

**Environment and Natural Resources Trust Fund**

# M.L. 2025 Final Work Plan

## **General Information**

**ID Number:** 2025-247

**Staff Lead:** Tiffany Schaufler

**Date this document submitted to LCCMR:** June 12, 2025

**Project Title:** Advancing Collaborative Wild Rice Monitoring Program Technologies

**Project Budget:** $900,000

## **Project Manager Information**

**Name:** Josh Knopik

**Organization:** MN DNR - Ecological and Water Resources Division

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**Web Address:** https://www.dnr.state.mn.us/ewr/index.html

## **Project Reporting**

**Reporting Schedule:** March 1 / September 1 of each year.

**Project Completion:** June 30, 2028

**Final Report Due Date:** August 14, 2028

## **Legal Information**

**Legal Citation:** M.L. 2025, First Special Session, Chp. 1, Art. 2, Sec. 2, Subd. 03z

**Appropriation Language:** $900,000 the first year is from the trust fund to the commissioner of natural resources to continue efforts to create a framework for long-term wild rice monitoring for conservation and collaborate with Tribal and nongovernmental organizations to collect additional data, improve collection and analysis methods, and develop a statewide estimate of wild rice abundance and coverage.

**Appropriation End Date:** June 30, 2028

## **Narrative**

**Project Summary:** Collaborate with tribal and Non Government Organizations in advancing wild rice monitoring tools (aerial imagery and remote sensing) to improve statewide coverage maps, and conduct trend analysis of distribution.

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

Minnesota supports the largest abundance of natural wild rice in the United States. Wild rice is important to the state of Minnesota, economically, ecologically, and culturally. Despite wild rice’s importance to Minnesota, funding for wild rice monitoring and assessment activities with tribal and other entities is limited. Wild rice has declined in abundance. A robust suite of monitoring tools will help quantify changes in abundance across the state over time. The Collaborative State - Tribal Wild Rice Monitoring Program, funded by LCCMR in 2022, was successful in initiating coordination of field data collection across the state, holding regular meetings with tribal collaborators, and developing remote sensing methodologies estimating wild rice coverage. The collaboration identified new technologies and research (using Unoccupied Aerial Vehicles or UAVs and expanded remote sensing applications) which will increase the efficiency and efficacy of data collection moving forward.

**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.**

Building on the collaborative’s momentum, this project aims to: Advance the remote sensing and aerial imagery analysis, model statewide wild rice coverage annually back to 2018, provide analysis on wild rice abundance trends and correlations to stressors, and expand coordination efforts on wild rice monitoring, assessment, and conservation. We are seeking funding to expand the capacity of tribes and the state to monitor wild rice abundance through the improvement of remote sensing tools and UAV imagery, continued collaboration around methods and shared learnings, and aligned commitment to assessing statewide abundance, analyzing both historic and future trends. We will do this by utilizing DNR’s Resource Assessment Unit expertise, as well as supporting tribal collaborators. A full-time project Coordinator will serve as liaison to all entities as well as pursue sustainable funding for ongoing wild rice conservation partnerships. Support has been expressed by the following Tribes and NGO’s: Fond du Lac, Mille Lacs, White Earth, and the Red Lake Nation, and inter-tribal organizations including the 1854 Treaty Authority, Great Lake Indian Fish and Wildlife Commission, The University of Minnesota, and The Nature Conservancy.

**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?**

- Development of robust tools for monitoring wild rice abundance. Measured by consistently collected and shared data across organizations.
- Assessment of changes over time and establishment of current abundance baselines for wild rice in Minnesota, reported at least biennially.
- Increased communication and collaboration between state and tribal resource staff around wild rice monitoring measured by bi-monthly meetings.
- Annual wild rice coverage maps and data, available on Natural Resource Atlas, to inform future decision making and approaches to conservation of wild rice.
- Establishment of long term funding strategies for continued collaboration and monitoring.

