

**Environment and Natural Resources Trust Fund**

# 2021 Request for Proposal

## **General Information**

**Proposal ID:** 2021-260

**Proposal Title:** Floodplain Reconnection in Southeast Minnesota's Driftless Area

## **Project Manager Information**

**Name:** Leah Hall

**Organization:** The Nature Conservancy

**Office Telephone:** (612) 331-0785

**Email:** leah.hall@tnc.org

## **Project Basic Information**

**Project Summary:** Through GIS analysis, field data and hydrologic analysis, we will identify and prioritize opportunities in Southeast Minnesota to reconnect streams to their floodplains and implement pilot projects to demonstrate methods.

**Funds Requested:** $572,000

**Proposed Project Completion:** 2025-06-30

**LCCMR Funding Category:** Water Resources (B)

## **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?** Region(s): SE

**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.**

In Southeast Minnesota’s Driftless Area, stream managers, farmers, and communities are still dealing with the consequences of catastrophic flooding and erosion that occurred in the late 19th and early 20th centuries. The sedimentation left a legacy of deep sediment deposits that buried wetlands and raised streambanks several feet to where only major flood events escape the stream channel, thereby disconnecting streams from their historic floodplains. The result is a system where floods gain power within entrenched streams and mobilize large amounts of sediment, as unnaturally high stream-banks collapse. This degrades water quality and aquatic habitat. It adds stress to a regional fishery that generates millions of dollars of economic activity each year and threatens downstream infrastructure, agricultural fields, and rural communities. Additionally, floodplains that would have historically supported a matrix of riparian, wetland, and mesic upland communities have been replaced with homogeneous, flat deposits of alluvium, reducing the diversity and resilience of natural communities that occupy the valley bottoms.

**What is your proposed solution to the problem or opportunity discussed above? i.e. What are you seeking funding to do? You will be asked to expand on this in Activities and Milestones.**

Funding from this award will allow us to conduct a landscape-scale analysis to identify locations where streams are disconnected from their floodplain and produce a map of prioritized restoration opportunities. To date, such an analysis has not been completed in Southeast Minnesota’s Driftless Area and few reconnection projects have been completed. Successful stream reconnection projects will depend on finding places along the stream where restoration is feasible, and the resulting storage volumes are worth the cost of the project. We will produce a map of restoration opportunities and develop and test restoration methods that can expand restoration efforts in the region and can guide future investment from other funding sources, including Outdoor Heritage and Clean Water Funds.
Reconnecting streams to their floodplains benefits water quality and aquatic habitat, while also enhancing floodplain habitat diversity. It increases flood storage, reduces the peak of moderate-sized flood events, and increases sediment removal on floodplains. It reduces risk to infrastructure like roads and bridges, farmland and other private development vulnerable to flooding. It will also benefit the numerous trout habitat projects in which the State of Minnesota, in partnership with Trout Unlimited, has invested tens of millions of dollars in recent years.

**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?**

This project will provide a watershed-scale spatial analysis of feasible floodplain reconnection sites across 4 major watersheds of Minnesota’s Driftless Area. It will also complete a minimum of one demonstration project, where restoration techniques and resulting benefits can be monitored to measure success and inform future projects. This analysis and restoration project demonstration will be used to guide both protection and restoration work funded through The Nature Conservancy’s Southeast Minnesota Blufflands Protection Program with the Lessard-Sam’s Outdoor Heritage Council (Outdoor Heritage Funding).

