Environment and Natural Resources Trust Fund

2025 Request for Proposal

General Information

Proposal ID: 2025-030

Proposal Title: Grassland Restoration for Pollinator Conservation and Demonstration

Project Manager Information

Name: Brandon Miller

Organization: U of MN - Landscape Arboretum

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Project Basic Information

Project Summary: UMLA will reconstruct a degraded 8.5-acre pasture to serve as a model for climate-resilient pollinator habitat, incorporating community engagement and species monitoring for continued educational opportunities.

ENRTF Funds Requested: $250,000

Proposed Project Completion: December 31, 2030

LCCMR Funding Category: Small Projects (H)

Secondary 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?

Region(s): Metro

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.

From the mid-1800s through the 1960s, an 8.5-acre site in Chaska, MN was managed for pasture and row-crop production using conventional agricultural practices including tillage and supplemental fertilization. Due to the history of disturbance on this parcel, the site is dominated by invasive species including smooth brome, crown vetch, reed canary grass, birdsfoot trefoil, canada thistle, and others. The University of Minnesota Landscape Arboretum (UMLA) purchased the land to provide an opportunity for conservation, preservation, and public education to 600,000+ annual visitors from across the region. In 2016, the Tashjian Bee and Pollinator Discovery Center (Bee Center) was built adjacent to this site to serve as a hub for pollinator education. Currently, the degraded state of the field counteracts the mission of the Bee Center because it is a poor example of pollinator habitat. The degraded site offers an opportunity to reconstruct and reintroduce a grassland into an educational model for restoration in a changing climate, while providing enhanced habitat for pollinators. Its creation would increase community education around adaptability to climate change and future disturbances through interpretive exhibits and community education events, all bolstered by its close proximity to the Bee Center.

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.

The UMLA will use a combined resilience and transition strategy framework based on the research of Constance Millar et. al (2007) to reconstruct a novel grassland ecosystem that will serve as an educational model for the future in a changing climate. The framework will provide the structure and function needed for pollinators, but also facilitate adaptability to climate change and future disturbances through wild collected and purchased plant germplasm to support genetic diversity and in situ conservation. The reconstruction will focus on pollinator supporting habitat based on the Mesic Oak Savanna (Southern) UPs24a plant community, but it will also include additional species that facilitate adaptability to climate change and pollinator support utilizing recommendations from the Xerces Society, state seed mixes, and subject matter experts. The UMLA anticipates expanding plant germplasm collection and sourcing to southern MN, IA and others based on ecotype and having a more diverse genotype suitable to Minnesota's future climate. This will give the UMLA the opportunity to broaden restoration planning and practice while maintaining ecosystem services and conserving biodiversity to maximize resilience of the site to the extreme events of climate change.

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 restore 8.5-acres of pollinator habitat within UMLA's mosaic of grasslands, woodlands, and wetlands. It will serve as a model restoration for the region in a changing climate and provide an opportunity to broaden restoration planning and practice. The existing paved trail through the site and its proximity to the Bee Center make it uniquely suited to educate the public about pollinator conservation. The reconstruction will enhance public engagement about native habitats and conservation through interpretive exhibits and hands-on visitor interaction.

Activities and Milestones

Activity 1: Grassland Habitat Restoration for Pollinators

Activity Budget: $188,810

Activity Description:
The degraded grassland will undergo site preparation by a contractor (Minnesota Native Landscapes) for the first 2-3 years including brush removal, mowing, herbicide applications, and prescribed burning. This will remove unwanted vegetation and allow for desirable site conditions for seeding. Seed collection will occur locally and further south to integrate genotypes more suitable to a warmer climate. Seed will be purchased to supplement the seed collection efforts as needed. The seed mix will be selected based on suitable site conditions and plant species benefiting various pollinators, and then it will be installed via fall dormant seeding. As needed, additional seeding or plug planting will be conducted to expand plant diversity on the site. To maintain the site following seed installation, a contractor will conduct mowing to reduce competition and manage invasive plant growth via herbicide sprays. Once enough material has accumulated, prescribed burns will start to maintain the grassland. Restoration activities will follow an adaptive management approach.

Activity Milestones:

Description	Approximate Completion Date
Site preparation (mowing, herbicide application, burning)	October 31, 2027
Seed installation	December 31, 2027
Site maintenance (mowing, herbicide application, burning)	November 30, 2030

Activity 2: Vegetation and Pollinator Monitoring

Activity Budget: $45,000

Activity Description:
A contractor (Midwest Natural Resources) will conduct a vegetation survey prior to restoration activities and two subsequent vegetation surveys following restoration (every two years). These monitoring efforts include meander surveys to capture plant diversity, cover, and frequency. Additionally, a contractor will conduct pollinator surveys to monitor for bumble bees and butterflies (once pre-restoration and twice post-restoration). Four surveys for pollinators will be conducted each survey year, following FWS guidelines for rusty patched bumblebee surveys (surveys are evenly spaced between mid-June and mid-August). Vegetation meander surveys will be completed twice during the growing season (early summer and late summer) concurrently with the first and last pollinator surveys for each survey year. After each survey year, a summary report of methods and results will be completed. Pollinator data will be shared with various relevant organizations and agencies, including Bumblebee Watch, USFWS, and the Natural Heritage Information System. These surveys will allow the UMLA land managers to evaluate the development of the restored grassland plant community and the response of pollinators.

