



# Environment and Natural Resources Trust Fund (ENRTF)

## M.L. 2018 ENRTF Work Plan (Main Document)

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**Today's Date:** February 22, 2018

**Date of Next Status Update Report:** January 31, 2019

**Date of Work Plan Approval:**

**Project Completion Date:** June 30, 2021

**Does this submission include an amendment request?** No

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**PROJECT TITLE:** Morris Prairie Pollinator Demonstration Area and Education

**Project Manager:** Steven Poppe

**Organization:** UM West Central Research and Outreach Center

**College/Department/Division:** University of Minnesota

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**Location:** Central region of MN in Stevens County, Framnas Township, Section 31, east of the city of Morris at the UM West Central Research and Outreach Center.

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**Total Project Budget:** \$550,000

**Amount Spent:** \$0

**Balance:** \$550,000

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**Legal Citation:** M.L. 2018, Chp. xx, Sec. xx, Subd. xx

**Appropriation Language:**

**I. PROJECT STATEMENT:** This project will restore and demonstrate a 17-acre native prairie habitat in Morris, MN, to enhance the local ecosystem for beneficial pollinators and native species of plants as well as offer educational opportunities for visitors. The Pomme de Terre River watershed area in west central Minnesota was once a sprawling prairie, home to beneficial pollinator species and prairie vegetation. Now, however, we've seen a devastating decline of beneficial pollinator species and a disruption to the remaining native prairie ecosystem due to land conversion to industrial agriculture. The lack of diversity or availability of pollen and nectar sources can cause certain pollinator populations to develop health disorders and ultimately die off. Expressing concern over pollinator decline, consumers are seeking ways to remedy the pollinator crisis. Previous research conducted at the University of Minnesota West Central Research and Outreach Center (WCROC) along with the Natural Resources Conservation Service (NRCS), and UMM Morris (UMM) demonstrated the effectiveness of habitat restoration on pollinator abundance and diversity, and documented which plant species are most attractive to different pollinator taxa. We aim to restore prairie habitat so beneficial pollinators can flourish.

We will provide educational interpretation throughout the demonstration site to encourage visitors to connect with the prairie habitat and to learn how to protect or enhance habitats on their own properties. The location of the restoration project has a walk and bike trail meandering through it, making the site an ideal location for consumer education on prairie habitat restoration. Used by thousands each year, the trail connects the WCROC Horticulture Display Garden, the Pomme de Terre Overlook, the City of Morris Pomme de Terre Park, and UMM. Along the trail, we will install and maintain wayside rest areas complete with interpretive kiosks, signage, and information so visitors can be educated on the importance of beneficial pollinators and how to make their own landscapes more pollinator-friendly. We will also work with UMM faculty/students to develop activities that extend beyond the prairie into the classrooms.

We will work with prairie restoration specialists to remove all non-native vegetation and restore diverse native vegetation to a 17-acre portion of grassland. The project will consist of two phases. 1) Removal of non-native vegetation from the project site, and 2) restoration of a diverse selection of native grasses and forbes. According to a 2011 Xerces Society study, providing a diverse habitat with abundant nectar and pollen sources is arguable the most effective method of enhancing or protecting a local beneficial pollinator population. Selection of plant materials will be based on previous research with the NRCS and UMM to offer viable food sources to native pollinators. High quality prairie plant assemblages will be placed across the moisture gradient to sustain plant communities including short/dry prairie mix, mesic prairie mix, wet prairie mix and milkweed for monarch butterfly larval food. The outcomes will be an improved landscape that supports bees, butterflies and other beneficial pollinators, and an enhanced local prairie ecosystem.

**II. OVERALL PROJECT STATUS UPDATES:** See Section III and IV below.

### **III. PROJECT ACTIVITIES AND OUTCOMES:**

#### **Activity 1 Restoration, education and demonstration of 17 Acres Prairie ENTRF Budget: \$550,000**

*Remove non-native vegetation from the project area.* The current project site is host to a bevy of non-native vegetation, and pollen and nectar sources are extremely limited. We will use aggressive and thorough site preparation strategies in order to successfully eradicate and control undesirable species. There are currently over 200 non-native volunteer trees and shrubs on the project site, ranging in height from 8 ft to 60 ft. Since this particular piece of ground has never been farmed, it will require heavy-duty equipment and professional expertise to restore the project area for successful native planting. Removal includes using a large backhoe to take down and load trees, a skid loader to move branches and shrubs, a dump truck to transport vegetation to disposal sites, and a pay loader to pile trees and clean the site area. In order to minimize soil disturbance, work will be completed by removing undesirable vegetation, trees and shrubs when the ground is frozen. This activity

is the first step of our project to restore the native prairie habitat and enhance the ecosystem for beneficial pollinators and native species of plants and animals to thrive.