## **Activities and Milestones**

### **Activity 1: Floodplain reconnection feasibility analysis and map for four major watersheds using GIS, hydrologic and geomorphic analysis**

**Activity Budget:** $65,000

**Activity Description:**TNC staff will use existing analyses to target subwatersheds with the highest restoration potential. In targeted subwatersheds, we will use Digital Elevation Models and LiDAR to identify areas of the floodplain where reconnection is feasible logistically and economically.
To do so, we will begin by delineating areas that are inundated by frequent floods to distinguish true floodplains from terraces. We will then seek out restorable oxbows in lower river reaches. In headwaters reaches, we will focus on sites where floodplain reconnection requires minimal excavation to enhance flood storage or where simple revegetation will restore floodplain function. Existing river hydraulic models and DNR field data will be used to refine the potential restoration list. We’ll investigate stream channelization sites in more detail to identify other channel reconnection sites. Finally, hydrologic benefits will be quantified on wetland size and depth, as well as expected length of inundation. Analysis results will be field verified through on-site survey of potential projects sites. This analysis will be completed in the Whitewater, Cannon, Zumbro and Root River Watersheds.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Completion Date** |
| Hydrologic data collection and preparation | 2021-10-31 |
| GIS and hydrologic analysis | 2022-03-31 |
| Field verification of potential sites | 2022-06-30 |
| Draft report available for review by DNR and SWCD partners | 2022-09-30 |
| Complete floodplain reconnection feasibility report | 2022-12-31 |

### **Activity 2: Complete demonstration project(s) selected from the floodplain reconnection feasibility analysis**

**Activity Budget:** $472,000

**Activity Description:**Working with partners from the DNR, as well as other government and non-profit organizations, we will identify demonstration project sites. Selection will be based on the feasibility analysis from Activity 1 and on other constraints, such as costs, landownership, site access, and permit obtainment.
Our ideal result would be two demonstration projects- one located in the upper watershed and one in the lower watershed. The upper watershed location will likely involve reconnection of floodplain cutoff by channelization and entrenchment and/or restoration of native floodplain ecosystems. It would involve earth-moving and excavation to establish reconnection and if necessary, placing berms and installing water control structures. The lower river project will likely involve connecting oxbows or side-channels that were cutoff at roads or by entrenchment. TNC will do restoration project planning and design in collaboration with partners. The earth work and on-the-ground restoration will be hired out to contractors by 2023.
Following construction, field days and a workshop will be held with landowners and partners on site to share insights from implementation and results to date. The project will also be promoted with local media attributing ENRTF.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Completion Date** |
| Demonstration project sites selected | 2022-06-30 |
| Floodplain reconnection projects completed | 2023-11-30 |
| Field days and workshop at demonstration sites | 2025-06-30 |

### **Activity 3: Post-project assessment and monitoring**

**Activity Budget:** $35,000

**Activity Description:**TNC staff will monitor all demonstration sites to ensure project success by documenting hydrologic conditions, vegetation growth and soil stabilization following the earth work.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Completion Date** |
| Monitoring of demonstration projects | 2025-06-30 |

## **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 be funded?**The floodplain reconnection opportunity map will be shared with other State and local agencies and NGOs to be incorporated into land management and watershed planning. The analysis will be used to guide future habitat protection by The Nature Conservancy with funds awarded from the Lessard-Sam’s Outdoor Heritage Council. The Nature Conservancy and partners will also use the results to pursue additional funding from State, Federal, and private sources to implement additional projects.

## **Other ENRTF Appropriations Awarded in the Last Six Years**

|  |  |  |
| --- | --- | --- |
| **Name** | **Appropriation** | **Amount Awarded** |
| Southeast Minnesota Watershed Protection Plan | M.L. 2014, Chp. 226, Sec. 2, Subd. 06e | $200,000 |

## **Project Manager and Organization Qualifications**

**Project Manager Name:** Leah Hall

**Job Title:** Freshwater Specialist

**Provide description of the project manager’s qualifications to manage the proposed project.**Responsibilities Pertaining to the Proposal:
1) Administer contracts.
2) Prepare reports.
3) Coordinate restoration, monitoring and research programs.
4) Conduct and supervise GIS analyses for identification and prioritization of conservation projects.
5) Organize and lead field days, educational events and landowner outreach activities.
Leah has worked for The Nature Conservancy’s Minnesota, North Dakota and South Dakota Chapter since 2017. She works within the Freshwater Program developing, managing and advancing conservation programs and strategies that benefit water quality. Prior to The Nature Conservancy, Leah was a Conservation Technician with the Anoka Conservation District, where she facilitated site-based restoration projects and conducting watershed analyses. Leah has more than eight years of professional experience in conservation. She is a graduate of the University of Minnesota, where she holds a Master of Science in Natural Resources Science and Management, and the University of Oregon, where she holds a Bachelor of Science in Environmental Science and Geography.

