



Environment and Natural Resources Trust Fund

2026 Request for Proposal

General Information

Proposal ID: 2026-457

Proposal Title: Building a Future for Minnesota's At-Risk Butterflies

Project Manager Information

Name: Erik Runquist

Organization: Minnesota Zoological Garden

Office Telephone: (651) 539-6579

Email: erik.runquist@state.mn.us

Project Basic Information

Project Summary: We propose to develop and delineate conservation tools to benefit multiple imperiled Minnesota butterflies, leveraging the Pawnee skipper, a species of Special Concern, as a foundational case study.

ENRTF Funds Requested: \$294,000

Proposed Project Completion: June 30, 2029

LCCMR Funding Category: Small Projects (G)

Secondary Category: Fish and Wildlife (D)

Project Location

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

Region(s): Metro, NW, SW, Central,

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.

Pollinators provide critical ecosystem services that benefit human health, our economies, and natural systems. Many of them are documented to be in significant decline on a continental scale though. Indeed, several of Minnesota's butterflies appear to have completely disappeared (particularly those dependent on our prairies), and others such as the Pawnee skipper now only reside in a handful of locations. Ongoing research to better understand the possible drivers behind these declines are crucial, but we also need to better identify and develop appropriate conservation tools that can help stabilize and recover species before they are completely lost. The Minnesota Zoo's Pollinator Conservation Initiative has pioneered rearing and breeding protocols and established managed populations that serve as genetic insurance and as sources to support wild populations for two state and federally listed prairie butterflies. However, we are uncertain how well this conservation tool can be adapted to other species of interest like the Pawnee skipper. Decision processes that identify specific triggers before implementing certain conservation actions are also needed. Status evaluation, threat assessment and mitigation, management tool development, and strategy determination are all essential elements of effective and adaptive conservation.

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.

We propose to identify the range and feasibility of actions available to support at-risk butterflies through both hands-on actions and through multi-party collaboration. We will launch a model project that explores the suitability of rearing and breeding protocols as a potential tool for the rare but not (yet) listed Pawnee skipper. We will also engage with partners through a facilitated process to outline the full range of potential conservation tools (including managed propagation and habitat management) for multiple rare Minnesota butterflies. An important component of this effort would be to delineate key triggers that would spur different actions for species of conservation interest. We will adapt existing husbandry techniques that we have successfully established for two federally-listed prairie butterflies (Poweshiek skipperling and Dakota skipper) to Pawnee skipper, likely also incorporating elements of environmental features found in wild populations. We have an ideal opportunity to explore the feasibility of some strategies and to outline the decision thresholds to implement them before Pawnee skipper and other species are lost from our state.

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?

The project will generate a multi-party vetting of strategies (such as managed rearing and breeding or habitat management) and associated action thresholds that can be used to refine the conservation paths for multiple species. Proactive efforts to establish frameworks to help declining species will likely reduce future administrative burdens before these species might need legal state and/or federal listings as Threatened or Endangered. The full life histories of many butterflies are also poorly known. Utilizing Zoo-based propagation, this proof-of-concept project can help clarify key components of Pawnee skippers' biological needs, which will also likely provide guidance for habitat management.

Activities and Milestones

Activity 1: Applying Foundational Managed Rearing and Breeding to Pawnee Skipper

Activity Budget: \$142,000

Activity Description:

We propose to apply the Minnesota Zoo's pioneering and successful husbandry protocols for Endangered Poweshiek skipperlings and Dakota skippers to attempt to generate the world's first managed breeding population of the Pawnee skipper. Under appropriate permits, we will bring a limited number of eggs of Pawnee skippers to the Zoo for rearing. We will rear larvae to explore how our established protocols translate to the Pawnee skipper, given its roughly two-month shift in biological timing. We may also will incorporate data from some environmental components present at wild Pawnee skipper populations (such as potential larval host plant or depth of the duff layer) to help determine protocol sensitivities and improve rearing success. This effort will help determine how translatable these husbandry protocols are to other grassland butterflies with similar needs and may also inform habitat management recommendations.

Activity Milestones:

Description	Approximate Completion Date
1) Collect limited number of eggs from wild Pawnee skippers and begin Zoo rearing operations.	September 30, 2026
2) Breed first generation of Pawnee skippers at MN Zoo. Modify husbandry protocols as needed.	August 31, 2027
3) Breed second generation of Pawnee skippers at MN Zoo. Modify husbandry protocols as needed.	August 31, 2028
4) Synthesize modified husbandry protocols.	June 30, 2029

Activity 2: Multi-species Butterfly Conservation Tool Delineations

Activity Budget: \$152,000

Activity Description:

Building upon established species status assessments, we propose to foster the development of conservation action prioritizations for several at-risk Minnesota butterflies. Via facilitated workshop processes, we will work with partners to identify species of conservation concern; outline species-specific threats; identify possible conservation tools such as certain habitat management actions, rearing and breeding in human care, and translocations; and determine which actions may be most appropriate on a species-by-species basis. This process will also help identify knowledge gaps and research priorities. For appropriate actions, we will collaborate to outline possible triggers and associated thresholds for the implementation of those actions. This process may lead to more detailed species-specific plans and to compliment the Minnesota DNR's current efforts to update the State's Wildlife Action Plan by providing finer scale resolution of available tools and action thresholds for highly imperiled butterflies.

