Environment and Natural Resources Trust Fund

2026 Request for Proposal

General Information

Proposal ID: 2026-472

Proposal Title: Assessing Recruitment Threats for Imperiled Blanding's Turtles

Project Manager Information

Name: Josh Pennington

Organization: Department of Military Affairs

Office Telephone: (320) 616-2720

Email: joshua.a.pennington4.nfg@army.mil

Project Basic Information

Project Summary: We will help conserve Blanding's turtles by improving our understanding of hatchling survival rates and genetic variation, to inform conservation actions and bolster populations.

ENRTF Funds Requested: $415,000

Proposed Project Completion: June 30, 2029

LCCMR Funding Category: Fish and Wildlife (D)

Project Location

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

Region(s): 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.

The state threatened Blanding's turtle (Emydoidea blandingii) is a long-lived, late-maturing, semi-aquatic turtle that uses a mosaic of wetland and adjoining upland habits. Blanding's turtles continue to face numerous threats including habitat loss and degradation, nest predation, road mortality, emerging disease, and impacts associated with climate change. Recruitment of Blanding's turtles is generally low, with most turtles predated during early life stages, but recruitment rates are poorly known. As turtles play a key role in facilitating healthy waterbodies, population declines can have far-reaching impacts. Conservation efforts, mainly nest protection efforts, by Camp Ripley and the Minnesota DNR have been underway since the early 2000s. During this time, 169 Blanding's turtle nests have been protected and more than 1800 Blanding's turtles successfully hatched. However, we have a poor understanding of whether these efforts are improving recruitment rates within these Blanding's turtle populations; addressing this information gap will help to guide future conservation actions. This proposal represents an initiative designed to benefit Blanding's turtle conservation. Activities outlined in this proposal support Camp Ripley's Integrated Natural Resources Management Plan, Minnesota's State Wildlife Action Plan goals, and will inform federal recovery efforts given that Blanding's turtle are undergoing consideration for Endangered Species Act listing.

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 build upon our current partnerships with the Minnesota Department of Natural Resources, Central Lakes College, and St. Cloud State University to improve our understanding and conservation of Blanding' turtles. Specifically, we aim to estimate the survival rates of hatchling Blanding's turtles and better understand the effectiveness of differing conservation strategies for this age class (0-1 year of age). We will monitor the survival and movements after natural (caged) incubation using radio telemetry, comparing the effectiveness of differing release strategies. We also propose to estimate the effective population size (i.e. how many adults are successfully contributing to hatchling recruitment) of the Blanding's turtle population(s) within Camp Ripley Training Center. Estimating effective population size will help us understand the long-term viability of those populations. Finally, we will continue to protect Blanding's turtle nests, bolstering remnant Blanding's turtle populations by protecting eggs during their most vulnerable period.

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) Estimate the survival rates of hatchling Blanding's turtles (0-1 years of age) by monitoring survival and movements after natural (caged) incubation using radio telemetry.
2) Collect genetic materials from hatchling and adult Blanding's turtles during trapping efforts, nest surveys, and from protected nests.
3) Genotype hatchling and adult Blanding's turtles to identify parent-offspring and sibship pairs, and to estimate the effective population size of Blanding's turtles within Camp Ripley Training Center.
4) Improve outcomes for Blanding's turtles by quantifying the effectiveness of conservation management strategies.

Activities and Milestones

Activity 1: Estimate the survival rates of hatchling Blanding's turtles

Activity Budget: $243,000

Activity Description:
Blanding's turtles face numerous threats to their recovery, many of which cause declines in population recruitment. Recruitment, specifically post hatch survival is poorly known, and most previous studies span variable and often short time intervals. Camp Ripley and partners propose to continue annual nest protection efforts, which began in 2002 and have successfully produced more than 1800 hatchlings to date. Building on these efforts, we will examine the survival rates of hatchling Blanding's turtles (0-1 years of age) by monitoring survival and movements after natural (caged) incubation using radio telemetry. Specifically, we propose to estimate age 0 survival (egg deposition to the onset of brumation). Radio tracking of hatchling Blanding's will occur over the course of two nesting seasons to make among year comparisons. Kaplian-Meier survival analysis will be used to estimate survival and associated confidence intervals over the duration of our study and interpolate survival beyond our study. Data collected and analyzed will inform conservation management practices for Blanding's turtles across Minnesota.

Activity Milestones:

Description	Approximate Completion Date
Track hatchling Blanding's turtles with VHF transmitters to determine survival rates and movement patterns	May 31, 2028
Protect Blanding's turtle nests during nesting surveys	June 30, 2029
Complete final analyses and prepare project reports	June 30, 2029

Activity 2: Collect genetic material from hatchling and adult Blanding's turtles to genotype and estimate the effective population size.

Activity Budget: $172,000

Activity Description:
Effective population size describes the number of adults contributing genetic material to future generations (i.e., how many individuals are reproducing). Estimating effective population size for one or more populations helps us understand the long-term viability of those populations and whether any are at risk of inbreeding. These factors impact the resilience of future turtle populations. Although population size estimates have been calculated for Blanding's turtles in parts of their range, we lack these estimates for populations in Minnesota. Camp Ripley is home to one or more populations of Blanding's Turtles and nesting has been monitored since 2002. Camp Ripley biologists and Dr. Jennifer Lamb (SCSU) have already collaborated to collect tissue from nearly 180 hatchlings produced in the 2024 season. Those 2024 individuals, and samples collected in 2025 will be used in this study. Camp Ripley and partners propose to collect genetic material from hatchling and adult Blanding's turtles during trapping efforts, nest surveys, and from protected nests in 2026, 2027, and 2028. We will then genotype hatchlings and adults (up to 700 individuals) using Single Nucleotide Polymorphisms (SNPs) to quantify levels of heterozygosity, identify parent-offspring and sibship pairs, and to estimate the effective population

