



Environment and Natural Resources Trust Fund

M.L. 2023 Approved Work Plan

General Information

ID Number: 2023-025

Staff Lead: Mike Campana

Date this document submitted to LCCMR: May 25, 2023

Project Title: Root River Habitat Restoration at Eagle Bluff

Project Budget: \$866,000

Project Manager Information

Name: Colleen Foehrenbacher

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Project Reporting

Date Work Plan Approved by LCCMR: June 22, 2023

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

Project Completion: June 30, 2028

Final Report Due Date: August 14, 2028

Legal Information

Legal Citation: M.L. 2023, Chp. 60, Art. 2, Sec. 2, Subd. 08c

Appropriation Language: \$866,000 the first year is from the trust fund to the commissioner of natural resources for an agreement with Eagle Bluff Environmental Learning Center to restore habitat in and alongside the Root River north of Lanesboro, Minnesota, and to conduct monitoring to ensure water quality and fish population improvements are achieved. This appropriation is available until June 30, 2028, by which time the project must be completed and final products delivered.

Appropriation End Date: June 30, 2028

Narrative

Project Summary: The Root River Restoration project is 3,300 linear feet of stream bank and instream habitat restoration and monitoring located within Eagle Bluff and state owned land north of Lanesboro,

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

Flood events since 2011 have drastically changed the Root River within the project area. Flood damage and sediment accumulation has disconnected the river channel and floodplains, directing flows against the riverbanks creating erosive conditions and loss of riparian habitat and fish habitat. Eagle Bluff has established this project as one of high need to address the loss of stream banks and aquatic habitat, and unsafe sloughing slopes. As a result of aggradation due to current riverbank erosion and unstable channel dimensions, instream fish habitat has drastically declined. Prior to flood events this area was populated with Brown Trout, Channel and Flathead Catfish, Walleye, Sauger, Rock Bass, Shovelnose Sturgeon, Longnose Gar, and white and smallmouth bass. One notable species historically present that occurs infrequently in the Root River is the Lake Sturgeon. The river has macroinvertebrate and total suspended solids impairments as well. This project would address both the sediment load entering the river, a priority of the Root River One Watershed One Plan, and macroinvertebrate and fish.

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 proposed project exhibits steep slopes with highly erodible soils, sloughing soils, and uprooted and fallen trees. The riverine habitat within this area is degraded but includes geomorphic features such as riffles, runs, and pool habitat that will support diverse aquatic species if restored. Preliminary conceptual plans have been completed to address current conditions of the project in cooperation with the MNDNR area fisheries office which include installation of rock boulder toe, toe-wood, rootwads, boulder clusters, riffles and floodplain restoration to enhance aquatic species habitat including brown trout, smallmouth bass, northern pike and sensitive species. The riparian areas of the river will be restored with native riparian and upland buffers using both live plantings and native seeding that will filter sediments and nutrients from surface water runoff. This area has also been called, "the most diverse, remote, and fascinating piece of property left in the Root River Watershed" by former regional DNR fisheries manager, Steve Klotz. Biological monitoring will be conducted as part of the Eagle Bluff educational curriculum in cooperation with the local MNDNR staff from the Lanesboro Fisheries office to determine how the habitat improvements affect changes in fish and aquatic species populations, and water quality.

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?

Restoration of this section of the Root River will provide the following long term benefits: increased fish populations resulting from instream fish habitat structures such as root wads, boulder toe, and toe-wood benches; improved water quality by reducing soil erosion and sediment pollution; enhanced vegetated riparian buffer to filter sediment, nutrients, and debris from runoff; and habitat for wildlife species. The proposed project will provide restored habitat open to the public for recreation and fishing. Our project will also create opportunities to develop lesson plans about ecological restoration and environmental careers, and water quality, habitat, and aquatic species monitoring data.

Project Location

What is the best scale for describing where your work will take place?

Watershed(s): Root River

What is the best scale to describe the area impacted by your work?

Watershed(s): Root River

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Final Design, Engineering, Permitting, and pre-construction survey

Activity Budget: \$140,000

Activity Description:

This activity includes finalizing the engineering and design plans for the two project sites. We'll conduct a pre-construction survey which will document the stream geomorphic features, channel cross sections, longitudinal cross sections, and additional data that includes bank-full elevation and water level elevations. At the end of the project, we'll complete a post-construction survey to collect as-built data at designed habitat improvement feature locations and channel and longitudinal cross sections post-construction.

This step also includes securing the necessary permits for the project and the subsequent inspections that may need to take place.