Activity Milestones:

Description	Approximate Completion Date
Pre-restoration vegetation and pollinator surveys	September 30, 2025
First post-restoration vegetation and pollinator surveys	September 30, 2028
Second post-restoration vegetation and pollinator surveys	September 30, 2030

Activity 3: Public engagement through interactive pollinator and native plant interpretation

Activity Budget: $16,190

Activity Description:

The UMLA's education programs reach 600,000+ visitors annually. Public engagement on this project is vital and aligns with pollinator education programming at the adjacent Bee Center. The existing paved trail that runs through the hill, and its proximity to the pollinator interpretive center (Bee Center), make the project uniquely suited to engage the public about the importance and complexity of conservation efforts in a changing climate. We will develop an indoor exhibit area inside the Bee Center, adjacent to existing pollinator exhibits, to showcase the tools and processes used to reconstruct and maintain a grassland. Two interactive elements will include a youth-sized burn suit, PPE, and tools to engage younger audiences, and a seed spreading interactive model. The model will demonstrate how seed mixes are planted to create a landscape, and will include a seed blowing machine to show how different grassland species spread their seeds. This exhibit will complement a set of outdoor interpretive stations that have been funded separately and will be installed along the trail in the reconstruction area, demonstrating the history of land use and the impacts of its conversion to a climate change-resilient, pollinator-friendly habitat.

Activity Milestones:

Description	Approximate Completion Date
Design the exhibit in partnership with a local museum exhibit design firm	May 31, 2027
Exhibit is installed in the Bee Center (in conjunction with site preparation timeline)	October 31, 2027
Public pollinator celebration event with tours of grassland	July 31, 2028

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Dan Tix	MNL Inc. (Minnesota Native Landscapes)/Contractor	Hired to conduct reconstruction efforts for the first 5 years (Activity 1).	Yes
Annie Weeks	MNR (Midwest Natural Resources)/Contractor	Hired to conduct vegetation and pollinator surveys pre and post restoration (Activity 2).	Yes
Ben Amel	Upstream Exhibits/Contractor	Hired to design and implement indoor learning display for pollinator-themed outreach (Activity 3).	Yes

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?

Private contractors will be hired to complete pre- and post-restoration surveying and will conduct the first five years of reconstruction efforts for pollinator habitat, including the removal of invasive species and planting of native seed mixes. The restoration will be maintained with long-term monitoring efforts by UMLA staff and seasonal help from volunteers. (The UMLA has 1,000+ volunteers/year who contribute 40K hours to UMLA-wide operating needs.) As restoration efforts are initiated, the UMLA is committed to sustaining this long-term project as reflected in this proposal. The institutional horticulture budget and additional fundraising efforts (donations, endowments) will 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: Brandon Miller

Job Title: Assistant Professor

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

Dr. Brandon Miller is an Assistant Professor in the Department of Horticultural Science at the University of Minnesota. He serves as a State Extension Specialist and as Curator of Plant Collections at the Minnesota Landscape Arboretum (UMLA). His research and Extension programs are extramurally funded and he is experienced in managing a research team and grant-funded projects. Dr. Miller is experienced in the specific qualifications pertinent to this proposed restoration project and accompanying educational goals: permitted wild collection, propagation and preservation of plant germplasm, documentation, collecting and preserving herbarium vouchers, and general horticultural activities for managing plants and landscapes. He is accompanied by a team of professionals at the UMLA with expertise in ecological restoration (Co-PIs: Annie Gunness and Sarah Rademacher).

Organization: U of MN - Landscape Arboretum

Organization Description:

The UMLA, founded in 1958, is a 1,200-acre premier northern botanical 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 UMLA's 12.5-miles of garden paths and hiking trails welcome over 600,000 visitors annually, inspired by their explorations of nature, seasonal displays and exhibits, conservation research, and hands-on educational programming. The UMLA's mission is to welcome, inform and inspire all through outstanding displays, protected natural areas, horticultural research and education. Its vision is to serve as the premier northern landscape arboretum, welcoming all to enjoy, learn from and connect with nature. With 665-acres designated as natural lands or model landscapes, the UMLA seeks to provide conservation, physical and historical context for native plants, and a deeper public understanding of Minnesota ecosystems. The UMLA was born 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 plants of the Upper Midwest region.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Natural Resources Horticulturists		Coordinates with contractors and conducts site visits; conducts seed collection and coordinates with volunteers. Base salary = $69,000; 0.15% time; 3.5% annual salary increase.			33%	1.25		$74,095
							Sub Total	**$74,095**
Contracts and Services								
MNL Inc.	Professional or Technical Service Contract	Activity 1. Site preparation, seeding, invasive species management, brush removal, mowing, herbicide treatments, prescribed burning				-		$70,100
MNR	Professional or Technical Service Contract	Activity 2. Conduct vegetation and pollinator surveys pre and post reconstruction				-		$45,000
Ben Amel/Upstream Exhibits	Professional or Technical Service Contract	Activity 3. Contract exhibit designer to help develop Bee Center indoor exhibit				-		$15,000
							Sub Total	**$130,100**
Equipment, Tools, and Supplies								
	Tools and Supplies	Equipment/tools for seed collection	Bags for collection, cleaning, and storage					$500
	Tools and Supplies	Plant material	Seed, plugs					$30,500
	Tools and Supplies	Indoor exhibit	Case, signage, demonstration features, child-sized prescribed fire PPE					$5,000
							Sub Total	**$36,000**
Capital Expenditures								

