



# Environment and Natural Resources Trust Fund

2027 Request for Proposal

## General Information

**Proposal ID:** 2027-193

**Proposal Title:** Revitalizing Hunting, Fishing, and Trapping in White Earth

## Project Manager Information

**Name:** Marissa Milstein

**Organization:** U of MN - College of Food, Agricultural and Natural Resource Sciences

**Office Telephone:** (612) 624-3600

**Email:** mils0025@umn.edu

## Project Basic Information

**Project Summary:** This project promotes participation in traditional subsistence activities and revitalizes traditional cultural knowledge of these practices in White Earth through the co-development of a community-based GIS and experiential learning classroom.

**ENRTF Funds Requested:** \$561,000

**Proposed Project Completion:** June 30, 2030

**LCCMR Funding Category:** Education and Outdoor Recreation (C)

## Project Location

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

Region(s): NW

**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

## Narrative

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

Hunting, fishing, and trapping are essential components of the culture and economy of Minnesota. This is especially true for Indigenous people, who have historically depended on these activities for all aspects of their lifeways, including food, raw materials, spiritual purposes, and trade. In concert with their dependence on hunting, fishing, and trapping, Indigenous people have been actively managing wildlife populations through a variety of cultural mechanisms, maintaining sustainable use and protecting habitats. However, consistent with a pattern observed throughout the state, participation in hunting, fishing, and trapping has been steadily decreasing in many Native Minnesotan communities. This is particularly concerning as wild meat has traditionally been the major source of protein for Native communities and rates of food insecurity are as high as 90% in some tribal communities. Further, the decrease in these activities negatively impacts the critical cultural and economic benefits they provide to the communities and the state more broadly. The loss of this knowledge and decrease in participation in hunting, fishing, and trapping has led to concern in many Native communities that there will be a corresponding loss of interest in, and capacity for, sustainable management of wildlife populations and conservation of their habitats.

### **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.**

This work seeks to 1) increase the participation in traditional hunting, fishing, and trapping activities, 2) increase the use of traditionally harvested wild meat and fish, 3) improve management capacity for these activities, and 4) promote the revitalization of traditional ecological knowledge associated with these activities in the White Earth Nation. To address this goal, University of Minnesota researchers will partner with White Earth Natural Resources to complete three primary activities: 1) combine in-depth interviews with traditional Ojibwe knowledge gathering practices like storytelling, place-based learning, and sharing circles to better understand participation among tribal members in hunting and fishing activities, perceptions of conservation and wildlife management, and perceived barriers to participation, 2) use a participatory mapping approach to develop a community-based GIS, mobile mapping app, and StoryMaps for educating tribal members about hunting and fishing on the reservation, encouraging participation in these activities, and increasing management capacity, and 3) develop a natural resources experiential classroom in White Earth that unites knowledge keepers with other tribal members, particularly youth. Educational workshops will allow all tribal members to learn traditional cultural practices and teachings associated with hunting, fishing, and trapping (e.g., butchery, cleaning fish, canning, roasting, smoking, pickling).

### **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?**

Embedded in the state's constitution, Minnesota has a long history and culture of hunting and fishing. However, despite a growing population, participation in these activities is declining statewide. This project addresses this problem by serving as a model for broader tribal and non-tribal initiatives to increase participation in these important outdoor and recreational activities for current and future generations of Minnesotans. Specific outcomes include better understanding the barriers to participation in hunting and fishing in the White Earth Nation and revitalization of traditional cultural knowledge of these practices through the co-development of a community-based GIS and an experiential learning classroom.