Eagle Bluff ELC will follow a formal selection process for both the engineering and construction firm selection for the project. We'll send out RFQ's for selection of the engineering firm and RFP's for the selection of the construction firm.

Activity Milestones:

Description	Approximate Completion Date
Pre-construction Stream Survey	September 30, 2023
Engineering/Construction Plans and Bid Specifications	February 28, 2024
Permit Requirements: MPCA, MNDNR, USACE, Local LGU	July 31, 2024
Post Construction Stream Survey and Summary	July 31, 2025

Activity 2: Project Construction, Monitoring, and Maintenance

Activity Budget: \$651,000

Activity Description:

This activity includes the construction of the project:

First, construction staking will occur by the selected engineer to ensure design specifications are constructed according to the plans and permits.

Second, we'll salvage as many existing trees and brush for the toewood structures. If we need more trees for this step, we'll strategically find trees on Eagle Bluff property to use for the toewood.

We'll lower some of the property to improve connectivity of the land to the floodplain which will help reduce the stress on the river banks during flood events.

Third, we'll install the toewood structures and boulder toe. This is also when we'll install the monitoring viewports for the cameras.

Finally, we will seed the project area to help with soil retention.

Activity Milestones:

Description	Approximate Completion Date
Site 1 & 2: Salvage of trees/ brush for toewood installation and to improve floodplain connectivity.	October 31, 2024
Site 1 & 2: Lower point bar to improve floodplain connectivity (2,000 feet)	November 30, 2024
Site 1 & 2: Install toewood bench (1,128 feet)	January 31, 2025
Site 1 & 2: Install boulder toe protection (400 feet)	February 28, 2025
Site 2: Enhance riffle to natural stream dimensions (114 feet). Direct flow to habitat features.	February 28, 2025
Site 1 & 2: Install seeding and natural buffers.	July 31, 2025

Activity 3: Biological Monitoring

Activity Budget: \$75,000

Activity Description:

Three years of post-construction monitoring to ensure that restoration efforts improve upon current conditions, specifically targeting known impairments. Includes 1) pre-sampling to identify stream reaches and sampling sites, 2) electrofishing two reaches of the river, 3) sampling two locations for macroinvertebrates, 3) summarizing data with IBI values and providing raw data to public and interested agencies such as DNR, MPCA, and SWCD. Sampling follows MPCA methodologies.

All monitoring data will be reviewed/statistically analyzed and summarized in a report to compare restored and non-restored habitat sections, evaluate sizes pre/post restoration, and to examine the role of seasonality on the communities evaluated. This data and summary will help to target future restorations and success of restorations. The data collected each year will also be used by Eagle Bluff to develop educational programs such as adult or child learning opportunities to assist with data collection and to learn about restoration.

Activity Milestones:

Description	Approximate Completion Date
Stream sampling: Fish, macroinvertebrates, water levels and temperatures	September 30, 2026
Stream sampling: Fish, macroinvertebrates, water levels and temperatures	September 30, 2027
Stream sampling: Fish, macroinvertebrates, water levels and temperatures, summary report and raw data distribution.	June 30, 2028

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Brightsdale Dam Channel Restoration	Fillmore SWCD	Educational partner: their project is in close proximity to Eagle Bluff which will allow us to use their site as another educational location when teaching about water quality, restoration practices, and aquatic species.	No

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.

This project will be shared with our users who visit this part of our property along with the many students and adults who participate in our canoeing classes along this section of the river. We also plan to hold a dinner and speaking event about the project when it is completed to educate the public and Eagle Bluff supports about the entire process of the project. We also plan to put signage along the river once the project is complete to showcase the funding and work done to the general public who frequently use this section of the river. 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?

Our project design includes habitat and stream bank restoration techniques designed for long-term hydraulic stability and ecological improvements. Once the project is completed and vegetation established, minimal maintenance will be required to sustain the designed habitat outcomes. Maintenance inspections in conjunction with three years of biological monitoring, in cooperation with local MNDNR staff, will be a part of our educational program. The timeline for the overall project construction is approximately 2 years, with 3 years of biological monitoring of the site after construction is completed. Additional future project phases of other sections of stream reach would require separate funding requests.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
							Sub Total	-
Contracts and Services								
TBD Engineering Firm	Professional or Technical Service Contract	Creation of Engineering/Construction Plans and Bid Specifications				0.6		\$140,000
TBD Construction Contractor	Professional or Technical Service Contract	Construction and materials for restoration features, seeding, and native buffers.				0.3		\$650,500
TBD	Professional or Technical Service Contract	Biological monitoring				0.75		\$75,000
							Sub Total	\$865,500
Equipment, Tools, and Supplies								
	Equipment	Water Level Meters	Water level elevations and temperature					\$500
							Sub Total	\$500
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								