**Organization:** The Nature Conservancy

**Organization Description:**Founded in 1951, the Nature Conservancy is a global conservation organization dedicated to conserving the lands and waters on which all life depends. Guided by science, we create innovative, on-the-ground solutions to our world's toughest challenges so that nature and people can thrive together. We are tackling climate change, conserving lands, waters and oceans at unprecedented scale, providing food and water sustainably and helping make cities more sustainable. One of our core values is our commitment to diversity. Therefore, we strive for a globally diverse and culturally competent workforce. Working in 72 countries and in all 50 United States, we use a collaborative approach that engages local communities, governments, the private sector, and other partners. Since 1958, The Nature Conservancy has helped protect more than 650,000 acres of forests, prairies, rivers, lakes and wetlands in Minnesota. In Southeast Minnesota, The Nature Conservancy has been a leader in protecting and restoring habitat, as well as planning and coordination with diverse stakeholder groups to maximize effectiveness of conservation in Minnesota’s Blufflands region.

## **Budget Summary**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Category / Name** | **Subcategory or Type** | **Description** | **Purpose** | **Gen. Ineli gible** | **% Bene fits** | **# FTE** | **Class ified Staff?** | **$ Amount** |
| **Personnel** |  |  |  |  |  |  |  |  |
| Project Manager |  | Oversee project completion and grant reporting and other tasks as necessary |  |  | 43% | 0.6 |  | $41,428 |
| Project Coordinator |  | Coordinate analysis and report development with technical staff, local and state partners. Coordinate landowner and partner outreach for demonstration project implementation and other tasks as necessary |  |  | 43% | 0.75 |  | $51,786 |
| Restoration Ecologist |  | Develop GIS analysis and floodplain reconnection opportunity report. Select demonstration site(s). Design and oversee construction of demonstration projects. |  |  | 43% | 0.75 |  | $51,786 |
|  |  |  |  |  |  |  | **Sub Total** | **$145,000** |
| **Contracts and Services** |  |  |  |  |  |  |  |  |
| TBD | Professional or Technical Service Contract | Construction of demonstration projects, including excavation, grading, and revegetating floodplain and wetland areas and other as necessary. |  |  |  | 0 |  | $400,000 |
|  |  |  |  |  |  |  | **Sub Total** | **$400,000** |
| **Equipment, Tools, and Supplies** |  |  |  |  |  |  |  |  |
|  | Tools and Supplies | Water level loggers, barometric loggers, soil auger for well installation, well materials, YSI water chem probe | Monitoring wells for floodplain restoration monitoring and other gear as needed. |  |  |  |  | $5,000 |
|  | Tools and Supplies | Seed mixes | Seed mixes and other erosion control material for demonstration project areas as needed |  |  |  |  | $15,000 |
|  |  |  |  |  |  |  | **Sub Total** | **$20,000** |
| **Capital Expenditures** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Acquisitions and Stewardship** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Travel In Minnesota** |  |  |  |  |  |  |  |  |
|  | Miles/ Meals/ Lodging | Travel expense for driving to project sites, to conduct field verification, to monitor restoration project, to bring people to the site for field days and to purchase boxed lunches and snacks for field days since no restaurants are nearby. | Travel to and from project sites in Southeastern Minnesota from Winona and Minneapolis |  |  |  |  | $5,500 |
|  |  |  |  |  |  |  | **Sub Total** | **$5,500** |
| **Travel Outside Minnesota** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Printing and Publication** |  |  |  |  |  |  |  |  |
|  | Printing | Handouts and informational materials or other printing as needed | Outreach and educational materials to promote field days, provide information about analysis, etc. |  |  |  |  | $500 |
|  |  |  |  |  |  |  | **Sub Total** | **$500** |
| **Other Expenses** |  |  |  |  |  |  |  |  |
|  |  | DNR Waters and NPDES Permit | Required project permits |  |  |  |  | $500 |
|  |  | Meals | Field trip box lunches | X |  |  |  | $500 |
|  |  |  |  |  |  |  | **Sub Total** | **$1,000** |
|  |  |  |  |  |  |  | **Grand Total** | **$572,000** |