## Activities and Milestones

### Activity 1: Conduct interviews with White Earth community members about hunting, fishing and trapping activities

**Activity Budget:** \$205,942

**Activity Description:**

We will conduct semi-structured (open ended) interviews with ~40 community members concerning participation in and knowledge of traditional subsistence activities, perceived barriers to participation in those activities, attitudes and values associated with wildlife harvesting (wild animals and fish), knowledge of regulations associated with hunting/fishing locations and harvesting numbers, and knowledge of wildlife health. We will conduct participant observation during hunting, fishing, and trapping activities to describe and document traditional and non-traditional techniques, teachings associated with specific harvesting places, and practices and knowledge governing sustainable use. Participant observation is a qualitative method in which the researcher participates in the activities of a community in order to better understand behaviors, interactions, and practices. During participant observation sessions, we will conduct informal, unstructured interviews, and rely on storytelling and other Indigenous knowledge gathering practices to provide essential context to the observations. This approach will allow data collection and knowledge gathering to occur in the context and locations of harvesting activities, emphasizing place-based learning. The results of our interviews and participant observation will be used to inform the development of a community-based GIS, StoryMaps (Activity 2) and educational workshops (Activity 3), allowing us to maximize the effectiveness of these initiatives.

**Activity Milestones:**

Description	Approximate Completion Date
Identify community members for interviews	August 31, 2027
Conduct interviews and participant observation	August 31, 2028
Data analysis using qualitative research software	December 31, 2028

### Activity 2: Build a community-based Geographic Information System (GIS) and StoryMaps to document traditional knowledge and support management of vital subsistence species

**Activity Budget:** \$207,666

**Activity Description:**

We will use a participatory mapping approach to build a community-based Geographic Information System (GIS) for the White Earth Nation to document and share place-based knowledge about fishing and hunting activities, educate hunters/anglers/trappers, and increase management capacity. We will conduct participatory mapping during community events, focus groups, and participant observation. Community members will be presented with maps of the reservation and asked about traditional and current wildlife harvesting areas. These data will be combined with land cover and land use/allotment data, and integrated with interview data (Activity 1) to create a culturally relevant, community-based GIS. This GIS will serve as a repository for traditional ecological knowledge within the community and provide information about legal hunting and fishing designations across the reservation. We will develop an open source spatial app, to provide tribal members with access to spatial data on their mobile devices. Further, we will develop StoryMaps to use both internally, to pass knowledge across generations within the White Earth Nation, and externally, for White Earth to share their stories about hunting, fishing, and resource management, with outsiders on their own terms. To ensure data sovereignty, we will follow CARE Principles for Indigenous Data Governance.

**Activity Milestones:**

Description	Approximate Completion Date
White Earth Natural Resources and community meetings to develop community-driven data sovereignty protocols	August 31, 2027
Participatory mapping at community events, focus groups, hunting/fishing trips	August 31, 2028
Synthesis of participatory mapping data for development of GIS platform and mobile app	June 30, 2029
Testing of mobile app and development of StoryMaps	June 30, 2030

### Activity 3: Develop a natural resources classroom for experiential learning and cultural revitalization around hunting, fishing, and trapping in White Earth

**Activity Budget:** \$147,392

**Activity Description:**

The establishment of a natural resources classroom called “Nimaamaa Akiwan” or “Mother Earth” will serve as a hub for the sharing and dissemination of traditional knowledge and practices associated with harvesting native foods (specifically, wild meat and fish) across generations. We will outfit an existing space for the classroom, located in the village of Naytahwaush. Naytahwaush is centrally located within White Earth reservation boundaries and is a predominantly Native community, making the classroom highly accessible to all tribal members. Topics for educational programming will be identified through consultation with White Earth Natural Resources managers and coordinators from the following program areas: Fisheries, Cultural, Wildlife, Parks and Recreation, and Food Security and Sovereignty, as well as informed by interviews with tribal members (Activity 1). Example educational programming includes: hands-on training in butchering deer, cleaning fish, and cooking and long-term storage of wild meat and fish through smoking, canning and pickling. Ojibwe language and cultural teachings will be integrated throughout all activities, serving as an additional pillar for cultural revitalization within the community. Additionally, we will pilot a hunter-mentorship program, pairing community hunters and knowledge keeps with a tribal youth to provide one-on-one opportunities for intergenerational knowledge sharing.

