

**Environment and Natural Resources Trust Fund
2020 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 002-A

Expanding the Minnesota Ecological Monitoring Network

Category: A. Foundational Natural Resource Data and Information

Sub-Category:

Total Project Budget: \$ 1,587,134

Proposed Project Time Period for the Funding Requested: June 30, 2024 (4 yrs)

Summary:

This project proposes to expand the Ecological Monitoring Network by adding 500 plots to inform the conservation and management of Minnesota's native forests, wetlands, and grasslands.

Name: Hannah Texler

Sponsoring Organization: MN DNR

Job Title: Plant Survey Supervisor

Department: Ecological and Water Resources

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Web Address https://www.dnr.state.mn.us/mbs/ecologicalmonitoring/index.html

Location:

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

Statewide map with points showing existing monitoring plots; photo of ecologist collecting data from plot; diagram of plot layout with three parallel transects.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____ %



PROJECT TITLE: Expanding the Minnesota Ecological Monitoring Network

I. PROJECT STATEMENT

This project proposes to expand the Ecological Monitoring Network by adding 500 plots to inform the conservation and management of Minnesota’s native forests, wetlands, and grasslands.

Most of the information collected on Minnesota’s native plant communities was collected at one point in time. While this information establishes a critical foundation for an understanding of the types and amounts of native plant communities we have and where they occur, it does not provide information about how plant communities change through time. The information provided by this project will provide empirical, ground-based data collected systematically over time.

The data gathered on vegetation and other metrics from monitoring plots in this network will be available to natural resource agencies and organizations, landowners, and the public. Monitoring results can serve as a kind of early warning system about the effects of invasive species, extreme weather, land use changes, and other stressors on native vegetation. Informed decisions about how to best manage and conserve native habitats rely on carefully collected data. Examples of results that could inform management and conservation decisions include the effects of warming temperatures on prairies, impacts from earthworms and buckthorn in forests, shifts in dominant canopy trees in hardwood forests, and the effects of increased flooding in wetlands.

This project will complete work begun by the Minnesota Biological Survey Program (MBS) with 2016 ENRTF funding (M.L. 2016, Chp 186, Sec. 2, Subd. 03d) to design and test methods for tracking and reporting status and trends in Minnesota’s prairies, forests and wetlands. With the help of many collaborators, methods were developed and tested, and the first 100 of 600 monitoring plots were installed to begin building the Ecological Monitoring Network.

Here we propose to:

- **Install an additional 500 monitoring plots** to reach the minimum number of plots necessary to provide scientifically valid, repeatable statewide data. These plots will be resampled every 5-6 years to track and interpret changes in native vegetation.
- **Collect key data** 1) on all plots: vegetation, wildlife habitat metrics, and forest stand metrics; and 2) on a subset of plots: plant-pollinator interactions; water chemistry and peat profiles; soil chemistry; and soil microbes and fungi.
- **Deliver project results in several formats:** data that are accessible to the public, landowner specific site reports, and reports that summarize results from the network of plots to land managers, stakeholders, and the public.

This network of plots is designed to be available to others conducting ecological and related research in Minnesota. Already, collaborators at the University of Minnesota are sampling lichens and mosses on a subset of these plots, and efforts to attract additional collaborators will continue. The end-goal of this project is detailed, integrated data and information on the status and trends of Minnesota’s native habitats in formats that will be immediately available to a wide range of users.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Complete Installation of 500 New Plots



**Environment and Natural Resources Trust Fund (ENRTF)
2020 Main Proposal Template**

Description: Install 500 new plots to the existing network of 100 plots established in the ML16 project. Data will be collected on all plant species, and depending on the vegetation type of each plot, variables such as deer browse, coarse woody debris, water chemistry, and grassland structure will be collected. A new database will be developed and added to the existing Natural Heritage Information System, so that data will be more easily accessible to the public. Data collected will be entered into the database at the end of each field season. Plant and insect collections will be processed and delivered to the UMN for accession in permanent collections.

ENRTF BUDGET: \$1,487,134

Outcome	Completion Date
<i>1. New database developed and added to the Natural Heritage Information System</i>	<i>4/1/2021</i>
<i>2. Data collected at 500 monitoring plots</i>	<i>9/30/2022</i>
<i>3. Data entered into the Ecological Monitoring Network Database</i>	<i>2/28/2023</i>
<i>4. Specimen preparation and delivery of specimens to museum collections</i>	<i>6/30/2023</i>

Activity 2: Data Distribution, Education and Outreach

Description: Results will be published on the DNR Ecological Monitoring Network website. Report forms including Individual site data will be sent to the owners or managers of the land where each site is located. A written report summarizing all of the collected data will be available on the website. Presentations to nonprofit organizations, natural resource managers, and universities will be made to inform audiences of monitoring results and recruit other researchers to use the network.