*Vegetation management and annual maintenance.*

Effective site preparation is essential to getting the restoration project off to a good start. Primary goals of site preparation are to control weed species and to provide ideal growing conditions for the native seed to be sown. We will hire and coordinate with native plant restoration and management experts. The vegetation in the project area is currently dominated by smooth brome, quack grass, and Canada goldenrod. Stinging nettle, reed canary grass, and crown vetch are other significant invasive species with extensive rhizomes that are found on site in varying densities. An aggressive and thorough site preparation strategy will be important in order to eradicate/control these undesirable species. The three year maintenance program will include mowing, fall and spring applications with suitable herbicides, controlled burn using appropriate procedures, equipment and permits, and repeated herbicide applications to eliminate non-native species. Once this non-native vegetation management plan is complete the area will be ready for native species seeding.

*Seeding of native pollinator prairie and planting of oak savannah landscape.*

A prairie restoration specialist exclusively devoted to designing, restoring, and managing native prairie plant communities will complete this phase using high quality prairie species native to the Morris area. In addition, we will utilize native plant species according to the 'Board of Water and Soil Resources' native vegetation establishment and enhancement guidelines for long-term success. Given the ecological conditions of the site, the target native plant communities will include prairie, mesic prairie and wet prairie. Providing a diverse habitat with abundant nectar and pollen sources is arguably the most effective method of enhancing or protecting a local beneficial pollinator population. Our project aims to diversify the local vegetation habitat and restore prairie habitat in order for beneficial pollinators to flourish. Finally, roughly fifty Bur Oak trees native to prairie savannah ecosystems will be planted throughout the project site. This will add to the historic prairie savannah landscape and may also help sustain various species of wildlife.

The prairie restoration specialist will sow native species either in the fall, between late September and freeze-up 2020, or in the spring of 2021. All wildflower seed will be applied by broadcasting and all grass seed will be interseeded with a no-till seed drill. The upper hillside and areas along the trail will be seeded with short/dry prairie species. The general site will be seeded with mesic prairie species and the ditches/wet swales will be seeded with wet prairie species.

We will provide educational interpretation throughout the demonstration site to encourage visitors to connect with the prairie habitat and to learn how to protect or enhance habitats on their own properties. The project site is adjacent to a well-used public trail system, and thus offers the opportunity to educate visitors on the importance of pollinators and native ecosystems. Used by thousands each year, the trail connects the WCROC Horticulture Display Garden, the Pomme de Terre Overlook, the City of Morris Pomme de Terre Park, and UMM. Along the trail, we will install and maintain wayside rest areas complete with interpretive kiosks, signage, and information so visitors can be educated on the importance of beneficial pollinators and how to make their own landscapes more pollinator-friendly. Each wayside will feature a different story of the local landscape and sustainable infrastructure that's evident along the journey and provide a simple yet architecturally unique rest area.

We will also work with a UMM associate professor of computer science and a team of undergraduate research students that will design, develop, and evaluate an interactive, game-like activity as a way to engage with the public about pollinators and the prairie restoration project. In addition, Morris Area High School Ag instructor and students will interact with the project for pollinator education in the classroom and student learning experiences with bee keeping and pollinator habitat in the field.

Outcome	Completion Date
1. Remove non-native vegetation from the project area in order to guarantee successful establishment of our native pollinator habitat.	12/1/2018
2. Develop aggressive site preparation to eradicate undesirable species and perform annual maintenance to continually eliminate unwanted vegetation prior to seeding of pollinator habitat project.	6/1/2020
3. To enhance the pollinator habitat, the planting of native prairie will include short/dry, mesic prairie and wet prairie species. Bur Oak trees will be planted to create an Oak savannah landscape.	10/1/2020
4. Partner with UMM and Morris Area School to offer pollinator education in the classroom and outdoor learning experiences. UMM undergraduate students will work with UMM associate professor planning for the pre- and post- field trip experiences to integrate pollinator education into a school setting, conducting focus groups with teachers and work on software development that would provide meaningful learning experience for students and visitors. Identify and collaborate with professionals to design and construct unique wayside rest areas, kiosks and trail signage to educate trail visitors.	6/30/2021

