



# Environment and Natural Resources Trust Fund

M.L. 2023 Approved Work Plan

## General Information

**ID Number:** 2023-232

**Staff Lead:** Corrie Layfield

**Date this document submitted to LCCMR:** June 5, 2023

**Project Title:** Community Response Monitoring for Adaptive Management

**Project Budget:** \$483,000

## Project Manager Information

**Name:** David Ruff

**Organization:** The Nature Conservancy

**Office Telephone:** (507) 646-9662

**Email:** david.ruff@tnc.org

**Web Address:** <https://www.nature.org/en-us/>

## Project Reporting

**Date Work Plan Approved by LCCMR:** June 22, 2023

**Reporting Schedule:** April 1 / October 1 of each year.

**Project Completion:** June 30, 2026

**Final Report Due Date:** August 14, 2026

## Legal Information

**Legal Citation:** M.L. 2023, Chp. 60, Art. 2, Sec. 2, Subd. 03r

**Appropriation Language:** \$483,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with The Nature Conservancy to assess community-level plant and animal responses to past restoration efforts in select southeast Minnesota conservation focus areas to determine if management outcomes are being achieved.

**Appropriation End Date:** June 30, 2026

## Narrative

**Project Summary:** Project goal is to monitor species response at a community level, in order to determine if management actions increase biodiversity and build ecosystem resiliency as intended.

**Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.**

Within the two Conservation Focus Areas (CFAs) of Southeast MN, significant restoration and enhancement work has been occurring at a landscape scale, funded with a combination of Outdoor Heritage Fund (OHF) and Competitive State Wildlife Grant (CSWG) grants. This has included hundreds of acres of bluff prairie enhancement, targeted in areas with landscape resilience and connectivity. The general success or failure of those projects is typically assessed observationally. For Species in Greatest Conservation Need (SGCN), population trends are monitored by Minnesota's Natural Heritage and Nongame Research Program. However, those surveys are not sufficient to document the impact of specific management on plants, wildlife, and natural communities in a way that informs future management.

Different bluff prairie sites have received a variety of treatment strategies, typically to control brush responses following initial removal of red-cedar, buckthorn, and honeysuckle. A properly designed monitoring program would provide information on the differing effects of prescribed fire, prescribed browsing with goats, manual brush removal, and herbicide treatment on the response of plant, insect, bird, and reptile communities. Assessing these impacts is a key step in adaptive management, and is critical for a partnership engaged in on-going, long-term, landscape scale ecosystem management

**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.**

We seek funding to conduct plant and wildlife community-level monitoring at multiple restoration and enhancement sites within the two Southeast MN CFAs. Surveys would focus on four broad taxa: plants, insects, birds, and reptiles. Sites would be strategically selected based on management history and expected future management projects to capture a range of management techniques and time since initial restoration, as well as currently untreated sites. The untreated sites would be a combination of control sites and places where we expect restoration to occur in the next several years. This will set up a potential study design for a future round of monitoring to follow a Before, After, Control, Impact (BACI) framework, allowing more robust conclusions to be drawn than are possible from single monitoring events.

**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 public funding available for conservation in Minnesota has given landscape-scale ecological restoration projects the long term stability to make a true and lasting impact. But lack of funds and/or a timing mismatch for monitoring efforts has limited the ability of land managers fully assess the impact of their management on ecosystems, a necessary component of adaptive management. Providing insight into the impact of ongoing restoration and enhancement work on plant and wildlife communities will improve the effectiveness of those management programs and increase the impact of millions of dollars of future conservation projects.

## 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

## Activities and Milestones

### Activity 1: Community-level monitoring of plants, insects, birds, and reptiles

**Activity Budget:** \$283,000

**Activity Description:**

Monitoring coordinator, along with contracted experts on subject species groups, will conduct field surveys to capture data on plant, bird, insect, and reptile communities at study sites. Surveys will be designed to provide data on the number of species and relative abundances within those broad communities. Number of field sites and optimal survey methods will be determined in consultation with taxa experts and refined through protocol testing during summer 2023 (activity 2) and will likely include transects or fixed plot sampling for plants, point counts for birds, netting, pollard walks, or pit trapping for insects, and cover board sampling for reptiles. Once data from the 2023 season are analyzed for statistical power and efficiency, activity milestones will be updated to reflect selected methods, and desired number of sites and plots to be sampled. Field data will be stored electronically in spreadsheets and GIS databases to be analyzed during the winter period and kept by TNC. Resulting data will show the impact of restoration on these sites and effects of different restoration techniques on the subject species groups. This will inform restoration strategies used by practitioners in the future.