ENRTF BUDGET: \$ 100,000

Outcome	Completion Date
<i>1. Annual summary reports distributed to landowners or managers after each field season</i>	<i>2/28/2023</i>
<i>2. Descriptions of the project’s methods, initial findings posted on project website.</i>	<i>6/30/2023</i>
<i>3. Conduct public outreach and technical guidance activities.</i>	<i>6/30/2023</i>

III. PROJECT PARTNERS AND COLLABORATORS:

The DNR MBS Program will lead this project with support from the following collaborators: DNR Divisions of Forestry, Ecological and Water Resources, Parks and Trails, and Fish and Wildlife; the Nature Conservancy (TNC); University of Minnesota (UMN); U.S. Forest Service (USFS); U.S. Fish & Wildlife Service (USFWS). This request does not include funding for the following: TNC, UMN, USFS, and USFWS. Collaborators include DNR zoologists under separate funding who will be collecting data on bees, moths, and overall insect diversity on a subset of our plots.

IV. LONG-TERM IMPLEMENTATION AND FUNDING:

The DNR is actively developing long-term cooperative funding for sustaining this Ecological Monitoring Network over time. Resampling plots will take considerably less time and resources compared to initial installation, and will be incorporated into the work of the DNR MBS Program.

V. SEE ADDITIONAL PROPOSAL COMPONENTS:

- A. Proposal Budget Spreadsheet**
- B. Visual Component or Map**
- F. Project Manager Qualifications and Organization Description**

Attachment A: Project Budget Spreadsheet
Environment and Natural Resources Trust Fund
M.L. 2020 Budget Spreadsheet



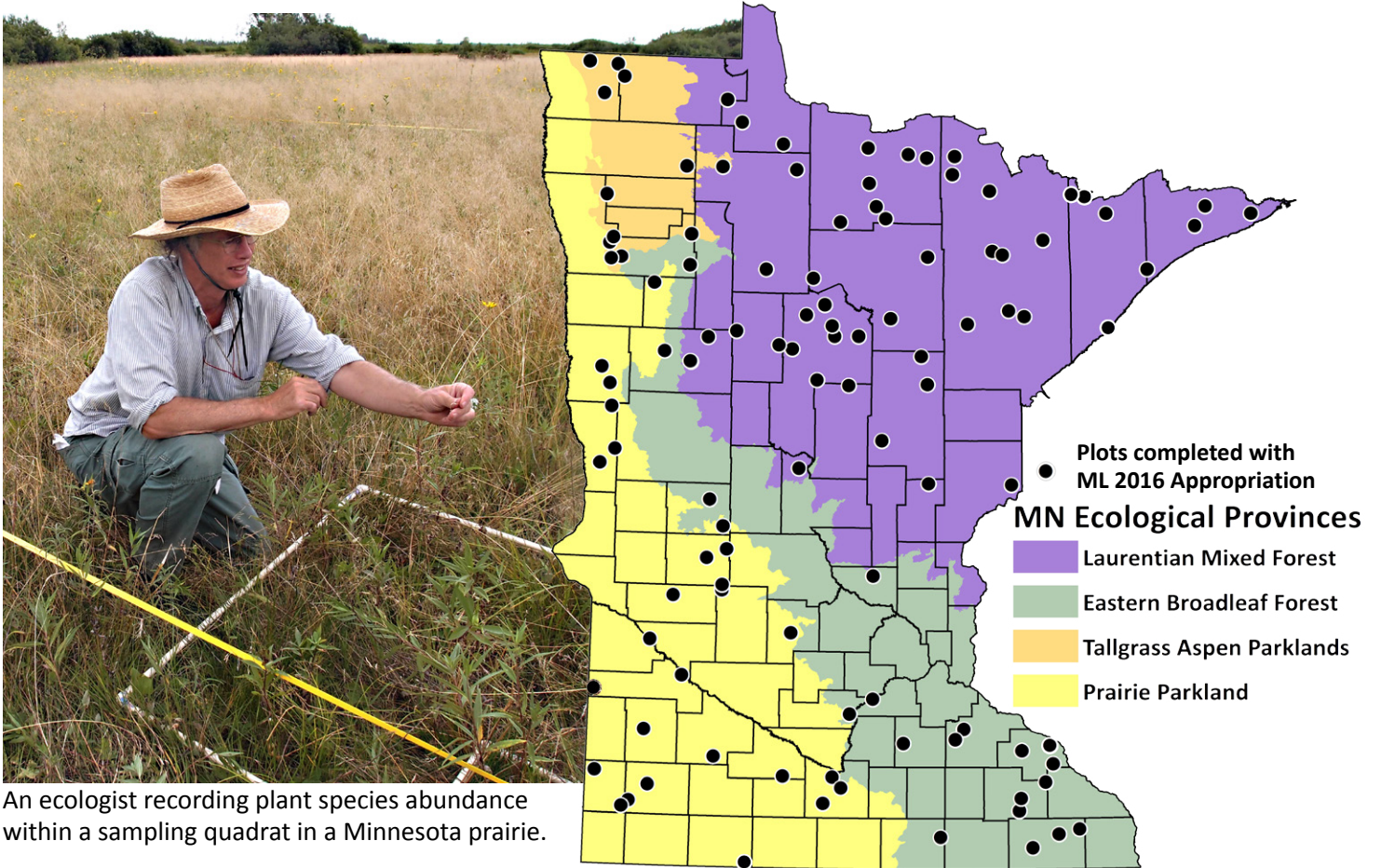
Legal Citation: M.L. xxxx Chap. xx Sec. xx Subd. xxx
Project Manager: Hannah Texler
Project Title: Expanding the Minnesota Ecological Monitoring Network
Organization: MN DNR
Project Budget: \$1,587,134
Project Length and Completion Date: 4 years, June 30, 2024
Today's Date: April 11, 2019