## **Project Location**

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

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

**When will the work impact occur?** During the Project

## **Activities and Milestones**

### **Activity 1: Advance the collection and analysis of aerial derived imagery to enhance remote sensing tools to estimate statewide wild rice coverage**

**Activity Budget:** $400,000

**Activity Description:**Collect, analyze, and test field collected data and imagery (aircraft and UAV) to advance the accuracy of the current Google Earth Engine (GEE) model as it relates to wild rice coverage and density. Models require broad data sets to improve their effectiveness, and wild rice density is variable both across lakes and from year to year. Collaborative review of model outputs and methods will be used to refine and expand tool consistency. Quantifying the density of wild rice beds, through the use of aerial imagery, would provide an efficient and economical method of assessing wild rice abundance and variability in density from year to year on individual lakes, and support data needed for statewide density coverage. One of the constraints with the current model is accuracy in stands of wild rice that are sparse and stands which consist of mixed vegetation, especially at the regional scale. Additional data will be collected to increase the accuracy of the model in these areas. Aerial imagery will be collected and analyzed to improve the accuracy of coverage and correlated density at the lake wide scale.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Approximate Completion Date** |
| Advance research on the correlation of density with the aerial imagery | July 31, 2026 |
| Collect and analyze aerial imagery on representative lakes | October 31, 2027 |
| Refine GEE model using increased stand density data and methods | January 31, 2028 |
| Develops annual statewide map of wild rice coverage | June 30, 2028 |

### **Activity 2: Advance collaborative for comprehensive wild rice monitoring and assessment.**

**Activity Budget:** $400,000

**Activity Description:**Building trust and developing relationships are critical for creating a long-term wild rice monitoring collaborative. Due to increased interest from tribal entities, NGOs and the University of Minnesota (UMN), momentum is rising to establish a framework for long-term wild rice monitoring for conservation. Monthly collaboration calls, field season activity coordination, strategizing to address capacity issues and data concerns have all been initiated in the initial project and will continue. A wild rice workshop will be coordinated and held as a means to share results of research and continued relationship building, with a focus on arranging opportunities for shared learning around traditional ecological knowledge, monitoring, and management activities. These tasks will be supported by a Wild Rice Coordinator, whose role will be to broaden the collaboration, communicate both internally and externally on progress and activities, and strategize and search for sustainable funding frameworks.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Approximate Completion Date** |
| Facilitate monthly meetings with tribal, state and NGO partners for discussion on Collaboration goals | June 30, 2026 |
| Organize annual collaborators workshop to advance share knowledge on wild rice monitoring. | February 28, 2028 |
| Arrange and implement field/learning opportunities with tribal collaborators | June 30, 2028 |
| Identify and submit a proposed funding model for continuation of the collaboration. | June 30, 2028 |
| Wild Rice Conservation Status Report | June 30, 2028 |

### **Activity 3: Research on wild rice coverage trends across multiple years.**

**Activity Budget:** $100,000

**Activity Description:**Conduct analysis and collaborate with others on wild rice abundance change and stress (climate change, direct or indirect human influences). Use refined Google Earth Engine (GEE) model to process archived satellite data from 2018 through 2021. This will provide an extended trend analysis of statewide wild rice abundance through the years from 2018 through 2027. Develop a correlation model to estimate potential seed production of wild rice using aerial (UAV and aircraft) derived imagery.

**Activity Milestones:**

|  |  |
| --- | --- |
| **Description** | **Approximate Completion Date** |
| Perform correlation study estimating wild rice density and seed production using aerial imagery | June 30, 2027 |
| Research and analysis of statewide wild rice coverage trends between 2018-2027 | February 28, 2028 |
| Report and visual/map products showing wild rice trends across between years | June 30, 2028 |

