



## Environment and Natural Resources Trust Fund

### 2023 Request for Proposal

#### General Information

**Proposal ID:** 2023-167

**Proposal Title:** Reducing Biophobia & Fostering Environmental Stewardship in Underserved Schools

#### Project Manager Information

**Name:** Victoria Hall

**Organization:** U of MN - Raptor Center

**Office Telephone:** (612) 624-9753

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#### Project Basic Information

**Project Summary:** The Raptor Center proposes to foster long-lasting environmental stewardship and literacy in Minnesota youth in underserved schools through providing engaging, multi-unit, standards-based environmental curriculum programming featuring positive interactions with raptors.

**Funds Requested:** \$180,000

**Proposed Project Completion:** June 30, 2025

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

**Secondary 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.**

Students across Minnesota are faced with sometimes limited access to the environmental world and impactful educational nature programming. Limited engagement with the natural world can lead to a phenomenon known as biophobia (i.e., fear or aversion to nature). With environmental issues being among the most pressing challenges that society faces today, the reduced value for the environment resulting from biophobia is critical to address. As American youth are experiencing increased biophobia, we can reduce this via exposure to diverse and direct experiences with nature.

While environmental concepts are embedded in Minnesota science standards, not all schools have equal access to effective tools for providing engaging experiences that foster student commitment to conservation. TRC educators have been filling this gap by providing high quality education programming since 1974 and with ENRTF support are currently providing in-person opportunities for underserved schools during the 2022-2023 school year. However, single visits have limited impact, thus we propose to expand current efforts through implementing a series of curriculum-based experiences for students featuring units that build upon each other over multiple visits. The increased number of personal experiences with live raptors will combat biophobia and solidify students' positive associations with the natural environment.

### **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.**

To reach a diverse range of communities, TRC proposes to offer environmentally themed multi-unit educational programming to 80 underserved schools (totaling 240 programs) reaching over 2,000 students. Response to a current TRC/ENRTF grant project provided incredibly encouraging feedback from teachers and schools, but this grant involved single classroom visits. This current proposal leverages well-established school partnerships to provide students with repeated experiences with nature and exponentially amplify potential impact.

To maximize impact on students' attitudes towards the natural world and actively cultivate long-lasting pro-conservation attitudes; students participating in the programs will attend multiple presentations that progress over the school year. Educational programming will ignite curiosity and excitement both with live animals and with outdoor experiences to increase connections to and positive experiences with nature. Content will align with state standards regarding environmental and ecological topics. TRC will provide additional resources and environmental education activities that teachers can use for extension work before or after formal programming. A comprehensive evaluation of the programming will occur to analyze impacts on students and their learning.

Through this innovative combination of multiple experiences and extension outreach, we hope to effectively foster positive attitudes towards the natural world and combat biophobia in students.

### **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?**

Programming from TRC will reach 80 qualifying underserved schools and over 2,000 Minnesota students over two years. Each student who goes through this programming will dive deeply into topics including ecology, ecosystems, and human environmental impacts. The progressive programming will help foster empathy and environmental stewardship in students and make positive connections with the environment. Ultimately, people protect what they understand and care about, and this programming is about fostering these values with the environment. Evaluation of learnings and impact on students will be compiled to continually adjust our educational approach and be shared with the environmental education community.

## Activities and Milestones

**Activity 1: Deliver a series of three environmental education programs involving live animals and outdoor experiences to classrooms across Minnesota.**

**Activity Budget:** \$180,000

**Activity Description:**

The Raptor Center will work with 40 underserved schools per school year during the 2023-24 and 2024-25 school years (total of 80 schools). Each school year during the project, 28 of the 40 schools will be from the seven-county Twin Cities area, while 12 of the 40 schools will be from schools in greater Minnesota counties. The series of three programs per school year will educate students in environmental science topics including, but not limited to, ecological concepts, ecosystems, and human impacts on the environment. Lessons and topics connect in theme and convey important narratives that would be difficult to convey in one in-person visit (e.g., interconnectedness of human, animal, and environmental health; conservation; environmental pressures). Participating schools will get access to other lessons and classroom activities via a newly adapted web platform that teachers can use to provide extension work prior to or after education programming events. Evaluation consultants will conduct an extensive literature review on biophobia and the development of environmental empathy in students and how to measure the impact of educational programming on reducing biophobia. They will then use the results to develop instruments to measure the program's impact on students and on TRC each year.

**Activity Milestones:**

Description	Completion Date
Curate online educational materials into a new web-based resource of extension activities for teachers	December 31, 2023
Literature review on biophobia reducing/emphathy building education techniques and develop evaluation tools for project	December 31, 2023
2023-2024 School Year: deliver 120 education programs to 40 schools (both urban and rural)	June 30, 2024
2024-2025 School Year: deliver 120 education programs to 40 additional schools (both urban and rural)	June 30, 2025
Complete a comprehensive evaluation of grant-based programming	June 30, 2025

## 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?**

During this grant, we will leverage previously established relationships with schools to deliver a curiosity-igniting educational program series that we previously could not deliver due to funding issues. Throughout these programs, we will create and validate innovative evaluation tools that measure the impact of environmental education programming on reducing biophobia and connecting students to nature and curriculum topics. We will share our science-based tools with the environmental education community through professional organizational written communications and meetings/conferences. The demonstrated impact that biophobia-reducing programming has on creating the next generation of environmental stewards will allow us to approach other funding organizations.

## Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Expanding Access To Environmental Education For Underserved Communities	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 05g	\$178,000

## Project Manager and Organization Qualifications

**Project Manager Name:** Victoria Hall

**Job Title:** Assistant Professor - College of Vet Medicine; Executive Director - The Raptor Center

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

Dr. Hall is a faculty member at the University of Minnesota College of Veterinary Medicine and serves as Executive Director for The Raptor Center. Dr. Hall is a veterinary expert actively working at the One Health intersection of human, animal, and environmental health challenges through applied epidemiologic work with birds, research, and education and outreach programming for professionals and the general public. She has previously worked as an epidemiologist for organizations including the Smithsonian Institution and the Centers for Disease Control and Prevention and has extensive experience managing projects both in the United States and internationally. She has a diversity of current ongoing projects including creating wildlife health surveillance systems for emerging zoonotic diseases, developing effective global ecosystem health training programs for use at the country level around the world, and developing new methods for environmental education at the undergraduate and general public level. She is well versed working with both non-profits and governmental agencies.

**Organization:** U of MN - Raptor Center

**Organization Description:**

The Raptor Center (TRC) is a University research and outreach center focused on health issues found at the intersection of raptors and humans. TRC provides medical care for over 700 injured and ill raptors each year, trains veterinarians and veterinary students from around the world in conservation medicine and has extensive experience in outreach and environmental education, averaging over 1,000 programs reaching more than 200,000 people throughout Minnesota, Wisconsin, and Iowa annually. For over 40 years, staff at TRC has studied health issues in raptors. In addition, the faculty of The Raptor Center have appointments in the College of Veterinary Medicine, University of Minnesota, a research university.

The University of Minnesota is a highly ranked public research university with a mission that encompasses research and



discovery, teaching and learning, and outreach and public service. A land-grant university, it supports research and discovery benefiting the conservation and management of Minnesota's natural resources. It has well-established systems and processes for management of research awards and financial oversight of grants.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
Project manager		Project oversight, coordination, reporting			33.5%	0.1		\$19,030
Project and partner coordinator		Educational program content and adaptation for classes; program evaluation; teacher/school communications			33.5%	0.2		\$15,498
Interpretive naturalist/educator		Classroom programs - scheduling, delivery and follow-through work with teachers and students			28.7%	2		\$107,978
							<b>Sub Total</b>	<b>\$142,506</b>
<b>Contracts and Services</b>								
Evaluation Studies Program Consultant	Professional or Technical Service Contract	Development and implementation of program evaluation				0.1		\$10,000
							<b>Sub Total</b>	<b>\$10,000</b>
<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Animal food	Raptor food for live bird programming for out-state visits to schools					\$1,440
							<b>Sub Total</b>	<b>\$1,440</b>
<b>Capital Expenditures</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
	Miles/ Meals/ Lodging	Mileage: Traveling to 80 schools, three times each (total of 240 trips), to deliver education	Travel mileage to schools to deliver education programs					\$19,628

		programming. Estimated at 33,840 miles of overall travel at \$0.58/mile						
	Miles/ Meals/ Lodging	Per diem and hotels: Hotels and meals for overnight trips to greater Minnesota areas (approximately 36 overnight trips will be needed)	Per diem and hotels so we can do trips to the greater Minnesota areas that (due to distance) require an overnight stay					\$6,426
							Sub Total	\$26,054
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$180,000

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
<b>State</b>				
			<b>State Sub Total</b>	-
<b>Non-State</b>				
In-Kind	Waived facilities and administrative costs	The University of Minnesota is waiving the income normally generated from extramural research grants that contribute Facilities and Administrative (F&A). The current full rate is 35% of direct costs.	Pending	\$62,967
			<b>Non State Sub Total</b>	<b>\$62,967</b>
			<b>Funds Total</b>	<b>\$62,967</b>

## Attachments

### Required Attachments

#### *Visual Component*

File: [724b95e1-3fd.pdf](#)

#### *Alternate Text for Visual Component*

Graphics show K-12 students learning STEM concepts in natural and classroom settings and getting excited by live ambassador birds including a bald eagle and a small eastern screech owl. It also includes an image of innovative digital content for extension lessons being gathered real time via an iPad....

### Optional Attachments

#### *Support Letter or Other*

Title	File
Cover Letter from SPA	<a href="#">4df7ecd4-6ca.pdf</a>
Financial Audit	<a href="#">48a94aff-9c0.pdf</a>

## 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?**

Yes, Sponsored Projects Administration

# Reducing Biophobia and Fostering Environmental Stewardship in Underserved Schools

**Igniting excitement and curiosity with science, the natural world, and raptors**



**Customized web-based resources for teachers to get more material and support for student lessons between multiple classroom visits**



**Building on each lesson and encounter to create lasting impact and determine and share best practices**

***Inspiring and exciting students with wildlife and the environment, to make positive connections, drive out fear, and create future environmental stewards***