**First Update January 31, 2019**

**Second Update June 30, 2019**

**Third Update January 31, 2020**

**Fourth Update June 30, 2020**

**Fifth Update January 31, 2021**

**Final Update June 30, 2021**

#### **IV. DISSEMINATION:**

**Description:** Not only will the project site serve a vital role in the health of our pollinator populations, but will also offer students and the public a way to engage with nature and learn more about the importance of pollinators in our local ecosystem. Outreach activities will occur as students and visitors use and enjoy the adjacent trail system. Educational field trips for school-age students will be arranged, high school students will experience bee hives, and UMM students will have access to the site as an outdoor lab.

Our vision for education is to use technology in a way that allows people to learn about the prairie, the prairie restoration project, and pollinators in particular. At the completion of the prairie restoration project, there will be a variety of ways to engage along the trail. There will be signage along the trail, which we can utilize as points of engagement. Signage will offer QR codes or web-based links so that visitors can have access to pollinator information provided by experts. In addition, a game-like activity will be developed to extend beyond the prairie where visitors can participate before and after trips to the prairie by viewing data visualizations about their interaction with the system, all centering around the concept of “Be the Bee.”

As the prairie restoration project moves forward in years one through three, our WCROC Communications Specialist will share information with many audiences. The progress, activities and education results will be shared on the WCROC website [www.wcroc.cfans.umn.edu](http://www.wcroc.cfans.umn.edu), various social media outlets, newsletters, local media, and through educational programs. All shared information will acknowledge the Environment and Natural Resources Trust Funds (ENRTF).

First Update January 31, 2019  
 Second Update June 30, 2019  
 Third Update January 31, 2020  
 Fourth Update June 30, 2020  
 Fifth Update January 31, 2021  
 Final Update June 30, 2021

**V. PROJECT BUDGET SUMMARY:**

**A. Preliminary ENRTF Budget Overview:** See attached budget spreadsheet

**Explanation of Capital Expenditures Greater Than \$5,000:**

**Explanation of Use of Classified Staff:**

**Total Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation:**

Enter Total Estimated Personnel Hours: 15,752	Divide by 2,080 = TOTAL FTE: 7.573
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**Total Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:**

Enter Total Estimated Personnel Hours: 1,291	Divide by 2,080 = TOTAL FTE: 0.620
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**B. Other Funds:**

SOURCE OF AND USE OF OTHER FUNDS	Amount Proposed	Amount Spent	Status and Timeframe
<b>In-kind Services To Be applied To Project during Project Period:</b> The 54% inforegone federally negotiated ICR funding constitutes the University of Minnesota's cost share to the project.	\$367,740		Secured
<b>Other Non-State \$ To Be Applied To Project During Project Period:</b>			
Donor support	\$20,000	\$ 0	Secured if fully funded
<b>Other State \$ To Be Applied To Project During Project Period:</b>			
	\$ N/A	\$	
<b>Past and Current ENRTF Appropriation:</b>			
	\$ N/A	\$	
<b>Other Funding History:</b>			
	\$ N/A	\$	

## VI. PROJECT PARTNERS:

### A. Partners receiving ENRTF funding

Name	Title	Affiliation	Role
Steven Poppe	Horticulture Scientist	UM WCROC	Project Manager
Robert Yost	Landscape Gardener	UM WCROC	Coordinate educational activities and land management.
Esther Jordan	Communications Specialist	UM WCROC	Coordinate outreach activities.
Tom Holm	Researcher II	UM WCROC	Coordinate maintenance projects and handle all tree care.
Kristin Lamberty	Associate Professor of Computer Science	UMM	Design, develop and evaluate interactive educational materials.
Two UMM students	Undergraduate students yet to be named	UMM	Planning field trip experiences, conducting focus groups and software development.

### B. Partners NOT receiving ENRTF funding

Name	Title	Affiliation	Role
Margaret Kuchenreuther	Associate Professor	UMM	Prairie ecology management and student involvement.
Blaine Hill	City Manager, Morris	City of Morris	Community outreach
Wayne Markegard	Plant Materials Specialist	Natural Resources Conservation Service-Bismarck, ND	Consultant to identify prairie seed mixes.
Nick Milbrandt	High School Ag Instructor	Morris Area High School	Pollinator education in the classroom and outdoor learning experiences with bee keeping and pollinator habitat project.