**Activity Milestones:**

Description	Approximate Completion Date
First full monitoring season completed. Data organized and shared.	October 31, 2024
Second monitoring season completed. Data organized and shared.	October 31, 2025

### Activity 2: Monitoring planning - protocol testing, site selection and scheduling

**Activity Budget:** \$100,000

**Activity Description:**

Monitoring coordinator will use the first partial field season (starting July 2023) to test monitoring protocols for the four species groups of interest in the field to determine the best sampling methods, time requirements, site variability, and other factors that will inform the monitoring plans for the two full field seasons funded by this grant. Potential protocols will be determined through literature reviews and consultation with species experts, including DNR biologists. They will work with a DNR biometrician to determine optimal sampling intensity, the number of feasible study sites, and the best sampling design to capture data on number and relative abundance of species in each group. They will work with local land managers in TNC and DNR to select study sites that represent a range of management histories, including prescribed fire, goat grazing, manual brush removal, and herbicide treatment, as well as no treatment. Winter seasons ahead of each full field season will be used to plan sampling, selecting study sites for each season, scheduling time with contracted species experts, and other required preparation. Successfully completing protocol testing and planning field seasons in advance will help make the most efficient use of each field season.

**Activity Milestones:**

Description	Approximate Completion Date
Field data collection complete for protocol testing and site variability assessments	October 31, 2023
Expert consultation to refine field protocols and survey methods complete.	December 31, 2023
Field plan for first full monitoring season is complete, including site selection and field methods.	February 28, 2024
Field plan for second full monitoring season is complete, including site selection and field methods.	February 28, 2025

### Activity 3: Data analysis, writing reports and sharing results

**Activity Budget:** \$100,000

**Activity Description:**

During the winter after each field season, the Monitoring Coordinator will analyze the data collected in the field. The appropriate analyses performed will be based on best practices for the sampling designs and data types collected. Monitoring coordinator will be expected to have appropriate experience and training to identify the proper analyses, performing any literature review or consultation with other experts as needed. They will develop reports sharing study results with land managers both locally and state-wide. Reports after each field season will present the main findings of the study, specifically the number and variety of species observed from each plant and animal community studied, and effects of different management histories. Final reports prepared at the end of the grant period will summarize main findings and provide discussion of future research and lessons for repeating or improving the study design in other landscapes. Reports will be presented locally and statewide through the CFA program and conference presentations. Communicating the results of this research directly to land managers will improve the practice of habitat restoration and ensure the findings are put to use in the field.

**Activity Milestones:**

Description	Approximate Completion Date
Summary results from first field season	December 31, 2024
Summary results from second field season	December 31, 2025
Final reports published and presented at workshops with stakeholders and managers	June 30, 2026

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Kristin Hall	Minnesota DNR	MN Wildlife Action Plan Coordinator; coordinating DNR's involvement in the monitoring work.	Yes

## Dissemination

**Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.**

There are two designated Conservation Focus Areas (CFAs) in Southeast Minnesota that organize a partnership of conservation partners involved directly in habitat management and includes state, county, and NGO partners. The CFA program is a partner in this proposal, and those partnerships will be the primary audience for study results. We have also budgeted for printing of publishable materials to share more general results from this study, as well as lessons learned about the study methodology with a broader state-wide audience. Because the CFA program operates state wide, it will also be a useful framework for sharing insights with partnership working in other critical areas of the state for conservation. The Environment and Natural Resources Trust Fund will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgment Guidelines.

## 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?**

Results of this project will immediately help guide restoration and enhancement work being conducted in Southeast MN. Restoration and enhancement work is currently funded by Outdoor Heritage Funds and Competitive State Wildlife Grant funds, but future funding could also include other public and private grants.

The results would also provide a baseline for future monitoring efforts conducted by the DNR, possibly funded through federal level grants. Additionally, future ENRTF money may be sought to help fund subsequent monitoring periods usable in a BACI framework, which will use the data collected through this award as a baseline.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
Monitoring Coordinator		Monitoring coordinator will be responsible for working with required partners and taxa experts, organizing field seasons, and collecting, organizing, and reporting on data.			31%	3		\$258,500
Project Manager		Supervision and hiring of Monitoring Coordinator, grant administration			31%	0.3		\$25,000
							<b>Sub Total</b>	<b>\$283,500</b>
<b>Contracts and Services</b>								
Contracted tax experts/surveyors	Professional or Technical Service Contract	Provide expertise on individual taxa being monitored, including monitoring fieldwork either independently or working with monitoring coordinator. Contracts will be bid out for a lump sum price each field season, with contractors responsible for incorporating travel, lodging and other expenses into their total bid.				0.75		\$70,000
DNR Species/Taxa Experts	Sub award	DNR experts will advise on survey protocols and timing, and assist with fieldwork. Estimated costs are \$70,000 for staff time, \$20,000 for per diem expenses for food and lodging (estimated 147 travel days), and \$11,000 for travel (\$0.65/mile for 7,150 miles).				0.75		\$101,000
							<b>Sub Total</b>	<b>\$171,000</b>
<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Fieldwork supplies	Field equipment including flagging, measuring tapes, collection materials, plot measuring devices, etc.					\$2,500
	Tools and Supplies	Computer	Computer for Monitoring Coordinator with sufficient processing power to run GIS and required statistical analysis software.	X				\$3,500