Activity Milestones:

Description	Approximate Completion Date
1) Collaborate with partners to identify species of concern and possible conservation actions.	May 31, 2027
2) Outline potential conservation tools for species of interest and delineate action thresholds.	May 31, 2028
3) Synthesize decisions and summarize the framework process.	June 30, 2029

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?

While self-contained, this project can help guide future conservation goals through the vetting of available tools and action frameworks for multiple species. The nature of additional projects that may be identified during partner consultations will vary and be dependent on the outcomes of the multi-species tool and action prioritization development process. Assuming a successful Zoo-based propagation operation, some adult Pawnee skippers would need to be released back into their natal sites in late summer 2029, but this can be done with minimal additional cost that the Minnesota Zoo will cover.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Assessing Prairie Health to Inform Pollinator Conservation	M.L. 2024, , Chp. 83, Art. , Sec. 2, Subd. 03r	\$297,000

Project Manager and Organization Qualifications

Project Manager Name: Erik Runquist

Job Title: Conservation Research Scientist

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

The project manager has managed the Minnesota Zoo's Pollinator Conservation Initiative since its creation in 2012. In this role, he has fostered development of foundational propagation programs for globally endangered Minnesota butterflies, and led research into the stressors on wild populations and on the conditions needed to for their recovery. In addition to establishing relationships with dozens of partners spanning local, tribal, regional, State, federal, and international agencies and organizations. He has developed program objectives and work plans, managed budgets, supervised staff, identified research objectives, executed deliverables, conducted field work, coordinated with partners, secured permits, and produced numerous reports and scientific publications. He has served as project manager for four prior ENRTF awards as well as several grants from the US Fish and Wildlife Service. He holds advanced degrees in Ecology and Conservation Biology.

Organization: Minnesota Zoological Garden

Organization Description:

The Minnesota Zoo is a unique state agency. Established in 1978 to provide Minnesota residents and guests with an opportunity to experience animals from the exotic to the familiar, today the Zoo is one of the State's premier cultural, educational, and conservation institutions.

The Zoo's mission is to connect people, animals and the natural world to save wildlife. With 1.4 million annual guests, and state-wide outreach programs reaching thousands more, the Zoo is well-positioned to strengthen Minnesotans' awareness and understanding of our state's commitment to wildlife, science, and conservation. The Zoo is the State's largest environmental educator with >500,000 participants in Zoo education programs.

The Zoo is also a leader in conservation – directing efforts and partnering with others on a variety of initiatives in Minnesota and across the globe. Over the past decade, the Zoo has enhanced efforts to focus on Minnesota wildlife,

including projects to conserve moose, bison, turtles, prairie butterflies, and freshwater mussels. Advancing the science of wildlife conservation is an important part of the Zoo's work.

The Minnesota Zoo has a proven record of using its resources effectively and matching the State's investment.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Research Scientist		Project management and partner coordination			28%	0.6		\$104,000
Conservation Specialist		Project logistics and compilation			21%	0.45		\$50,000
Conservation Technician		Husbandry operations and field work			14%	1.5		\$110,000
							Sub Total	\$264,000
Contracts and Services								
TBD	Service Contract	Facilitated workshop(s) to accomplish Activity 2				-		\$20,000
							Sub Total	\$20,000
Equipment, Tools, and Supplies								
	Tools and Supplies	Potted Larval hostplants (200)	Rearing of Pawnee skippers					\$2,000
	Tools and Supplies	Potted native wildflowers (70)	Nectar sources for adult Pawnee skippers					\$700
	Tools and Supplies	Mesh and metal frames (100)	Construction of cages for larval rearing and adult breeding					\$1,300
							Sub Total	\$4,000
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								

	Miles/ Meals/ Lodging	An average of 10 days of field work per year over three years = 30 field days. \$120/day for hotel, \$43/day for food. \$1000 for fuel.	Field collections and monitoring of Pawnee skipper populations					\$6,000
							Sub Total	\$6,000
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$294,000

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	Minnesota Zoo General Operations	Administrative costs, utilities and other expenses associated with implementation of activities, estimated at 15% of the total request	Secured	\$44,100
			State Sub Total	\$44,100
Non-State				
			Non State Sub Total	-
			Funds Total	\$44,100

Total Project Cost: \$338,100

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [19ec3c3f-6a5.pdf](#)

Alternate Text for Visual Component

Building a future for at-risk Minnesota butterflies". Two rare butterflies: a Pawnee skipper perched on a flower and a Zoo-reared Poweshiek skipperling with Sharpie-marked wings sitting on a finger being released for a conservation program. Also a Zoo butterfly rearing operation and participants in a facilitated butterfly conservation planning workshop....

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 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 proposal:

Seth Stapleton, Cale Nordmeyer, and Sherry Kromschroeder - all Minnesota Zoo

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