### **Classified Staff or Generally Ineligible Expenses**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category/Name** | **Subcategory or Type** | **Description** | **Justification Ineligible Expense or Classified Staff Request** |
| **Other Expenses** |  | Meals | Full day field trip in an area where no food is available nearby and participants will be coming from long distances. |

### **Non ENRTF Funds**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Specific Source** | **Use** | **Status** | **Amount** |
| **State** |  |  |  |  |
|  |  |  | **State Sub Total** | **-** |
| **Non-State** |  |  |  |  |
| In-Kind | The Nature Conservancy | Unrecovered indirect cost - This is an estimated dollar amount. It will not be tracked or reported on. | Secured | $134,420 |
|  |  |  | **Non State Sub Total** | **$134,420** |
|  |  |  | **Funds Total** | **$134,420** |

## **Acquisition and Restoration**

### **Parcel List**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Name** | **County** | **Site Significance** | **Activity** | **Acres** | **Miles** | **Estimated Cost** | **Type of Landowner** | **Easement or Title Holder** | **Status of Work** |
| TBD |  |  | Restoration | - | - | $400,000 |  |  | Has not begun |
| **Totals** |  |  |  | **0** | **0** | **$400,000** |  |  |  |

### **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.**All restoration work that is completed with these funds will be on land that is permanently protected by a conservation easement or is in public ownership.

**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.**We will complete at least one floodplain reconnection project on a site that will be determined after the completion of the analysis component of this proposal. Restoration will have a management plan, which we have experience creating and implementing from other projects we have completed.

**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.**Selected restoration projects will follow the Board of Soil and Water Resources "Native Vegetation Establishment and Enhancement Guidelines" in order to ensure ecological integrity and pollinator enhancement. We will utilize BWSR seed mixes on all restoration projects where revegetation is needed.

**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.**Restoration will be designed to minimize long-term maintenance and management needs. However, some will be needed and we fully understand how important it is to do so. We will write maintenance and management plans and will either maintain the site ourselves using other funding sources or work with the landowner to enter into an maintenance agreement.

**5. Describe how consideration will be given to contracting with Conservation Corps of Minnesota for any restoration activities.**We will notify Conservation Corps of Minnesota about any restoration activity and will consider their bid for the project.

**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.**Project monitoring will be conducted before, during and after the restoration is complete. We plan to do long-term monitoring at our project sites to ensure restoration goals were met and to refine methods for scaling-up this type of restoration work.

## **Attachments**

### **Required Attachments**

#### ***Map***

File: [7439f882-145.pdf](https://lccmrprojectmgmt.leg.mn/media/map/7439f882-145.pdf)

#### ***Alternate Text for Map***

Illustration showing project examples.

#### ***Financial Capacity***

File: [cf104888-d06.pdf](https://lccmrprojectmgmt.leg.mn/media/financial_capacity/cf104888-d06.pdf)

#### ***Board Resolution or Letter***

|  |  |
| --- | --- |
| **Title** | **File** |
| Authorization Letter | [c79a62fd-eae.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/c79a62fd-eae.pdf) |

### **Optional Attachments**

#### ***Support Letter or Other***

|  |  |
| --- | --- |
| **Title** | **File** |
| Great River Green: Letter of Support | [e709bcb2-3ef.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/e709bcb2-3ef.pdf) |
| Audubon: Letter of Support | [6ec21a85-eb6.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/6ec21a85-eb6.pdf) |

## **Administrative Use**

**Does your project include restoration or acquisition of land rights?**
 Yes: Restoration,

**Does your project have patent, royalties, or revenue potential?**
 No

**Does your project include research?**
 Yes

**Does the organization have a fiscal agent for this project?**
 No