	Tools and Supplies	Tablet	Field data collection	X				\$1,000
							<b>Sub Total</b>	<b>\$7,000</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	Mileage, meals, lodging, and other travel costs for the monitoring coordinator to travel to field sites throughout the grant. While the number of trips is difficult to estimate, during the field season, 3-5 trips per week is likely with an average round trip of 100 miles, for approximately 20,000 miles. Winter travel will be less frequent, approximately 1-2 trips to field sites, plus longer trips to meet other experts for planning purposes, approximately 8,000 miles, for a total of approximately 28,000 miles. We used a mileage reimbursement rate of \$0.625 for \$17,500 total mileage reimbursement. Because the monitoring coordinator would be in travel status so often, we also budgeted for 100 meals over the three years with an average price of \$12 per meal for a total of \$1,200. This totaled \$18,700.	Monitoring coordinator will need to travel to field sites to conduct field work frequently throughout the project.					\$18,700
	Conference Registration Miles/ Meals/ Lodging	We estimate up to 3 trips to meetings to present on study results, including conferences of land managers and other professionals. With an estimated 500-mile round trip average distance, travel would total 1,500 miles reimbursed for \$937.50. Including an estimate of \$40 a day for meal expenses and 3 days per conference, we estimate \$360 for meals. Hotel stays during conferences are estimated to be an average of \$150/night for 2 nights per conference, or \$900 total for hotels. We expect conference fees to be	Sharing study results with land managers and researchers across Minnesota.	X				\$2,300



		waived for presenters, but budgeted an extra \$100 in case some registration fees are required.						
							<b>Sub Total</b>	<b>\$21,000</b>
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
	Printing	Final report	Share results of monitoring, including implications for management moving forward.					\$500
							<b>Sub Total</b>	<b>\$500</b>
<b>Other Expenses</b>								
							<b>Sub Total</b>	-
							<b>Grand Total</b>	<b>\$483,000</b>

## Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
<b>Equipment, Tools, and Supplies</b>		Computer	A computer is a necessary tool for the Monitoring Coordinator to access TNC systems, including timesheets, as well as email. They will also need a computer to perform GIS and statistical analyses of field data. Because this is a new position TNC will be hiring, we do not have a spare computer that we can guarantee will be available when needed for the new hire.
<b>Equipment, Tools, and Supplies</b>		Tablet	Tablets have become critical pieces of equipment for capturing field data in a form that facilitates both spatial data collection with GIS, and ease of importing data for analysis after it has been collected.
<b>Travel In Minnesota</b>	Conference Registration Miles/Meals/Lodging	We estimate up to 3 trips to meetings to present on study results, including conferences of land managers and other professionals. With an estimated 500-mile round trip average distance, travel would total 1,500 miles reimbursed for \$937.50. Including an estimate of \$40 a day for meal expenses and 3 days per conference, we estimate \$360 for meals. Hotel stays during conferences are estimated to be an average of \$150/night for 2 nights per conference, or \$900 total for hotels. We expect conference fees to be waived for presenters, but budgeted an extra \$100 in case some registration fees are required.	Travel to conferences would be paid for with grant funds when the results of this research are being presented at that conference. Because conferences bring together larger gatherings of audiences this study will be relevant to, conference presentations are one of the most effective way to share results of research like this to practitioners and researchers. While we also plan to organize other workshops or meetings to share results, those are not likely to reach the same breadth of potential stakeholders as are present at conferences.

Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount
<b>State</b>				
			<b>State Sub Total</b>	-
<b>Non-State</b>				
In-Kind	State Wildlife Grant	MN DNR Biometrician will contribute time to the project to help with protocol and study design.	Secured	\$30,000
			<b>Non State Sub Total</b>	<b>\$30,000</b>
			<b>Funds Total</b>	<b>\$30,000</b>

## Attachments

### Required Attachments

#### *Visual Component*

File: [27d615e2-68d.pdf](#)

#### *Alternate Text for Visual Component*

Map showing location and amount of restored and enhanced bluff prairies in Southeast MN, with pictures of two common management techniques: prescribed fire and goat grazing. Text explains how this proposal would give insight into the effectiveness of different management techniques and lay groundwork for future studies....

#### *Financial Capacity*

File: [c4777c29-e52.pdf](#)

#### *Board Resolution or Letter*

Title	File
TNC Authorization Letter	<a href="#">5a12cb2d-34b.docx</a>

### Optional Attachments

#### *Support Letter, Photos, Media, Other*

Title	File
Audited Financial Statements for FY21	<a href="#">08598af1-392.pdf</a>
Background Check Certification Form	<a href="#">ceef999d-e9e.pdf</a>

## Difference between Proposal and Work Plan

### *Describe changes from Proposal to Work Plan Stage*

This workplan incorporated the \$15,000 reduction in budget recommended by LCCMR by reducing the amount budgeted for contracting with MN DNR staff. There was a minor addition of language to the description of the personnel budget. We also added the required description of our dissemination plan and requested a reporting schedule.

Subsequently, we added detail to the descriptions of the planned activities and milestones, and separated out a budget for conferences from the other travel budget as requested by LCCMR staff.

In a third update, we added further detail to the subaward budget and description of milestones as requested by LCCMR staff.

## Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

**Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?**

N/A

**Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?**

Yes, I agree to the Commissioner's Plan.

**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