



Environment and Natural Resources Trust Fund

2022 Request for Proposal

General Information

Proposal ID: 2022-026

Proposal Title: Teacher Field School: Stewardship through Nature-Based Education

Project Manager Information

Name: Patty Born

Organization: Hamline University

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Project Basic Information

Project Summary: We create an immersive, research-backed field school addressing a gap in teachers' preparedness and willingness to use nature-based education to benefit student well-being and academic outcomes while increasing stewardship habits.

Funds Requested: \$500,000

Proposed Project Completion: June 30 2024

LCCMR Funding Category: Environmental Education (C)

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 and In the Future

Narrative

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

Nature centers host short field trips that, while meaningful, seldom result in lasting educational outcomes. Most young people spend 1000+ hours annually in school, a clear opportunity to develop students' stewardship orientation by coupling academics with nature-based experiences. However, teachers identify lack of skills, knowledge, and confidence as barriers to teaching with nature. Existing training: 1) is too short to provide adequate content knowledge and confidence; 2) focuses on either content or pedagogy, missing teachers' need to practice nature-based approaches within their subjects; 3) ignores interdisciplinary learning opportunities, and 4) lacks explicit connections to standards, making it unlikely to be implemented. Students who are disconnected from nature become adults disinterested in supporting natural resource investments.

Immersive Nature-Based Education (NBE) supports positive educational outcomes by enhancing:

intellectual, physical and mental health,

conservation ethics,

subject matter relevance,

connection across disciplines, particularly for those most at risk.

NBE can be used across urban, rural, suburban, and wilderness settings once teachers are equipped with skills, knowledge, and confidence. It connects academic content with inquiry and meaningful stewardship.

Minnesota's future depends on residents who value our natural resources – values supported through access to, experience in, and understanding of our diverse landscapes.

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.

Two diverse teacher cohorts will have an immersive experience in Nature-Based Education (NBE), building content knowledge, confidence, and skills to use nature as a platform across their already existing curriculum. Teachers will be guided in integrating NBE with new and existing Minnesota Standards across ALL disciplines, many of which clearly connect to environmental, social, and historical events that invite teachers to venture outdoors. In line with the standards and the Governor's Due North plan for educational equity, we prepare a new wave of teachers who use inquiry in nature and pilot a new professional development program.

Teachers will work with PIs individually and in school-based teams with sustained support prior to and following immersive events to make effective use of nature to both teach about and within Minnesota's diverse natural environments. This project has a multiplier effect. If each teacher has 25 students, together, they reach 650 students/year. If teachers share with colleagues, program expansion is even greater.

PIs have experience in the research and pedagogical implications for NBE (Born, Jordan), academic content connections (Born, Jennings, Pound), and teacher education (Born, Jennings, and Pound).

The project directly addresses LCCMR priority area C; indirectly: A,B,D,F.

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?

1. Students and teachers engaged in NBE will develop a connection to Minnesota's natural places, which grounds sustained participation in the outdoors and development of conservation values and behaviors and support for conservation and preservation efforts.

2. The two cohorts of teachers will be selected to foster relationships between urban and rural teachers, with the aim of constructively closing the gap between rural and urban perceptions of natural resource use and conservation ideals.

3. We will have piloted a professional development opportunity in NBE that can be shared and adapted to be offered across the state.

Activities and Milestones

Activity 1: Year 1: Program Planning and Initial Cohort Selection

Activity Budget: \$83,217

Activity Description:

Objective: Plan for delivery, implementation, outcomes, and evaluation of Field School, with steps for mid-course corrections.

