



# Environment and Natural Resources Trust Fund

2027 Request for Proposal

## General Information

**Proposal ID:** 2027-045

**Proposal Title:** Longitudinal Ecology-Focused Science Education Programming

## Project Manager Information

**Name:** Kara Baldwin

**Organization:** U of MN - Cedar Creek Ecosystem Science Reserve

**Office Telephone:** (612) 301-2602

**Email:** baldwink@umn.edu

## Project Basic Information

**Project Summary:** Providing science-focused ecology field trips linked with in-class experiences for multiple grades within the same school to enhance learning outcomes and connection with Minnesota-based science and ecosystems.

**ENRTF Funds Requested:** \$145,000

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

**LCCMR Funding Category:** Small Projects (G)

**Secondary Category:** Education and Outdoor Recreation (C)

## Project Location

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

Region(s): Metro

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

Region(s): Metro

**When will the work impact occur?**

During the Project

## Narrative

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

Do you recall a field trip from your school years? Memories of elementary, middle, and high school field trips last into adulthood. The memorable nature of field trips can increase student interest in science, knowledge, and educational motivation. These learning opportunities are enhanced when field trip and classroom content are aligned through collaboration between schools and field trip locations.

The newly-implemented state science standards reaffirm the focus of science learning on knowledge synthesis and the processes of science. Field trips support new standards implementation by bringing science to life through student inquiry. However, students visiting natural areas for the first time often are overwhelmed, which may diminish student learning outcomes. Prior opportunities to engage with field trip staff and repeated visits to natural habitats builds student learning and appreciation of Minnesota's ecosystems.

To maximize learning outcomes and support student comfort within nature, we propose a program that provides field trip opportunities to multiple grades within individual schools. Through the program, students will receive collaboratively designed field trip programming aligned with the state science standards and connected with classroom curricula. With tightening school budgets, funding through the LCCMR funds can support the expansion of longitudinal environmental learning opportunities for K-12 schools.

**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 project maximizes the benefits of ecology-focused field trips by providing multiple opportunities for students to engage in site-based research and ecosystems across grade levels. We will link field trips and in-class programs by collaborating with teacher-partners to develop multi-year, multi-grade programming provided by Cedar Creek education staff. For example, Cedar Creek could create 1) a 6th grade in-class program using stream tables to explore river ecosystems, 2) a 7th grade onsite field trip about trophic dynamics including a hike to Cedar Bog Lake, where the idea of energy flows through ecosystems was first studied in the 1930s, and 3) a 8th grade onsite program collecting macroinvertebrates from a nearby lake to measure water quality. Each program will include opportunities for teacher collaboration and feedback, will be aligned with state science standards, and will be uniquely designed to fit the curricula in each grade level.

LCCMR funding will remove barriers - including transportation, field trip costs, and program development - to implementing longitudinal programming for schools that allow students to engage in authentic science and connect with Minnesota landscapes. Evaluations will measure impacts for participating students and teachers and provide feedback to improve programming through the life of the grant.

**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?**

These longitudinal, multi-year programs have the potential to enhance student understanding of the science process, build interest in science, and cultivate an appreciation of and comfort with Minnesota's natural resources. By working with schools from across an urban-suburban-rural gradient, we will also provide evidence-based, hands-on, and engaging programming that connects a diversity of students to the outdoors. Working with teachers will also help us ensure that relevant cultural perspectives and experiences related to the environment are included in the curriculum.

## Activities and Milestones

### Activity 1: School Recruitment and Program Development

**Activity Budget:** \$52,500

**Activity Description:**

In order to maximize learning outcomes from field trips and in-class programming, identifying and collaborating with school leadership and teachers is needed. In our pilot year, we will partner with teachers already familiar with Cedar Creek educational programming to help us connect to others in the same school district or school building in order to expand programming to multiple grade levels. In subsequent years, we will encourage current collaborating schools/teachers to share opportunities with their networks, reach out to nearby school districts and administrators who have yet to engage in Cedar Creek programming, and take advantage of marketing opportunities at local teacher conferences (like MEA). We will also develop and host an annual teacher field trip to Cedar Creek, which will provide participating and prospective teachers the opportunity to experience the places, activities and concepts that are at the core of our co-developed programming. Teacher-partners, including those listed by name in this proposal, will receive a stipend to attend. This task will be evaluated by the number of schools and districts we are able to recruit to the longitudinal funding program.

