



# Environment and Natural Resources Trust Fund

## 2025 Request for Proposal

### General Information

**Proposal ID:** 2025-176

**Proposal Title:** Evaluating Native Seed Mixes for Grazing

### Project Manager Information

**Name:** Joshua Lallaman

**Organization:** Restoravore

**Office Telephone:** (507) 961-0413

**Email:** restoravore@gmail.com

### Project Basic Information

**Project Summary:** Assess the use of native hay and pasture mixes to benefit biodiversity, soil health, and Minnesota farmers.

**ENRTF Funds Requested:** \$208,000

**Proposed Project Completion:** June 30, 2028

**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): SE

**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.**

Native prairie habitat has suffered a tremendous decline throughout the US largely as a result of agricultural conversion into non-native pasture grasses or row crops. Less than 2% of Minnesota's native prairie remains, yet there is an estimated 3.9 million acres of land currently used for pasture and hay production. Restoravore sees an opportunity to significantly enhance millions of these acres in Minnesota by encouraging farmers to replace non-native grasses with native prairie species. The deeper root systems of native prairie plants foster greater soil building and water filtration capacity. As climate change continues to alter temperature and hydrologic patterns, these deeper root systems will also have greater resilience against drought and climate instability. In addition to the below ground biomass, the shoots, leaves, and flowers of native species provide more diverse habitat and food resources that support an overall higher abundance of insects, birds, and mammals. Lastly, research from other parts of the country show that adding native warm-season grasses to traditional grazing rotations increases overall livestock productivity.

### **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.**

Although various organizations are researching the grazing of native prairie species in the southeastern and western portions of the US, we see an opportunity for Minnesota to lead this type of research within the Midwest. Over the past several years, Restoravore has been working to restore prairie and savannah habitat in southeast Minnesota. The integration of removing non-native species, replanting native species, and reintroduction of grazing animals are all important components of this process. We are asking LCCMR to support the expansion of our native species demonstrations into a larger scale model across multiple farms in southeast Minnesota. We are seeking to collect regional data that demonstrates the benefits of converting non-native pasture and hay into more diverse native species mixes. This grant will allow us to partner with multiple farmers willing to convert significant portions of their agricultural land into native species. We will analyze and share this data with the farming community and land managers so they can understand the direct benefits of implementing a more integrated ecological approach.

### **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?**

We will assess both the nutritional quality and overall biodiversity of three native prairie seed mixes that have been developed in cooperation with the Xerces Society, local Soil and Watershed Conservation Districts, and NRCS. Based on studies from other regions, we expect to demonstrate a significant benefit to soil health, biodiversity, and forage quality. Data from our study will provide farmers, ranchers, and ecosystem managers with knowledge of how native species can be incorporated into best management practices to enhance potentially millions of acres in pasture or hay production.

## Activities and Milestones

### Activity 1: Year One: Baseline surveys and field site preparation

**Activity Budget:** \$63,000

**Activity Description:**

We have identified several farmers in southeast Minnesota who are willing to convert portions of their current fields into our native seed mixes. We will finalize agreements with these farmers to begin the conversion process. Once the agreements are in place, we will conduct initial surveys of biodiversity, soil health, and forage to establish a baseline for comparison. Biodiversity surveys will use a line transect protocol to identify invertebrates, small mammals, and birds present in our experimental plots. We will also collect three soil samples along each transect to test water infiltration, % organic matter, and the Haney test, which will determine the amount of available nutrients for microorganisms. We will collect random samples of vegetation present for forage analysis, including crude protein, neutral detergent fiber (NDF), and mineral content. Successful establishment of prairie seed requires the use of herbicides to remove non-natives which can outcompete slower growing native species. Past experience has demonstrated that a minimum of two or three herbicide applications are needed to suppress highly aggressive non-native species. Consequently, we will conduct two herbicide treatments in our initial year to prepare for seeding in late spring of the following year.

**Activity Milestones:**

Description	Approximate Completion Date
Identify partners and establish field sites	June 30, 2025
Complete initial biodiversity, soil health, and forage, and surveys	July 31, 2025
Conduct initial herbicide application to remove non-native species	August 31, 2025
Conduct follow-up herbicide application for resistant species	September 30, 2025

### Activity 2: Year 2: Plant seed mixes and establish native vegetation

**Activity Budget:** \$82,500

**Activity Description:**

We will conduct one final herbicide application prior to planting our seed mixes to eliminate extremely persistent species or early emerging species missed in previous applications. Plots at each location will be divided into three equal sections and randomly assigned one of our three seed mixes. Seeds will be planted using either a no-till drill or pendulum seeder to minimize impacts to soil disturbance. As seedlings are establishing, we will monitor plant density and reseed any areas that have less than the recommended density of one seedling per square foot. Additionally, we will continue monitoring for any non-native species and spot treat with an appropriate herbicide.