Tasks:

1. Establish goals for program outcomes and teacher confidence and efficacy.
2. Recruit initial cohorts of 9 teams (24-26 teachers; 3-4 per school), representing grades k-12 from urban, suburban, and rural schools. Selection criteria include:
geographic and sociodemographic balance between urban and rural;
support and participation from school or district leadership because this increases likelihood for system change, clear articulation of goals for integrating NBE into the existing curriculum.
Intentional recruitment of schools with high populations of underrepresented/marginalized communities
3. PIs hold preparatory conversations with teams to create individualized support plans. Goals around culturally-sustaining practices that center students' lived experience and increase access to and enjoyment of natural resources will be translated into concrete steps to ensure smooth transition to NBE, and identification of NBE outcomes for individual teachers as well as teams and schools. This can help promote systems change as cohort members identify and articulate academic, social, and emotional outcomes for their students.

Activity Milestones:

Description	Completion Date
Establish program goals and measurable program outcomes including teacher confidence and efficacy for NBE	August 31 2022
Recruitment through professional networks, social media, and Hamline's network of school partners	August 31 2022
Application review and selection of teams	September 30 2022
Consultations with teams to develop initial goals for participation prior to the first retreat	October 31 2022

Activity 2: (Year 1) Pilot Teacher Field School at Residential Environmental Learning Centers (RELC) with three immersive retreats with intervening support

Activity Budget: \$201,360

Activity Description:

Objective: Successfully launch cohort 1. Piloting the program involves hosting teachers for a working retreat at an RELC with a review of project purpose, their personal and team goals, and existing curricular goals and challenges. This will be followed by an immersive, field-based exploration in interdisciplinary teaching using the environment as a context. The second and third visits in different seasons will offer teachers the opportunity to hone their skills, troubleshoot and share successes, and learn from one another. This may include workshopping and refining their goals, testing pedagogical approaches, planning collaborative projects, and learning more NBE content and strategies. Ongoing support will include virtual or face-to-face individual meetings with PIs, small group gatherings hosted and organized by teachers, monthly check-in emails from PIs, and even physical visits to school sites by PIs. PIs will work closely with teachers to ensure that NBE content is grounded in antiracist, culturally relevant pedagogical approaches so as to support and reflect all learners throughout the state and ultimately increase equitable access to and enjoyment of Minnesota's natural resources, and that it is inclusive of educational goals for equity as identified by Gov. Walz, as described in the Due North education plan.

Activity Milestones:

Description	Completion Date
First three-day retreat at the RELC	October 31 2022
Second, three-day retreat at the RELC	March 31 2023
Third, three- day retreat at the RELC	May 31 2023
Monthly check-ins with teacher teams during interim periods.	June 30 2023

Activity 3: (Year 2) Refinement of Program, Selection of Second Cohort and Field School Implementation

Activity Budget: \$215,423

Activity Description:

Objective: Refine program based on previous year, launch cohort 2. Second cohort recruitment and program content development and delivery will proceed generally as they did in year 1, with revisions made as necessary based on formative assessment. Any changes to the plan for cohort 2 will be informed by a debriefing retreat at the end of cohort 1. Formative evaluation data will provide insights into necessary enhancements or changes (See Activity 4). In addition, teachers from cohort 1 will be invited to help recruit the second cohort, visit cohort 2 to share their experiences, and provide support and mentorship to teachers in cohort 2.

Activity Milestones:

Description	Completion Date
Formative evaluation results in revised plan for year 2	July 31 2023
First three-day retreat at the RELC	October 31 2023
Second three-day retreat at the RELC	March 31 2024
Third three-day retreat at the RELC	May 31 2024
Monthly check-ins with teacher teams during the interim periods	June 30 2024

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Dr Cathy Jordan	University of Minnesota	Director of Leadership & Education at the Institute on the Environment and Professor of Pediatrics, University of Minnesota; Consulting Research Director, Children & Nature Network. Jordan will oversee the evaluation of this project, provide theoretical and evidence-based grounding for the NBE model, and serve as co-teacher during retreats.	Yes
Dr Carrie Jennings	Freshwater	Dr. Jennings will help teacher participants identify site-specific community science projects, develop landscape literacy, interpret the environmental history of the land, the connections between land use and water quality, the intersections of education and policy, and co-teach throughout the program in her role as director of Research and Policy.	Yes
Dr Kate Pound	Freshwater	Dr. Pound is a geology professor who works with pre- and in-service teachers to build earth science content knowledge and pedagogy in field settings. She will work with teachers at the Field School to build understanding of earth processes and help them integrate NBE, inquiry, and Minnesota standards into curriculum.	Yes

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?