							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
	Miles/ Meals/ Lodging	Food and lodging during seed collection trips in Greater Minnesota more than 200 miles round trip for 4 people - $186.5/trip x 3	Lodging and per diem for UM staff to survey, plan and execute seed collection					$5,600
							Sub Total	**$5,600**
Travel Outside Minnesota								
	Miles/ Meals/ Lodging	Mileage reimbursement for seed and/or live plant collection trips - 300 miles round trip - 0.67 per mile x 3 round trips per yr x 5 years. Reimbursed based on University of Minnesota plan 2024 rate.	Travel for seed collection	X				$3,015
							Sub Total	**$3,015**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
		Activity 3. Public pollinator celebration event with tours of Grassland	speaker honorarium, parking support, educational activity supplies					$1,190
							Sub Total	**$1,190**
							Grand Total	**$250,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Travel Outside Minnesota	Miles/Meals/Lodging	Mileage reimbursement for seed and/or live plant collection trips - 300 miles round trip - 0.67 per mile x 3 round trips per yr x 5 years. Reimbursed based on University of Minnesota plan 2024 rate.	Seeds from out of state will be necessary for the successful curation of a restored grassland site. 300 miles round trip - 0.67 per mile x 3 round trips per yr x 5 years.

Non ENRTF Funds

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

Total Project Cost: $250,000

This amount accurately reflects total project cost?

Yes

Acquisition and Restoration

Parcel List

Name	County	Site Significance	Activity	Acres	Miles	Estimated Cost	Type of Landowner	Easement or Title Holder	Status of Work
UMLA Pollinator Grassland	Carver	This site is currently a disturbed grassland, that could be restored to a quality prairie or savanah to support pollinators and educational opportunities about these valuable ecosystems.	Restoration	8.4	-	-	Public	To remain with the UMN Landscape Arboretum	Has Not Begun
Totals				**8.4**	**0**	**-**			

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.
All restoration activities completed with these funds will occur on land permanently in public ownership 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 management plan includes goals and objectives for the target plant community and pollinator habitat alongside a restoration timeline, ongoing monitoring and management, methods, and budget estimates. This plan and future project records are filed electronically within the UMLA Natural Resources shared drive and can be referenced by staff as required for the project needs.

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.
Our restoration efforts will follow many of the guidelines outlined in the Board of Soil and Water Resources "Native Vegetation Establishment and Enhancement Guidelines" such as selecting seed mixes, seed sourcing, site preparation, seed installation, and site maintenance (mowing, burning, herbicide application). We will reference multiple sources for seeds lists including the state seed mixes provided by BWSR to guide our species selection for those suitable to our site conditions and will provide valuable pollinator habitat. We will collect and purchase seed from local sources in addition to going further south, within our Ecological Sections and Subsections to increase genetic diversity and increase resilience against climate change.

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.
The long-term maintenance and management will be performed by the UMLA natural resources staff, interns, and volunteers as part of our normal stewardship activities. The long-term maintenance and management activities will be funded by committed philanthropy (i.e. donations, endowments).

5. Describe how consideration will be given to contracting with Conservation Corps of Minnesota for any restoration activities.
UMLA will contact Conservation Corps of Minnesota once grant funds are secured to inquire about their interest and availability for applicable restoration 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.
As reiterated in Activity 2, pre- and post-restoration evaluations of vegetation and pollinators will be conducted every 2 years through 2031. Information gathered will inform the appropriate trajectory of the desired plant community and pollinator habitat. UMLA staff will conduct site visits every season to ensure project goals are being met and utilize adaptive management strategies to improve implementation where needed.

Attachments

Required Attachments

Map

File: 8382222e-22d.pdf

Alternate Text for Map

This image highlights the 8.4-acre site identified for the UMLA's Grassland Restoration for Pollinator Conservation and Demonstration project. Due to its proximity to the Tashjian Bee and Pollinator Discovery Center, this site serves as a prime location for education and outreach opportunities for all visitors....

Supplemental Attachments

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

Title	File
Open UMN SPA Letter (Board Resolution)	e674d02a-81c.pdf
MNL	eeefcd95-d71.pdf
MNR	1a429cfa-f1e.pdf
UM Annual Report	0f56730a-171.pdf
FY23 MLAF Audited Financial Statements	7e4efe1b-ab1.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

Yes: Restoration,

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:

Valerie Aas; Annie Gunness; Sarah Rademacher; Annie Klodd