## **Project Partners and Collaborators**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Organization** | **Role** | **Receiving Funds** |
| Kristen Blann | The Nature Conservancy | Collaboration building, field data collection and analysis. Sub-award to be determined. | Yes |
| Darren Vogt | 1854 Treaty Authority | Collaboration building. Governed by the Bois Forte and Grand Portage bands. Currently monitors wild rice and oversee one of the states largest wild rice abundance datasets. | No |
| Nancy Schuldt | Fond du Lac Band of Lake Superior Chippewa Resource Management Division | Collaboration building. Wild rice monitoring and restoration experience. | No |
| Dustin Roy | White Earth Nation Division of Natural Resources | Collaboration building. Explore options for monitoring wild rice. Sub-award to be determined. | Yes |
| Brandon Byrne | Great Lakes Indian Fish and Wildlife Commission | Conducts monitoring around Mille Lacs area and works in the 1837 treaty ceded territories. Mille Lacs Band of Ojibwe and Fond du Lac are member tribes. GLIFWC is expanding their wild rice monitoring efforts and collaborated on methods and data sharing. | No |
| Shane Bowe | Red Lake Nation Department of Natural Resources | Collaboration building; Currently involved in collecting drone imagery for wild rice monitoring and active collaborator. Sub-award to be determined. | Yes |
| Alisha Haken | US Fish and Wildlife Service - Tamarac National Wildlife Refuge | Collaboration building and data collection within the Tamarac NWR. Hosts field training days. | 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.**Annual Result maps will be published to MN Geospatial Commons and the UMN's Natural Resources Atlas. Presentations and reports on results will be discussed at conferences and workshops. ENTRF will be acknowledged through use of the trust fund logos and attribution language on all shared products per the ENTRF 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?**Mapping products will be distributed through MN Natural Resources Atlas managed by UMN's Natural Resources Research Institute, and MN Geo Spatial Commons, results of wild rice trend analysis will be published in leading scientific journals, general audience periodicals, and presented at conferences. One of the roles of the collaborator position will be to assist in providing direction for long term funding mechanisms.

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

|  |  |  |
| --- | --- | --- |
| **Name** | **Appropriation** | **Amount Awarded** |
| Collaborative State and Tribal Wild Rice Monitoring Program | M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 03i | $644,000 |

## **Budget Summary**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Category / Name** | **Subcategory or Type** | **Description** | **Purpose** | **Gen. Ineli gible** | **% Bene fits** | **# FTE** | **Class ified Staff?** | **$ Amount** |
| **Personnel** |  |  |  |  |  |  |  |  |
| Wild Rice Coordinator |  | Coordinate monitoring activities between partners |  |  | 30% | 3 |  | $350,000 |
| Field Technician |  | Field data collection |  |  | 20% | 0.99 |  | $80,000 |
| Interns |  | Field data sampling |  |  | 15% | 0.6 |  | $40,000 |
|  |  |  |  |  |  |  | **Sub Total** | **$470,000** |
| **Contracts and Services** |  |  |  |  |  |  |  |  |
| DNR Resource Assessment | Internal services or fees (uncommon) | Improve the Google Earth Engine remote sensing application, listed in Activity One, and produce statewide wild rice coverage maps., and aerial imagery analysis listed in Activity Three |  |  |  | 1.2 |  | $150,000 |
| The Nature Conservancy | Subaward | Funding for staff, travel, and equipment needs for sampling wild rice |  |  |  | 0.99 |  | $50,000 |
| White Earth Nation | Subaward | Funding for staff, travel, and equipment needs for sampling wild rice |  |  |  | 0.99 |  | $50,000 |
| Red Lake Nation | Subaward | Funding for staff, travel, and equipment needs for sampling wild rice |  |  |  | 0.99 |  | $50,000 |
| Mille Lacs Band | Subaward | Funding for staff, travel, and equipment needs for sampling wild rice |  |  |  | 0.99 |  | $50,000 |
|  |  |  |  |  |  |  | **Sub Total** | **$350,000** |
| **Equipment, Tools, and Supplies** |  |  |  |  |  |  |  |  |
|  | Equipment | Field sampling equipment | Canoes and other sampling tools |  |  |  |  | $5,000 |
|  |  |  |  |  |  |  | **Sub Total** | **$5,000** |
| **Capital Expenditures** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Acquisitions and Stewardship** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Travel In Minnesota** |  |  |  |  |  |  |  |  |
|  | Miles/ Meals/ Lodging | lodging and meals | lodging and meals during field sampling |  |  |  |  | $12,400 |
|  | Other | DNR Fleet Services | truck lease and mileage for sampling season |  |  |  |  | $10,000 |
|  |  |  |  |  |  |  | **Sub Total** | **$22,400** |
| **Travel Outside Minnesota** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Printing and Publication** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | **Sub Total** | **-** |
| **Other Expenses** |  |  |  |  |  |  |  |  |
|  |  | Direct and Necessary | DNR’s direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. People Support (~$11053), Safety Support (~$1,552), Financial Support (~$4,816), Communication Support (~$3,055), IT Support (~$29,847), and Planning Support (~$2,274). |  |  |  |  | $52,600 |
|  |  |  |  |  |  |  | **Sub Total** | **$52,600** |
|  |  |  |  |  |  |  | **Grand Total** | **$900,000** |