Teacher cohorts will be supported in implementing NBE, and in coaching and supporting colleagues at their schools. Hamline University faculty will continue to support teachers in implementing NBE during the year after their cohort participation. Evaluation of program design and implementation will be published and shared with teachers across Minnesota. After the grant period, Freshwater will use lessons learned to coordinate with Hamline in development of a more permanent Teacher Field School; financial barriers to participation in a permanent Field School due to tuition and travel costs will be offset by Freshwater's successful fundraising efforts.

Project Manager and Organization Qualifications

Project Manager Name: Patty Born

Job Title: Assistant Professor, Environmental and STEM Education

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

Dr. Patty Born, EdD is Assistant Professor at Hamline University's School of Education and former Executive Director of the National Center for STEM elementary education at Saint Catherine University. In that capacity, Dr. Born created strong connections between the disciplines of science, technology, engineering and mathematics. She had a decade-long, science and nature education consulting business serving schools through environmental and science curriculum development, grant-writing assistance, and professional development for teachers. Throughout her career, Dr. Born taught in early childhood and elementary settings, served as a naturalist-in-residence and science specialist. She worked as an environmental educator for parks and nature centers, serving children and adults, and was an instructor and outreach specialist for the Science Museum of Minnesota. She has written three books for educators as well as numerous peer-reviewed articles on nature-based education. Dr. Born is particularly interested in increasing the opportunities for high-quality STEM and environmental education in underserved communities. Through inquiry and hands-on experience, Dr. Born aims to help learners experience the joy and wonder of science and environmental education while also promoting deep intellectual curiosity and rigor. Of utmost importance is helping educators foster connection to, and investment in natural resources to ensure a healthy, sustainable Minnesota.

During her time at Hamline University, Dr. Born has been a Primary Investigator or Co-PI on grants totaling more than \$421,000. Previously, she managed a \$350,000 grant to fund her work in STEM teacher education and support, and has served as PI on numerous smaller grants to fund teacher professional development in the areas of STEM and environmental education.

Organization: Hamline University

Organization Description:

Hamline University's School of Education, one of the oldest schools of education in the State of Minnesota, has a national reputation for offering high-quality teacher licensure programs and graduate education degrees. Grounded in best practices for inquiry-based pedagogy, equity-oriented practice, and support for teachers at every stage of their career, Hamline is a lifelong partner to teachers throughout Minnesota and beyond. Hamline partners with urban and rural districts throughout the state and has a vast network of supportive school administrators, teachers, paraprofessionals and other education professionals. With a decades-long history of offering continuing education and professional development to teachers throughout Minnesota, Hamline has served thousands of practicing teachers in refining their teaching skills, or increasing their capacity and knowledge through additional licensure and learning opportunities. These experiences include courses offered at Hamline's campus, at off-campus sites, or online to educators in greater Minnesota and beyond; certificate programs in key areas of development for Minnesota teachers such as special education, environmental education, and gifted education (in many cases aligned with licensure programs offered by Hamline); district-specific professional development opportunities, offered upon request; and in-person or virtual conferences in focused areas such as STEM, literacy, social-emotional learning and nature-based education.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Principal Investigator		One 4-credit course release in each academic year 22-23 and 23-24			25%	0.2		\$18,506
							Sub Total	\$18,506
Contracts and Services								
University of Minnesota	Sub award	Program development, teach evidence base, evaluate project, supervise graduate student research				2.2		\$135,646
Freshwater	Sub award	Planning professional development content, developing materials, performing standards review, and on-site leadership, mentoring, and presentations.				0.5		\$105,008
							Sub Total	\$240,654
Equipment, Tools, and Supplies								
	Tools and Supplies	field guides, waterproof pens/paper, dip nets, etc	Incidental needs that may arise during retreats					\$2,382
							Sub Total	\$2,382
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Facility rental expense for three, 3-day retreats in year 1	Rental of classroom space, facility fee, for field school site					\$17,919
	Miles/ Meals/ Lodging	Mileage Osprey wilds\$0.56/mile, assuming 1 PI and 14 teachers from the metro area (200 miles round-	Travel expense reimbursement					\$14,728