**Activity Milestones:**

Description	Approximate Completion Date
Meet with White Earth Natural Resources program managers and coordinators to identify educational programming needs	August 31, 2027
Outfit Nimaamaa Akiwan classroom with needed materials and supplies	July 31, 2028
Establish hunter-mentorship program with tribal youth participants	August 31, 2028
Educational workshops	June 30, 2030

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Christopher Shaffer	University of Minnesota, Department of Fisheries, Wildlife and Conservation Biology	Co-Investigator	Yes
James Uran Jr.	White Earth Natural Resources	Co-Investigator	Yes
Nicole LaFrinier	White Earth Natural Resources	Co-Investigator	Yes
Amy Moore	White Earth Natural Resources	Collaborator	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.**

The development of a community-based GIS with mobile app will allow for sharing of culturally relevant educational data on natural resource use and management across the White Earth Nation. StoryMaps will be developed to share data and results both within the White Earth Nation and publicly to all Minnesotans. StoryMaps represent a highly accessible way for all Minnesotans, including those less familiar with hunting and fishing, to see the positive impact these have on conservation and better understand traditional Ojibwe practices related to wildlife use. Publications will produce invaluable results that can guide broader efforts to increase participation in hunting, fishing, and trapping and improve management capacity for these natural resources across the state. UMN and White Earth researchers will present and disseminate our findings to the broader tribal natural resources community at scientific conferences (e.g., Native American Fish and Wildlife Society Annual National Conference). Finally, the establishment of a natural resources classroom will provide a permanent space for disseminating knowledge about the conservation and management of natural resources and build the next generation of educators and knowledge disseminators. Further, youth that take part in educational workshops will play an important role in sharing teachings with older family members that may not have that knowledge due to intergenerational knowledge loss. During all stages of results sharing and dissemination, we will follow ENRTF Acknowledgement Guidelines. Data sovereignty will be prioritized through all stages of the project, following CARE Principles for Indigenous Data Governance. We will obtain and follow all UMN and White Earth IRB requirements and ensure that the White Earth Nation and individual community members control how their data is collected, stored, analyzed, and disseminated.

## 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?**

This project was co-developed by UMN and the White Earth Nation to address immediate priorities on the reservation. This partnership ensures that results will be seamlessly implemented into new and existing management plans by the White Earth Natural Resource Office and cultural revitalization efforts for the tribe. The results of interviews will inform

future initiatives to further increase participation in hunting, fishing and trapping. The community-based GIS will make information about land designations and culturally important harvesting locations easily accessible to tribal members, promoting more informed management and harvest. The experiential classroom will provide a hub for inter-generational knowledge sharing.

## Project Manager and Organization Qualifications

**Project Manager Name:** Marissa Milstein

**Job Title:** Assistant Professor

**Provide description of the project manager's qualifications to manage the proposed project.**

Dr. Marissa Milstein is an Assistant Professor in the Department of Fisheries, Wildlife and Conservation Biology at the University of Minnesota – Twin Cities. Dr. Milstein is a wildlife veterinarian and ecologist. Her research program focuses on wildlife health and zoonotic disease risk from hunter harvested wildlife and the cultural importance of hunting for Indigenous communities. For the last ten years, Dr. Milstein has been working with Indigenous communities both globally and locally, co-developing research to promote shared human-animal health and sustainable resource use. Dr. Milstein's work integrates quantitative research methods with qualitative methods from the social sciences to ensure true community engagement and maximize societal impact. Dr. Milstein has a long-term collaboration with White Earth Natural Resources, both in community-driven research and outreach, focused on wildlife health. Recognition of Dr. Milstein's community engaged science is evidenced by publication and high citation rates in peer reviewed journals and invitations to give several keynote addresses and seminars.

**Organization:** U of MN - College of Food, Agricultural and Natural Resource Sciences

**Organization Description:**

The University of Minnesota's abbreviated mission statement: The University, founded in the belief that all people are enriched by understanding, is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation, and the world. The University's mission, carried out on multiple campuses and throughout the state, is threefold: Research and Discovery, Teaching and Learning, and Outreach and Public Service.