**Activity Milestones:**

Description	Approximate Completion Date
Set field trips and in-class programs with established partner schools.	August 31, 2027
Plan and host annual teacher field trips and community building events	September 30, 2027
Collaborate with teachers to develop a curriculum that connects classroom curricula with Cedar Creek Science	October 31, 2027
Recruit additional schools and add grade levels in existing schools, schedule field trips	August 31, 2028
Recruit additional schools at MEA conference	October 31, 2028

### Activity 2: Provide Education Programs

**Activity Budget:** \$77,500

**Activity Description:**

The bulk of our projects and budget will be used to directly connect students with the world around them and the science they can participate in. Using existing infrastructure, systems, and field station staffing, we will schedule, organize, and lead programming for school groups. By the end of the grant cycle, we hope to provide longitudinal programming for at least six schools, representing at least four school districts across community types (metro to outstate). Class sizes and student impacts vary depending on school location, but we expect to provide longitudinal educational experiences to over 1500 K-12 students each fiscal year. Funds will be used to cover the cost of developing and delivering field trip and in-classroom programs, busing for schools to visit Cedar Creek, and durable equipment to be used during programs.

**Activity Milestones:**

Description	Approximate Completion Date
Schedule field trips and in-class learning opportunities for pilot year	August 31, 2027
Lead field trips and programs for pilot partner schools	June 30, 2028
Schedule field trips and in-class learning opportunities for year 2	August 31, 2028
Lead field trips and programs for 2nd cohort of partner schools	June 30, 2029
Schedule and lead field trips and in-class learning opportunities for year 3	June 30, 2030

### Activity 3: Evaluate, Reflect, Repeat

**Activity Budget:** \$15,000

**Activity Description:**

Learning from what we are doing is an essential component of this project, particularly given the longitudinal approach. Both our field trip and in-classroom programs will be continually evaluated and modified based on teacher and student feedback. Working with an evaluation consultant, we will develop evaluation materials early in the granting cycle for consistent feedback and measure of program success. Evaluation will center around teacher and school partner feedback, student surveys, and Cedar Creek staff reflections. Using information gathered through this activity, program content will be modified and improved before leading programs in subsequent years.

**Activity Milestones:**

Description	Approximate Completion Date
Develop student surveys and complete required ethics requirements to administer surveys to minors	August 31, 2027
Evaluate surveys and feedback, adjust programming to continually improve curriculum and classroom connections	July 31, 2028
Evaluate surveys and feedback, adjust programming to continually improve curriculum and classroom connections	July 31, 2029
Administer surveys to multiple stakeholders including students, teachers, etc. after education program is completed.	June 30, 2030
Summarize program outcomes to share more broadly	June 30, 2030

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Sarah Garrett	Jackson Middle School	Teacher Collaborator	No
Matthew Retterath	Fridley High School	Teacher Collaborator	No
Brianna Havar	Heritage ESTEM Middle School	Teacher Collaborator	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.**

Results from this project will be shared in a variety of ways and with several different audiences. We anticipate that evaluation findings will demonstrate that a multi-grade-level, multi-touchpoint approach effectively promotes behavior change to better appreciate, protect, and conserve Minnesota’s environment and natural resources. To share this with other educators, Cedar Creek staff will present findings and our program model at local and national conferences potentially including the MN Science Teachers Association annual meeting, the National Association of Interpretation Heartland chapter meeting, and the North American Association for Environmental Education online conference. We will also communicate our results through a narrative piece in our quarterly newsletter, which reaches and estimate 1000 people nationally, and present in our monthly Lunch with a Scientist lecture series, which reaches ~50 local folks each month. In all our activities, we will acknowledge the ENRTF by using the trust fund logo and attribution language prominently.

## 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?**

We currently support schools through our field trip subsidy program, primarily through private donations (~70%). If this proposal is funded, it will provide opportunities to expand our programming and remove barriers to schools with more than one grade engaging with Cedar Creek programming, and we will continue to fundraise and offer scholarships and subsidies for field trips and in-class programming after this grant has concluded. We also anticipate the evaluations and evidence collected during LCCMR funding will provide compelling evidence to sustain this program through other grants/private funding sources.