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET		Budget	Amount Spent	Balance	
BUDGET ITEM					
Personnel (Wages and Benefits)		\$ 1,238,000	\$ -	\$ 1,238,000	
Plant Ecologist/Botanists, Field and Data Leads, \$480,000 (72% salary 28% benefits), 1.5 FTE each year for 3 of 4 years.					
Plant Ecologist/Botanist, Field and Data Specialists, \$540,000 (73% salary, 27% benefits), 3.0 FTE each year for 3 of 4 years.					
Invertebrate Ecologist, Field and Data Specialists, \$116,000 (73% salary, 27% benefits), 0.3 FTE each year for 3 of 4 years.					
Soil scientist, Field and Data Specialists, \$70,000 (73% salary, 27% benefits), 0.25 FTE each year for 3 of 4 years.					
Data/Specimen Manager, \$16,000 (73% salary 27% benefits), 0.05 FTE each year for 3 of 4 years.					
Information Outreach Specialist, \$16,000 (70% salary, 30% benefits), 0.05 FTE each year for 3 of 4 years.					
Professional/Technical/Service Contracts					
MN. IT service level agreements for project database and website development.		\$ 35,000	\$ -	\$ 35,000	
Equipment/Tools/Supplies					
Field equipment will be reused from previous projects to the extent possible. Supplies needed for three 3-person crews for three field seasons to collect data at monitoring plots, including tapes, plot markers, waterproof notebooks, insect/tick repellent, safety vests, rebar, magnets, magnails, witness tree tags, calipers, rulers, water chemistry calibration supplies, pvc pipes, compasses, GPS receivers, plant, insect, soil specimen collecting and preservation supplies.		\$ 10,000	\$ -	\$ 10,000	
Travel expenses in Minnesota					
Travel for three 3-person crews for three field seasons to install and sample monitoring plots; 450 field days, 72,000 miles. Vehicles (\$38,000), lodging (\$157,000), and meals (\$5,000) in accordance with the Commissioner's Plan.		\$ 200,000	\$ -	\$ 200,000	
Other					
Direct and necessary costs to cover HR support (\$23679), Safety Support (\$4,286), Financial Support (\$17,323), Communication Support (\$1,388), IT Support (\$56,321), and Planning Support (\$1,138).		\$ 104,134	\$ -	\$ 104,134	
COLUMN TOTAL		\$ 1,587,134	\$ -	\$ 1,587,134	
SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT					
	Status (secured or pending)	Budget	Spent	Balance	
Non-State:					
Federal: State Wildlife Grant appropriations. Much of the proposed ENRTF funds qualify as State match these appropriations.		Pending	\$ 100,000	\$ -	\$ 100,000
State:					
Heritage Enhancement - Research Scientist Project Lead		Pending	\$ 304,000	\$ -	\$ 304,000
General Fund - Supervision, project oversight, guidance		Pending	\$ 100,000	\$ -	\$ 100,000
Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS					
	Amount legally obligated but not yet spent	Budget	Spent	Balance	
M.L. 2016 Chap. 186 Sec. 02 Subd. 03d - Statwide Monitoring Network for Changing Habitats			\$ 500,000	\$ -	\$ 40,000