Activity Milestones:

Description	Approximate Completion Date
Collect genetic material from adult Blanding's turtles during trapping and nest survey efforts	September 30, 2028
Collect genetic material from hatchling Blanding's turtles	October 31, 2028

Genotype hatchling and adults to quantify levels of heterozygosity and identify parent-offspring and sibship pairs	June 30, 2029

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Andrew Herberg	Department of Natural Resources	Co-Project Manager; project leadership and fiscal management in co-stewardship framework with DNR; lead and coordinate field work, and assist with analyses and reports	No
Dr. Jennifer Lamb	St. Cloud State University	Co-investigator; advise on project design, administer graduate students, and lead genetics work	Yes
Bill Faber	Central Lakes College	Student Advisor; recruit, administer, and provide support with student interns.	Yes
Kaysie Maleski	Minnesota Department of Natural Resources	Field Biologist; coordination and implementation of activities 1 and 2	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 work be funded?

This project will help to guide long-term management of Blanding's turtles at Camp Ripley and elsewhere in Minnesota. Direct conservation outcomes will include increased recruitment and baseline information on recruitment and effective population size. Findings and recommendations will be shared with wildlife managers and relevant partners. Given their life history and the prevalence of threats, improving the viability of Minnesota's Blanding's turtles is a long-term initiative and activities will continue beyond this grant's scope. We will supplement ENRTF support with other funding sources, including Department of Defense funds, while exploring other grant opportunities.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Pollinator Enhancement and Mississippi River Shoreline Restoration	M.L. 2023, , Chp. 60, Art. 2, Sec. 2, Subd. 08j	$187,000

Project Manager and Organization Qualifications

Project Manager Name: Josh Pennington

Job Title: Conservation Program Supervisor

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

Project Manager implements the conservation program for the Camp Ripely Training Center. This involves managing cooperative agreements between the National Guard Bureau and the Minnesota Department of Natural Resources for wildlife and forestry projects across 53,000 acres. The project manager supervises 12 interdisciplinary environmental professionals at Camp Ripley.

Organization: Department of Military Affairs

Organization Description:

The Minnesota Department of Military Affairs is responsible for implementing conservation and land stewardship activities across the 53,000 acres of Camp Ripley Training Site. Camp Ripley is a multi-state training center hosting numerous facilities to support training requirements of military and civilian agencies. The 53,000 acres of Camp Ripley is also designated a State Wild Game Refuge.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Field biologist: MN DNR		Assistance with the implementation of activities 1 and 2			28%	1.2	X	$95,000
							Sub Total	**$95,000**
Contracts and Services								
St. Cloud State University	Subaward	Provides support for two M.S. students, faculty support for activity 2, equipment and supplies for activity 2				0.3		$174,000
Central Lakes College	Subaward	Provides support for 3 student workers (3 years)				1.8		$94,000
							Sub Total	**$268,000**
Equipment, Tools, and Supplies								
	Equipment	GPS transmitters @ $150/unit: 100 units for hatchlings Blanding's turtles/year x 2 years. VHF receiver/antennae ($1400/unit, 3 units)	Monitoring survival and movement for hatchling Blanding's turtles					$35,000
	Tools and Supplies	Capture and biological sampling supplies	Trap/hand capture Blanding's turtles, uniquely mark individuals, collect samples to assess genetics.					$7,000
							Sub Total	**$42,000**
Capital Expenditures								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								

	Miles/ Meals/ Lodging	Fleet Costs for project team (1 vehicle at 5,000/year, 3 years @ $0.67/mi	Travel to conduct Blanding' turtle field operations					$10,000
							Sub Total	**$10,000**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$415,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Personnel - Field biologist: MN DNR		Assistance with the implementation of activities 1 and 2	**Classified :** Position exists in collaboration with Camp Ripley under annual DMA-DNR Interagency agreement. The ENRTF funding will make it possible for the staff member to work on this project for the percentage of time indicated in the budget. Without this funding they would not be able to fully support this project with their time. Responsibilities for the classified staff will be reprioritized and reallocated as necessary to support this project.

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
In-Kind	Department of Military Affairs	Minnesota DMA Environmental Program staff support for field activities including nesting surveys, trapping, and radio telemetry.	Secured	$45,000
			State Sub Total	**$45,000**
Non-State				
Cash	Department of Military Affairs	A federally funded state interagency agreement between the Departments of Military Affairs and Natural Resources will provide the project costs for personnel (DNR Nongame Wildlife Program: Andrew Herberg), project management, fieldwork, data analysis, writing, outreach, assisting graduate students, 36 months, 35% effort. Position exists in collaboration with Camp Ripley under annual DMA-DNR Interagency agreement.	Secured	$114,000
			Non State Sub Total	**$114,000**
			Funds Total	**$159,000**

Total Project Cost: $574,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: 6c099c6a-695.pdf

Alternate Text for Visual Component

Short description of how this project addresses needs and provides solutions. Threatened turtle nests are protected, survival of hatchlings will be estimated, genotyping of adults and hatchlings, and development of future biologists. Results will provide critical information needed to improve future Blanding's turtle conservation strategies throughout Minnesota....

Supplemental Attachments

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

Title	File
CLC_letter of support	4fed8807-1e3.pdf
SCSU_letter of support	ae526c8a-8ea.pdf

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?

Yes

Does the organization have a fiscal agent for this project?

Yes

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:

Andrew Herberg, Minnesota DNR
Dr. Jennifer Lamb, St Cloud State University

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