## Project Manager and Organization Qualifications

**Project Manager Name:** Kara Baldwin

**Job Title:** Education and Community Engagement Coordinator

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

Dr. Kara Baldwin has over fifteen years of experience within science education environments. This includes teaching and leading programming in informal-education learning centers, state and national parks, formal K-12 classrooms, and college courses. With a MS in Science Education and PhD in Biology, she has research experience and advanced knowledge in science education pedagogy, curriculum development, and theory. After more than three years at Cedar Creek Ecosystem Science Reserve in the Education and Community Engagement Coordinator, she is now well versed in

the site-specific science, research, and natural history of the field station. She has experience exploring new ways of developing and thinking about curriculum to connect students to the action of science and aligning field trip content with state standards. Over her time at Cedar Creek, Dr. Baldwin has built productive relationships with teachers from a variety of school districts and has updated programming to align with their needs and based on their feedback.

Dr. Baldwin's background in science education and professional focus on coordinating, planning, and leading field trips in collaboration with teachers places her in an ideal position to both support school and teacher learning objectives while connecting students to Minnesota ecosystems.

**Organization:** U of MN - Cedar Creek Ecosystem Science Reserve

**Organization Description:**

Cedar Creek Ecosystem Science Reserve (Cedar Creek) is a field research station in the University of Minnesota's College of Biological Sciences. Situated at a convergence of biomes (conifer forests, deciduous forests, and prairies), this research station provides space for researchers to ask ecological questions. With a mission rooted in research, education, and community engagement, the field station has been growing its educational programs, and now provides ecology-focused science programming to more than 4000 students annually. The station's education team shares the ground-breaking science of Cedar Creek with the broader public through K-12 field trips, community programs, college courses, volunteer opportunities, and outreach events. The station's location in East Bethel, Minnesota, about 45 minutes north of downtown Minneapolis, makes it easy and impactful for students from a continuum of communities (urban, suburban, outstate) to visit the research station.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
							<b>Sub Total</b>	-
<b>Contracts and Services</b>								
Cedar Creek Ecosystem Science Reserve	Internal services or fees (uncommon)	Field trip programming fees for schools include maintenance of facilities, and staff time to develop and lead programming. Fees for 4 hour field trip to Cedar Creek is \$350/class.				0		\$53,500
TBD	Service Contract	Contract a program evaluation consultant to support program evaluation in the first two years of the project. The consultant will support the creation and administration of evaluation tools with stakeholders.				0		\$15,000
							<b>Sub Total</b>	<b>\$68,500</b>
<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Field trip supplies	Supplies will be used to support new program ideas and development. Supplies that might be purchased through these funds include microscopes, lux meters, soil corers, etc.					\$6,000
							<b>Sub Total</b>	<b>\$6,000</b>
<b>Capital Equipment</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								

	Other	Busing reimbursements for schools - estimated \$500/bus/field trip	A barrier to attending field trips includes busing costs and transportation. To make sure this barrier is removed from the program, schools will have the option to have busing costs reimbursed.					\$18,000
							<b>Sub Total</b>	<b>\$18,000</b>
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
	Printing	Promotional materials	Printing of promotional and informational materials to recruit schools and teachers to the project.					\$1,500
							<b>Sub Total</b>	<b>\$1,500</b>
<b>Other Expenses</b>								
		Teacher Collaboration Stipends (YEAR 1: 12 teachers*4 schools* \$250; YEAR 2: 12 teachers*6 schools*\$250); YEAR 3: 12 teachers*7 schools*\$250)	We will provide stipends for teachers to visit Cedar Creek for a 6-hour field tour and workshop. This workshop is meant to provide space for collaborative program development. As an incentive, teachers will be provided a stipend for participation.					\$51,000
							<b>Sub Total</b>	<b>\$51,000</b>
							<b>Grand Total</b>	<b>\$145,000</b>

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	-

**Total Project Cost: \$145,000**

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

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [3779c4a0-ae3.pdf](#)

#### *Alternate Text for Visual Component*

A collage depicting an ecology-focused education program for K-12 students. Photographs include students examining soil core samples, collecting water samples, hiking in an autumn forest, collecting insects with nets, and using science instruments. Accompanying text highlights outdoor education benefits including increases in science interest, learning motivation, comfort in outdoors....

### Supplemental Attachments

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

Title	File
UMN Letter of Endorsement	<a href="#">7bf20855-c53.pdf</a>
Retterath_Fridley HS_Partner Letter of Support	<a href="#">daaa40d9-6be.pdf</a>
Garrett_Jackson MS_Partner Letter of Support	<a href="#">6ac270c3-dee.pdf</a>
Havir_Heritage ESTEM_Partner Letter of Support	<a href="#">2d4d65a6-d36.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?**

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")?**

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:**

Dr. Caitlin Potter, University of Minnesota - Cedar Creek Ecosystem Science Reserve

**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**

Yes, I understand