							Sub Total	-
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$866,000

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				
In-Kind	Eagle Bluff Environmental Learning Center	Grant Administration	Secured	\$15,000
In-Kind	Eagle Bluff Environmental Learning Center	5 years of maintenance and monitoring work	Secured	\$50,000
In-Kind	Eagle Bluff Environmental Learning Center	1 year of curriculum development work to add in monitoring and create curriculum around this project and ongoing education programs.	Secured	\$30,000
In-Kind	Eagle Bluff Environmental Learning Center	Environmental Technician Biological Monitoring	Secured	\$9,000
			Non State Sub Total	\$104,000
			Funds Total	\$104,000

Acquisition and Restoration

Parcel List

Name	County	Site Significance	Activity	Acres	Miles	Estimated Cost	Type of Landowner	Easement or Title Holder	Status of Work
Eagle Bluff- Site 1	Fillmore	prairie	Restoration	-	0.3	-	Private	MN Land Trust	Has Not Begun
Eagle Bluff- Site 2	Fillmore	prairie	Restoration	-	0.25	-	Private	MN Land Trust	Has Not Begun
State Land- Site 1	Fillmore	wetland	Restoration	-	0.08	-	Public		Has Not Begun
Totals				0	0.63	-			

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.

Yes. All restoration activities completed with these funds will occur on land permanently protected by a conservation easement. The vast majority of the work will occur on Eagle Bluff land (which is protected by a conservation easement through the MN Land Trust). A very small portion will occur on state land adjacent to Eagle Bluff land.

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 habitat improvements are designed for long-term stability and no significance maintenance will be required to sustain project outcomes. A long-term monitoring and maintenance plan will be implemented by Eagle Bluff to assure all constructed habitat restoration measures are functioning as designed for the project. Maintenance includes inspecting the integrity of the habitat features, riverbank stabilization and vegetation management, in conjunction with routine inspections and biological monitoring conducted by MNDNR staff, volunteers, hired professionals, and Eagle Bluff students and staff.

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.

This project will use native seed and plant material sourced from the local region to ensure that the plants are viable and adapt to the conditions of the site. Seed selection will include a high diversity of species that provides functions of pollinator habitat, foraging habitat for wildlife and fish species, floodplain management, and soil stability.

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.

Eagle Bluff Environmental Learning Center will be responsible for the long-term maintenance and management needs of the parcel. We already have personnel and funding to do so.

5. Describe how consideration will be given to contracting with Conservation Corps of Minnesota for any restoration activities.

Eagle Bluff will consider contracting with the Conservation Corps Minnesota to aid in live plantings in addition to invasive species removal.

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.

Eagle Bluff Environmental Learning Center will complete evaluations after construction is completed, monitoring will be completed throughout the growing season annually as part of our ongoing educational program, and biological monitoring will occur for three years post-construction. A summary of our monitoring data will be completed after the initial habitat installation and then after three years post-construction. Monitoring data will be provided to the MPCA and other interested parties.

Attachments

Required Attachments

Map

File: [8f078e2c-ff1.pdf](#)

Alternate Text for Map

Map 1: Shows the two restoration sites on the North Branch of the Root River.

Map 2: Habitat Restoration Concept plan for site 1 which includes toe-wood benches, boulder toe protections, and lowering of point bar.

Map 3: Habitat Restoration Concept plan for site 2 which includes riffle enhancement, boulder toe protection, and toe-wood benches....

Financial Capacity

File: [f1d62cf5-0df.pdf](#)

Board Resolution or Letter

Title	File
Board of Directors Support Letter	e6a14fca-2f6.pdf

Optional Attachments

Support Letter, Photos, Media, Other

Title	File
Fillmore County Letter of Support	439fad92-3bb.pdf
Fillmore County SWCD Letter of Support	903d3a24-59e.pdf
Greg Davids Letter of Support	1ef535d4-3a6.pdf
MN Land Trust Letter of Support	59c3c5e7-3fd.pdf
Friends of the Root River Letter of Support	4967b5c0-bfb.pdf
Pheasants Forever Letter of Support	77003db9-9ea.pdf
Molitor (EB Neighbors) Letter of Support	6a0e4e8f-f73.pdf
Eagle Bluff Site 1 photo	4ab83587-eb3.pdf
Eagle Bluff Site 2 photo	6a9761b7-77e.pdf
Background Check	9f6fa851-ad5.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage
completed the changes that were requested

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?

N/A

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