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Category/Name** | **Subcategory or Type** | **Description** | **Justification Ineligible Expense or Classified Staff Request** |

### **Non ENRTF Funds**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Category** | **Specific Source** | **Use** | **Status** | **$ Amount** |
| **State** |  |  |  |  |
| In-Kind | Natural Resources Specialist - Aquatic Ecologist, Heritage Enhancement Funded | Project Manager (0.10 FTE): Writing contracts, participating in collaborative development, budgeting, and some field sampling. | Secured | $30,000 |
|  |  |  | **State Sub Total** | **$30,000** |
| **Non-State** |  |  |  |  |
| In-Kind | Freshwater ecologist, The Nature Conservancy in MN, ND, SD | Collaboration building, field data collection and analysis | Secured | $6,000 |
| In-Kind | Water Projects Coordinator, Fond du Lac Band of Chippewa | Collaboration building, field monitoring development | Potential | $6,000 |
| In-Kind | Resource Management Director, 1854 Treaty Authority | Collaboration building and field monitoring development | Potential | $5,000 |
| In-Kind | Natural Resources specialist for Mille Lacs Band of Ojibwe, and associated staff and resources | Collaboration building, monitoring resources and staff time. | Potential | $6,000 |
| In-Kind | Deputy Project Leader, US Fish & Wildlife Service | Collaboration building, Field data training and collection | Secured | $6,000 |
|  |  |  | **Non State Sub Total** | **$29,000** |
|  |  |  | **Funds Total** | **$59,000** |

**Total Project Cost: $959,000**

**This amount accurately reflects total project cost?**
 Yes

## **Attachments**

### **Required Attachments**

#### ***Visual Component***

File: [9a942bce-d93.pdf](https://lccmrprojectmgmt.leg.mn/media/map/9a942bce-d93.pdf)

#### ***Alternate Text for Visual Component***

Poster showing collaborators logos surrounding a photo of wild rice. A text box "A Three-part Approach: Enhance remote sensing tools to estimate statewide wild rice coverage, Advance collaborative for comprehensive wild rice monitoring, Research on statewide wild rice coverage across the past decade." Photos of monitoring, classification example, aerial imagery....

### **Supplemental Attachments**

#### ***Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other***

|  |  |
| --- | --- |
| **Title** | **File** |
| White Earth Reservation Letter of Support | [52e01d9c-855.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/52e01d9c-855.pdf) |
| 1854 Letter of Support | [1dd30535-648.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/1dd30535-648.pdf) |
| GLIFWC - LCCMR Wild Rice Collaborative Letter | [8264f8ad-c82.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/8264f8ad-c82.pdf) |
| TNC Letter of Support | [0a2be201-4a6.pdf](https://lccmrprojectmgmt.leg.mn/media/attachments/0a2be201-4a6.pdf) |

## **Difference between Proposal and Work Plan**

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

There are no substantive changes to the proposal/workplan at this time.

## **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 understand that travel expenses are only approved if they 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 understand the Commissioner's Plan applies.

**Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?**
 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

**Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing $10,000 or more or large-scale stream or wetland restoration?**
 No

**Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?**
 No

**Provide the name(s) and organization(s) of additional individuals assisting in the completion of this project:**

 MNDNR - Jason Tidemann

**Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR’s reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements**
 N/A