## VII. LONG-TERM- IMPLEMENTATION AND FUNDING:

The overall goal of the project is to educate students and visitors and restore what once was native prairie land to a thriving pollinator habitat, thus offering diverse and abundant food sources for beneficial pollinators as well as enhancing the natural landscape surrounding the Pomme de Terre watershed area. This collaborative project will build on our past pollinator research which explored native plant species and their attractiveness to pollinators. Not only will the project site serve a vital role in the health of our pollinator populations, but will also offer students and the public a way to engage with nature. Outreach activities will occur as students and visitors use and enjoy the adjacent trail system. Educational field trips for school-age students will be arranged, high school students will experience bee hives and UMM students will have access to the site as an outdoor lab. The project does not need additional investment other than funding requested from the ENRTF to be completed.

Ongoing efforts will be privately funded through donor support already established in a UM foundation account.

In addition, a “Memorandum of Understanding” has been documented by a private donor to support the project in years one and two.

**VIII. REPORTING REQUIREMENTS:**

- The project is for 3 years, will begin on 6/30/2018, and end on 6/30/2021.
- Periodic project status update reports will be submitted 1/31 and 6/30 of each year.
- A final report and associated products will be submitted between June 30 and August 15, 2021.

**IX. SEE ADDITIONAL WORK PLAN COMPONENTS:**

- A. Budget Spreadsheet
- B. Visual Component or Map
- C. Parcel List Spreadsheet
- D. Acquisition, Easements, and Restoration Requirements
- E. Research Addendum

Attachment A:  
Environment and Natural Resources Trust Fund  
M.L. 2018 Budget Spreadsheet



Project Title: Morris Prairie Pollinator Demonstration Area and Education

Legal Citation:

Project Manager: Steven R. Poppe

Organization: University of Minnesota

College/Department/Division: West Central Research and Outreach Center

M.L. 2018 ENRTF Appropriation: \$550,000

Project Length and Completion Date June 30, 2018 - June 30, 2021

Date of Report: 2/22/18

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	TOTAL BUDGET	AMOUNT SPENT	TOTAL BALANCE
<b>BUDGET ITEM</b>			
<b>Personnel (Wages and Benefits)</b>	\$289,000		\$289,000
<i>Steven Poppe, Project Manager, 3.0 % FTE in year 1, 2, and 3; 26.0 % fringe rate (\$7,000)</i>			
<i>Robert Yost, WCROC Landscape Gardener, 50% FTE in year 1, 2 and 3; 26.0% fringe rate (\$90,000)</i>			
<i>Esther Jordan, Communication Specialist, 25% FTE in year 2, and 3; 26.0% fringe rate (\$24,000)</i>			
<i>Tom Holm, Researcher II, 3.0% FTE in year 2, and 3; 26.0% fringe rate(\$4,000)</i>			
<i>Kristin Lamberty, UMM Computer Science Faculty, 6 weeks summer salary in year 1, 2; 50% sabbatical funding and 4 weeks summer salary year 3; 33.5% fringe rate (\$113,000)</i>			
<i>2 UMM students, 10 weeks summer salary in year 1,2, and 3; 2 UMM students 30 weeks academic year 1, 2, and 3; \$11.50/hour student rate (\$51,000)</i>			
<b>Professional/Technical/Service Contracts</b>			
Praire Restoration Specialists (competitive bid)-site preparation including mowing, multiple herbicide applications, controlled burns, maintenance management, planting of native prairie.	\$74,000		\$74,000
Excavating contractors (competitive bid)-removing non-native vegetation, (trees and shrubs)	\$52,000		\$52,000
Tree Nursery (competitive bid)-Purchase and planting Bur Oak trees	\$16,000		\$16,000
Engineer and Architect Services (competitive bid)-Wayside shelters, kiosks, trail signs, benches, solar powered lights for kiosk/shelter and geotechnical testing.	\$105,000		\$105,000
<b>Equipment/Tools/Supplies</b>			
<i>15 Beehive protection suits and gloves for students</i>	\$4,000		\$4,000
<i>Water tank with pump and motor to assist with watering Bur Oak trees</i>	\$5,000		\$5,000
<b>Travel expenses in Minnesota</b>			
<i>Kristin Lamberty and UMM students to present findings at one conference in year 3</i>	\$5,000		\$5,000
<b>COLUMN TOTAL</b>	<b>\$550,000</b>		<b>\$550,000</b>

# Morris Prairie Pollinator Demonstration and Education