The Department of Fisheries, Wildlife, and Conservation Biology at the University of Minnesota – Twin Cities works on applied and fundamental problems related to natural resource management and conservation. The Department's mission is to inspire and create solutions for biological conservation and management in a diverse and changing world. Our goals are to respond to societal needs for information and education pertaining to the conservation of our natural resources and to ensure excellent teaching, research, and outreach programs.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
Marissa Milstein, Assistant Professor		Overall supervision and leadership of all activities including, coordination between UMN and White Earth Natural Resources, educational programming and tribal engagement, supervision of graduate student.			27%	0.24		\$51,205
Christopher Shaffer, Assistant Professor		Direct involvement with all activities. Conduct interviews and participatory mapping. Lead all aspects of study design, supervision of graduate student, data analysis, and interpretation and communication of results.			27%	0.24		\$50,239
Graduate student		Conduct statistical analysis and development of GIS, assist with fieldwork, coordinate with tribal partners on implementation and integration of data into a community-based GIS			47%	1.5		\$184,672
							<b>Sub Total</b>	<b>\$286,116</b>
<b>Contracts and Services</b>								
White Earth Subaward	Subaward	Subaward to WE for: salary/fringe for 3 WE NR personnel (\$102,000); WE community college intern (\$15,000); supplies for educational programming (\$45,000); WE NR classroom (\$20,000); travel to out-of-state academic conferences (\$10,272); local WE travel 2,383miles@\$0.725 (\$1,728); participant honorarium (\$6,000).		X		3		\$197,194
							<b>Sub Total</b>	<b>\$197,194</b>
<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Software for interview data analysis	Nvivo software for two years (academic, annual license)					\$2,400
	Equipment	Computer	Computer to conduct qualitative analysis and GIS	X				\$1,000
							<b>Sub Total</b>	<b>\$3,400</b>

<b>Capital Equipment</b>									
								<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>									
								<b>Sub Total</b>	-
<b>Travel In Minnesota</b>									
	Miles/ Meals/ Lodging	Support travel to and from White Earth and lodging for a total of 10 trips per year in Years 1-2, 5 trips in Year 3 (25 trips total). Trips are 4 days/3 nights in duration for 3 people. Estimated costs per trip include \$45/day UMN university vehicle, lodging \$165/night, per diem @ \$51/1st and last day per person (2 days), and \$68/full day per person (2 days). Totaling \$2,379/trip for 3 people.	Travel to and from White Earth by UMN personnel to conduct educational workshop, interviews, participant mapping, GIS development						\$59,475
								<b>Sub Total</b>	<b>\$59,475</b>
<b>Travel Outside Minnesota</b>									
	Conference Registration Miles/ Meals/ Lodging	Travel for 3 UMN personnel to present results at the a scientific research conferences in Years 2 and 3. Costs estimated as 4 days and 3 nights. Estimated costs include: conference registration (\$400/each), airfare (\$500/flight), lodging 3 nights (\$148/night), per diem 4 days (\$92/day for 2 full days; \$69/day for 1st and last day)	Travel for 3 people to attend a scientific conference to present research findings to the broader natural resources community (e.g., Native American Fish and Wildlife Society).	X					\$9,996
								<b>Sub Total</b>	<b>\$9,996</b>
<b>Printing and Publication</b>									
	Publication	Publication fees	Publication fees requested to publish in open source journals for wider audience distribution						\$3,500
	Printing	Participatory maps	Printed maps of the White Earth reservation needed for participatory mapping exercises						\$1,319

							<b>Sub Total</b>	<b>\$4,819</b>
<b>Other Expenses</b>								
							<b>Sub Total</b>	-
							<b>Grand Total</b>	<b>\$561,000</b>

## Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
<b>Contracts and Services - White Earth Subaward</b>	Subaward	Subaward to WE for: salary/fringe for 3 WE NR personnel (\$102,000); WE community college intern (\$15,000); supplies for educational programming (\$45,000); WE NR classroom (\$20,000); travel to out-of-state academic conferences (\$10,272); local WE travel 2,383miles@\$0.725 (\$1,728); participant honorarium (\$6,000).	Out of state travel to present results at a scientific conference (e.g.,NAFWS) for 3 WE Natural Resources personnel for Years 2 and 3. Costs estimated as \$400/person conference registration; \$500/person airfare; \$148/night for 3 nights; \$92/day per diem for 4 days (meal estimate based on state per diem rate; actual costs will be reimbursed).  Purchase of computers and audiovisual equipment and office materials (generally ineligible) is requested for WE natural resources environmental education classroom. Costs estimated as: tables (\$250/each, 6 total); chairs (\$300/each, 26 total); stainless steel tables for dissections (\$250/each, 6 total); television (\$1,000); smart board (\$3,000); projector (\$1,000); computer (\$1,000/each, 3 total).
<b>Equipment, Tools, and Supplies</b>		Computer	Computer requested (\$1,000) for graduate student to analyze interview data, develop GIS and story map
<b>Travel Outside Minnesota</b>	Conference Registration Miles/Meals/Lodging	Travel for 3 UMN personnel to present results at the a scientific research conferences in Years 2 and 3. Costs estimated as 4 days and 3 nights. Estimated costs include: conference registration (\$400/each), airfare (\$500/flight), lodging 3 nights (\$148/night), per diem 4 days (\$92/day for 2 full days; \$69/day for 1st and last day)	Travel for 3 UMN personnel to present results at the a scientific research conferences in Years 2 and 3. Costs estimated as 4 days and 3 nights. Estimated costs include: conference registration (\$400), airfare (\$500), lodging 3 nights (\$148/night), per diem 4 days (\$92/day for 2 full days; \$69/day for 1st and last day)

## Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
<b>State</b>				
			<b>State Sub Total</b>	-
<b>Non-State</b>				
In-Kind	University of Minnesota foregone indirect costs (54% MTDC)	Administrative costs associated with support of research activities such as: payroll and human resources, finance, facilities, and technical support. If award is reduced, from requested amount, the proposed cost share will be reduced proportionately.	Secured	\$175,683
In-Kind	White Earth foregone indirect costs (14% MTDC)	Administrative costs associated with support of White Earth Natural Resources activities such as: payroll and human resources, finance, facilities, and technical support. If award is reduced, from requested amount, the proposed cost share will be reduced proportionately.	Secured	\$27,607
			<b>Non State Sub Total</b>	<b>\$203,290</b>
			<b>Funds Total</b>	<b>\$203,290</b>

**Total Project Cost: \$764,290**

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

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [02ecb49b-fbf.pdf](#)

#### *Alternate Text for Visual Component*

Semi-transparent photo of a lake with lily pads in background. White Earth's seal on upper-left and UMN seal on upper-right of page. Title of project written in blue box underneath. The three activities of the projects are listed vertically in blue boxes under the title with associated pictures of activities....

### Supplemental Attachments

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

Title	File
UMN Letter	<a href="#">ef763ce0-312.pdf</a>
White Earth Indirect Costs	<a href="#">c423a92b-0f3.pdf</a>
White Earth Letter	<a href="#">b5c8ac35-b6a.pdf</a>

## Administrative Use

**Does your project include restoration or acquisition of land rights?**

No

**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 UMN Policy on travel 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?**

Yes

**Does the organization have a fiscal agent for this project?**

Yes, Sponsored Projects Administration

**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")?

Yes

**Do you certify that background checks are performed for background check crimes, as defined in Minnesota Statutes, section 299C.61, Subd. 2, on all employees, contractors, and volunteers who have or may have access to a child to whom children's services are provided by your organization?**

Yes

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

Riana Fletcher, SPA UMN

**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