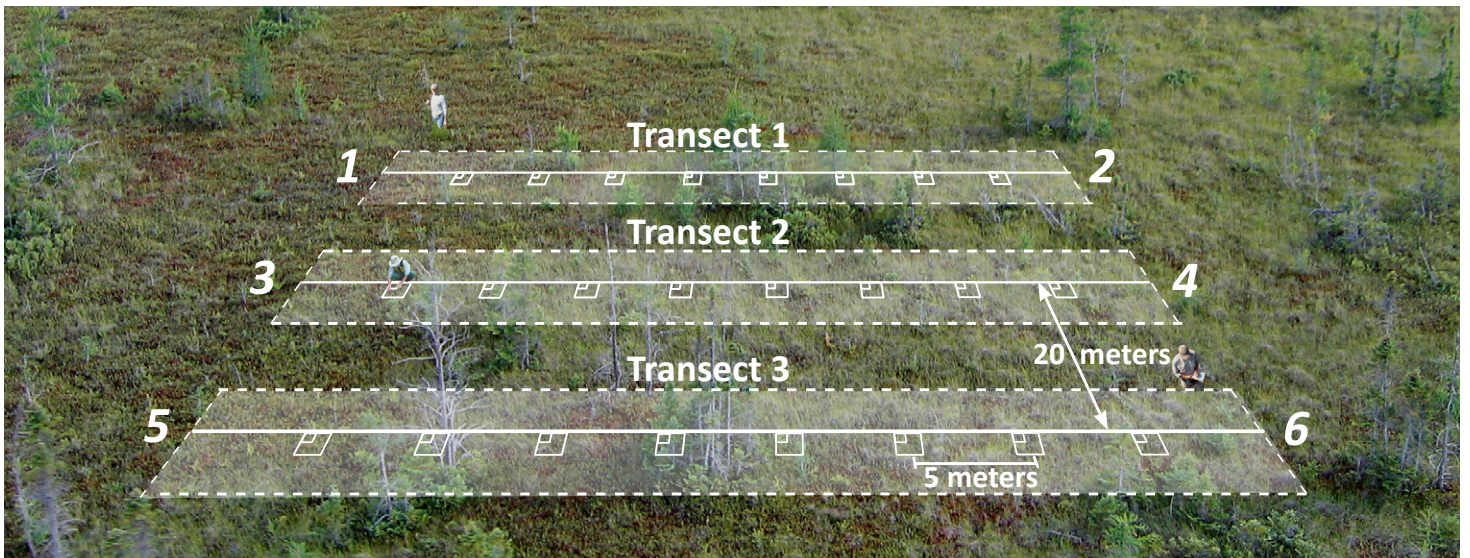


Expanding the Minnesota Ecological Monitoring Network

Improving land use decision making and sustainable resource management through greater reliance on scientific knowledge



An ecologist recording plant species abundance within a sampling quadrat in a Minnesota prairie.



A scale diagram of the plot, showing three 45-meter transects along which vegetation, soils, water chemistry, deer browse, and other measurements

Project Manager Qualifications

Project Manager: Hannah Texler, Plant Survey Supervisor, Minnesota Biological Survey
Affiliation: Department of Natural Resources, Minnesota Biological Survey
Mailing Address: 500 Lafayette Road, Box 25, St. Paul, MN 55155-4025
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Hannah Texler has been Plant Survey Supervisor of the Minnesota Biological Survey (MBS) since June 2015. She manages priorities and staff to survey, monitor, and disseminate information on Minnesota's botanical and plant ecological systems and serves as the project manager for Minnesota's Ecological Monitoring Network. Background and professional experience include extensive work in native plant community and native plant species field survey and mapping, ecological land management, project management, and collaborative natural resource and conservation planning. She served as the Project Manager for the ML2016 LCCMR project "A Statewide Monitoring Network for Minnesota's Changing Habitats".

Work Experience

2015 – present	Plant Survey Supervisor, MBS, DNR Division of Ecological and Water Resources (EWR)
1995 – 2015	Regional Plant Ecologist, Central Region, DNR Division of EWR
1990 – 1995	Plant Ecologist/Botanist, MBS, DNR Division of EWR
1985-1990	Management Specialist, Scientific and Natural Areas Program, DNR Division of EWR
1981-1985	Graduate Teaching Assistant, Michigan State University
1982, 1985	Plant Ecologist (contracted), Michigan Natural Features Inventory
1979-1981, 1983	Biological Technician, National Park Service (Everglades & Olympic National Park, Indiana Dunes National Lakeshore)

Education

1985	Master of Science, Botany, Michigan State University
1979	Bachelor of Science, Botany, University of Florida

Project Manager Responsibilities

Hannah Texler will provide overall project direction, budget management, staff supervision, work plans, and activity updates. In her capacity as MBS Plant Survey Supervisor and from previous work experience, Hannah has demonstrated her ability to direct staff, coordinate with partners, manage budgets, and efficiently and effectively deliver project outcomes.

Organization Description

MBS systematically collects, interprets, and delivers baseline data on the distribution and ecology of native animals, native plants, plant communities, and native landscapes. Delivery of these data helps guide management, conservation, and monitoring of critical habitat and ecological functions.