**Activity Milestones:**

Description	Approximate Completion Date
Conduct follow-up herbicide application to remove persistent species	April 30, 2026
Plant native seed mixes in experimental plots	May 31, 2026
Reseed any areas with low seedling establishment	July 31, 2026
Check on establishment and conduct spot treatment for non-natives	August 31, 2026

### Activity 3: Year 3: Evaluation of seed mixes and dissemination of results

**Activity Budget:** \$62,500

**Activity Description:**

Native prairie plants invest a significant amount of energy into developing their roots in the first year of growth. Consequently, surveys of forage and biodiversity may not be accurately reflected above ground until the second year of growth. We will follow all of the same survey protocols for biodiversity, soil testing, and forage analysis in year 3 to see if there are significant improvements. After all sample collection is complete, the data will be analyzed and published on our website. We will also share our results with our partner agencies: Xerces Society, regional Soil and Watershed Districts, and the NRCS. Over the last year, we have been invited to share some of our proposed work at several sustainable and regenerative agriculture conferences. We have received very positive feedback on our proposed project and look forward to sharing our results at these conferences once our analysis is complete.

**Activity Milestones:**

Description	Approximate Completion Date
Complete follow up biodiversity, soil health, and forage surveys	July 31, 2027
Analyze the results of the surveys comparing initial and native species plots	December 31, 2027
Disseminate the results of the analysis with landowners, agency partners, and at regional conferences	June 30, 2028

## 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?**

This project will inform grazing practices and demonstrate how incorporation of native species can provide significant improvements to biodiversity, soil building, water filtration, and climate change resiliency. We have been awarded funding from the Laird Norton Family Foundation to assist local farmers with purchasing native seed and restoring habitat in southeast Minnesota. This work will also integrate with statewide initiatives, such as Audubon's Conservation Ranching program, Minnesota's Prairie Plan, and One Watershed, One Plan. We are actively seeking future funding to further analyze the increased performance of livestock directly grazing or consuming hay from our native seed mixes.

## Project Manager and Organization Qualifications

**Project Manager Name:** Joshua Lallaman

**Job Title:** Program Manager

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

Dr. Joshua Lallaman has a Ph.D. in Fisheries and Wildlife Science from the University of Missouri. For the past fourteen years, he has taught courses in conservation and biostatistics at Saint Mary's University of MN. As a full-time professor, Josh was an advisor to over 40 undergraduate research projects and supervised twelve independent research projects funded by partnerships with both private institutions and government agencies. Since 2020, Josh has transitioned from his tenured position to a part-time, adjunct teaching role at Saint Mary's. He has been involved with fifteen different restoration projects totaling more than 100 acres of restored prairie and savannah in southeast Minnesota. He also runs a small hobby farm that grazes both goats and cattle to control non-native species and promote the health of native prairie habitats.

**Organization:** Restoravore

**Organization Description:**

Restoravore is a 501(c)(3) organization whose mission is to advance restorative land use practices that reintegrate communities with native ecology. Restoravore was founded in 2023 by a collective of four families who bring together a diversity of backgrounds but share a passion for restoring critical habitat in southeast Minnesota. Unable to find an existing organization focused specifically on the grazing of our historically native vegetation, we decided that we would need to build our own group and serve as a resource for others.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
Program Coordinator		Supervise project employees and contractors along with handling grant administration			20%	1.5		\$60,000
Prairie Habitat Manager		Responsible for overseeing onsite activities including sample collection, herbicide application, and seeding			20%	2.25		\$75,000
							<b>Sub Total</b>	<b>\$135,000</b>
<b>Contracts and Services</b>								
TBD	Professional or Technical Service Contract	Physical and chemical analysis of soil including percent organic matter, water infiltration, and available micronutrients				0.8		\$15,000
TBD	Professional or Technical Service Contract	Nutritional analysis of forage including crude protein, neutral detergent fiber (NDF), and mineral content				0.8		\$12,000
TBD	Professional or Technical Service Contract	Broadcast herbicide application to remove non-native species				0.4		\$4,500
TBD	Professional or Technical Service Contract	Native seed application with a low-impact seed broadcaster (no-till drill or pendulum applicator)				0.1		\$2,500
							<b>Sub Total</b>	<b>\$34,000</b>
<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Native seed mixes	We will purchase our three specially designed seed mixes to establish our native species plots					\$35,000
	Tools and Supplies	Soil sample containers	Sample containers will be necessary to transport soil samples from the field to the analytical lab					\$500

							<b>Sub Total</b>	<b>\$35,500</b>
<b>Capital Expenditures</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
	Miles/ Meals/ Lodging	Approximately 50 trips of around 15 miles each trip at \$0.61/mile	We will visit each field site multiple times per year to conduct surveys and monitor progress					\$500
	Conference Registration Miles/ Meals/ Lodging	Conference attendance, travel, lodging, and meals for 2 people to attend 2 separate conferences	Both the project manager and prairie habitat manager will present our results at a regenerative grazing conference and sustainable ag conference					\$3,000
							<b>Sub Total</b>	<b>\$3,500</b>
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
							<b>Sub Total</b>	-
<b>Other Expenses</b>								
							<b>Sub Total</b>	-
							<b>Grand Total</b>	<b>\$208,000</b>

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	-

Total Project Cost: \$208,000

This amount accurately reflects total project cost?

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [6bd4c73f-9c1.pdf](#)

#### *Alternate Text for Visual Component*

Aerial map highlighting areas where native seed mixes will be planted and also showing proximity to other native prairie and savannah restoration projects...

#### *Financial Capacity*

Title	File
Restoravore Financial Capacity Statement	<a href="#">06770168-e33.pdf</a>

#### *Board Resolution or Letter*

Title	File
Restoravore Resolution Letter	<a href="#">34e582d2-d94.pdf</a>

## 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?**

Yes

**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:**

Gabe Ericksen, Restoravore Prairie Manager