		trip), 6 teachers with a 350 mi. RT expense, and 6 teachers with a 450 mi. RT expense. Assuming 9 administrators' mileage for 1 retreat, averaging 275 mi. RT. Mileage assumptions are based on averages from around the state to the retreat site.						
	Miles/ Meals/ Lodging	Mileage-Eagle Bluff \$.56/mile, assuming 1 PI and 14 teachers from the metro area (250 mi. RT), 6 teachers with a 400 mi. RT expense, and 6 teachers with a 600 mi. RT expense. Three separate retreats. Assuming 9 administrators' mileage for one workshop, averaging 300 mi. RT. Mileage assumptions are based on averages from around the state to the workshop destination.	Travel expense reimbursement					\$18,536
	Miles/ Meals/ Lodging	Facility rental expense Eagle Bluff for three, 3-day retreats year 2	Rental of Classroom space, facility fee for field school site					\$26,925
							Sub Total	\$78,108
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
		Stipend- 9 administrators	\$350 stipend for one administrator per team of teachers to attend 3 retreat sessions. \$350*9 administrators*3 sessions					\$18,900
		Stipend-26 cohort teachers each year	Stipend for each of the 26 teachers in each cohort year to cover classroom supplies and materials, other expenses as deemed necessary by teacher teams. \$2000 *26 * 2.					\$104,000
		Stipend, 10 guest instructors per year	Anticipating up to 10 guest instructors per year from state agencies and other natural resource organizations. \$250 * 10 guest instructors* 2 years					\$5,000

		Stipend- 5 cohort 1 teachers	one-time \$250 stipends for five year-one cohort teachers to visit, provide coaching and feedback to year 2 cohort teachers. \$250 * 5 teachers					\$1,250
		Substitute teachers-3 teaching days per participating cohort teacher	Expense covers the cost of substitute teachers, permitting each participating teachers \$200 for substitute teacher costs for three teaching days \$200 * 3 days * 26 teachers *2 years					\$31,200
							Sub Total	\$160,350
							Grand Total	\$500,000

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				
			Non State Sub Total	-
			Funds Total	-

Attachments

Required Attachments

Visual Component

File: [17610faf-123.pdf](#)

Alternate Text for Visual Component

Pathways with headings "Nature engagement," "Equity," and "Academic Achievement," leading to the Teacher Field school. Outside the Teacher Field school, teachers and children learning and exploring together outdoors, under trees with headings "Conservation Ethic" and "Academic Learning" depicting the positive outcomes of the Teacher Field School....

Financial Capacity

File: [a0952305-05f.pdf](#)

Optional Attachments

Support Letter or Other

Title	File
Letter of Support-Prior Lake/Savage Area schools	03119735-40b.pdf
Letter of Support - Prairie Creek	84021247-65d.pdf
Letter of Support-Freshwater	8b484755-8ca.pdf
Letter of Support-Hamline University	dab40f35-bf0.pdf
Partner support letter-Osprey Wilds	a7d64c4e-51e.pdf
Partner support letter-Eagle Bluff	a9f2b120-afc.pdf
Letter of Support-Dr. L. Chawla	121927fc-f3d.pdf
Letter of Support-Children and Nature Network	e152ae69-5aa.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

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

Teacher Field School

enhances teacher efficacy in nature-based education to improve student academic learning and development of a conservation ethic



