bargaining Union		Assistant Gardener			31.8%	1.2		$69,863
							Sub Total	**$122,958**
Contracts and Services								
Barr Engineering	Professional or Technical Service Contract	Contracted Services - Wetland Restoration Assessment, Restoration Plan Development, Treatment Applications, Training of UMLA Staff to carry out restoration/management services ongoing				-		$11,700
MN Native Landscapes	Professional or Technical Service Contract	Contract for services, planting plugs and/or installing seeds				-		$31,950
							Sub Total	**$43,650**
Equipment, Tools, and Supplies								
	Equipment	Spraying and application equipment (backpack sprayers,funnels, spray tubs)	These tools, supplies and spray treatments will enhance the efficacy of mechanical and chemical removal of targeted invasive plant species.					$1,000
	Tools and Supplies	Chainsaw supplies (blades, chains, lubricants, files)	These tools, supplies and spray treatments will enhance the efficacy of mechanical and					$2,000

			chemical removal of targeted invasive plant species.					
	Tools and Supplies	Boots (Chestwadder & Hipboots)	These tools, supplies and spray treatments will enhance the efficacy of mechanical and chemical removal of targeted invasive plant species.					$1,000
	Tools and Supplies	Spray treatments (Rodeo & Garlon)	These tools, supplies and spray treatments will enhance the efficacy of mechanical and chemical removal of targeted invasive plant species.					$3,392
							Sub Total	**$7,392**
Capital Expenditures								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
							Sub Total	**-**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$174,000**

Classified Staff or Generally Ineligible Expenses

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

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	**-**
Non-State				
Cash	UMLA operating funds	To support the (pre-grant period) Barr Engineering Assessment to be conducted Summer 2021. This $5,900 expense is not a part of this grant request.	Secured	$5,900
			Non State Sub Total	**$5,900**
			Funds Total	**$5,900**

Acquisition and Restoration

Parcel List

Name	County	Site Significance	Activity	Acres	Miles	Estimated Cost	Type of Landowner	Easement or Title Holder	Status of Work
Wetland 14	Carver		Restoration	9.4	-	$141,000	Public		Has not begun
Wetland 15	Carver		Restoration	2.2	-	$33,000	Public		Has not begun
Totals				**11.6**	**0**	**$174,000**			

Restoration

1. Provide a statement confirming that all restoration activities completed with these funds will occur on land permanently protected by a conservation easement or public ownership.
We confirm that all restoration activities completed with these funds will occur on land permanently protected by the University of Minnesota, a public land-grant research university in the Twin Cities. The UMLA is a unit of the University's CFANS - College of Food, Agricultural, and Natural Resource Sciences.

2. Summarize the components and expected outcomes of restoration and management plans for the parcels to be restored by your organization, how these plans are kept on file by your organization, and overall strategies for long-term plan implementation.
The restoration plan for the new gateway entry will be used to determine areas needing invasive species removal and native plant replantings. It will also be used to identify existing high-value plant communities to prevent accidental removal or damage from invasive removal activities.

The adaptive management plan will be used to ensure long-term maintenance of the restored wetlands by regularly-scheduled and as-needed scouting and treatment activities. As this area will be high-profile once the main entrance is relocated, it will receive regular care as one of our prime areas.

Both plans will have hard copies stored at the Horticulture/Operations Building at 3090 W. 82nd Street, Chaska, MN 55318. Electronic copies will be stored on Google Drive and on the UMLA intranet shared drive in the Operations folder.

Long-term plan implementation will be continue by in-house UMLA staff assigned to natural areas, and with continued consultation with UMN scientists, Julia Bohnen and Susan Galatowitsch. As the area will be highly visible to all visitors, it will be essential to follow the plans and maintain the area for display and wildlife purposes.

The UMLA has internal funding and a specific mission to continue to manage the project area to prevent future invasive species and maintain the native plant community after the project funding expires.

3. Describe how restoration efforts will utilize and follow the Board of Soil and Water Resources "Native Vegetation Establishment and Enhancement Guidelines" in order to ensure ecological integrity and pollinator enhancement.
Guidelines established for wetlands begin on page 34. While the site selection is strongly tied to the relocation of the main visitor entrance, the site had been previously assessed in 2012 by Julia Bohnen and Susan Galatowitsch from the University of Minnesota. In their findings, the sites have remnant high-value sedges. However, the seedbank is unpredictable due to the presence of invasive species. The achievement of high function will correlate with our adaptive management plan as we remove invasive species and assess the strength of the native seedbank. Some key plant species listed on page 35 have been identified in the project's areas, and with the assessment to be conducted in 2021 (outside of this grant), we hope to identify which remaining key plant species could be reestablished. Local resource staff within UMLA and within Carver County will help identify local sources for seed and live plant materials. Spring Peeper Meadow, a previously restored wetland within UMLA, could serve as our blueprint for much of this work, potentially offering a local source. Mowing, spot treatments and biocontrol have been used in other wetland areas at UMLA, and will also be used in these wetlands.

4. Describe how the long-term maintenance and management needs of the parcel being restored with these funds will be met and financed into the future.
UMLA staff assigned to work in natural areas will be responsible for the long term maintenance of these wetlands. UMLA also has a dedicated volunteer base, some of whom are dedicated to wetland work. Ongoing financing for this area will be tied into our general operating budget under the natural resources chart field.

Additional donor support may be requested to broaden the education and interpretation efforts of this wetland restoration project at the site, including additional signage, interactive maps, and references to learn more.

5. Describe how consideration will be given to contracting with Conservation Corps of Minnesota for any restoration activities.

Collaborators for this project have past experience working with Conservation Corps of Minnesota on other projects. UMLA would welcome working with Conservation Corps and Green Corps for this and future projects.

6. Provide a statement indicating that evaluations will be completed on parcels where activities were implemented both 1) initially after activity completion and 2) three years later as a follow-up. Evaluations should analyze improvements to the parcel and whether goals have been met, identify any problems with the implementation, and identify any findings that can be used to improve implementation of future restoration efforts at the site or elsewhere.

The UMLA will conduct evaluations on the restored wetlands initially after completion of the activity, and will reevaluate three years later as a follow-up. The later evaluation will also provide the opportunity to revise the adaptive management plan. Revisions will facilitate ongoing maintenance of the wetlands surrounding the UMLA main entrance by ensuring ongoing, emergent and potential pest and environmental problems can be addressed to ensure the project goals are met, identify implementation problems and identify potential findings for use in future restoration efforts within the University of Minnesota communities.

Attachments

Required Attachments

Map

File: ba2e6b83-64a.pdf

Alternate Text for Map

Two parcels of land that make up Wetland 14 and 15, south of Highway 5, west of UMLA Learning Center:
Wetland 14: About 9.4 acres in size, Natural Community Type: Saturated Non-Native
Wetland 15: About 2.2 acres, Natural Community Type: Mixed Emergent Marsh...

Optional Attachments

Support Letter or Other

Title	File
Attachment Images	994d098e-455.pdf
Attachment - Bohnen Galatowitsch MLA Nat Res Inv & Management Plan	bff30a9e-4e8.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

Yes: Restoration,

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?

No


N
Wetland:
-About 9.4 acres in size
-Natural Community Type:
Saturated Non-Native
Wetland:
-About 2.2 acres
-Natural Community Type:
Mixed Emergent Marsh
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