

**Environment and Natural Resources Trust Fund
2015 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 019-A

Amphibian and Reptile Conservation in Lake Superior Basin

Category: A. Foundational Natural Resource Data and Information

Total Project Budget: \$ 199,204

Proposed Project Time Period for the Funding Requested: 3 years, July 2015 - June 2018

Summary:

We will identify high priority conservation actions for rare frogs, salamanders, turtles and snakes in the Lake Superior Basin and begin implementing conservation planning and actions with agencies and landowners.

Name: Gary Casper

Sponsoring Organization: Great Lakes Ecological Services, LLC

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Slinger WI 53086

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Web Address _____

Location

Region: NE

County Name: Aitkin, Carlton, Cook, Itasca, Lake, Pine, St. Louis

City / Township:

Alternate Text for Visual:

Example species map and conservation checklist account.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	



PROJECT TITLE: Amphibian and Reptile Conservation in Lake Superior Basin

I. PROJECT STATEMENT

Many rare frogs, salamanders, turtles and snakes sensitive to climate change reside in the Lake Superior Basin (Basin). We will advance the work of the MN County Biological Survey (MCBS) by identifying the high priority habitat and remaining knowledge gaps for these species in the Basin, produce a set of tools for conservation planning, and demonstrate conservation actions with partners. We will develop species checklists and spatial databases that rank conservation status and climate change sensitivity in the Basin, identify existing important populations and habitat areas well suited for preservation and enhancement, and use this knowledge to inform conservation planning and actions. This will provide a framework for implementing improved conservation programs in the Basin for the 12 species identified as Species of Greatest Conservation Need in the MN State Wildlife Action Plan (SWAP), and improve conservation and monitoring strategies identified for them in the SWAP and by the Lake Superior Binational Program (LSBN). We have performed extensive field work in the Basin since 2005, collected >16,000 distribution records, mapped rare species, and made conservation and monitoring recommendations in a series of reports. These efforts have collected initial baseline data, developed statistically sound and feasible monitoring methods, and identified gaps in knowledge important to management and conservation. This proposal is to advance this knowledge to an implementation stage by focusing conservation actions on specific species and habitats in the Basin, such as Wood Turtles and Four-toed Salamanders.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Identify Rare Species and Their Conservation Needs in the Lake Superior Basin Budget: \$23,040

We will assess gaps in species distribution data from the spatial database already developed (with updates), identify Species of Local Conservation Interest (SLCI), and develop a Year 1 Survey Plan and draft Species Checklist. Data will be ranked for informing conservation status and survey needs, including by critical habitat needs and climate change sensitivity. Data vetting will identify taxonomic and geographic outliers. Conservation rankings will include existing global, national and state rankings, and a local Basin ranking (SLCI). The SLCI ranks will identify the species most in need and their threats and opportunities, and be vetted with stakeholders for consensus (e.g., agencies, NGOs, regional species experts). Climate change sensitivity will assess critical habitat needs and environmental tolerances of the 21 species with range limits in the project area, and evaluate their possible responses to climate change. The Species Checklist will be updated in Year 3 from survey results. The Year 1 Survey Plan will provide a target species list and identify accessible survey sites.

Outcome	Completion Date
1. Identify highest priority rare species in the Basin with climate sensitivity assessed, draft species maps and checklist produced with conservation status rankings, Year 1 survey plan produced to target knowledge gaps.	March 31, 2016

Activity 2: Field Surveys Budget: \$141,604

We will deploy 2 teams of 2 people each for 5 weeks in Years 1 and 2, and 3 weeks in Year 3, and 2 seasonal employees at Grand Portage National Monument for 2 years. Survey sites will be refined each year based on the previous year results. Survey protocols developed by the LSBP will be followed. Survey locations and species priorities will be determined in Activity 1. Surveys will include a variety of visual encounter survey methods, frog call surveys, aquatic funnel trapping, cover object surveys, and turtle trapping. We will also purchase and deploy 4 sets of 10 automated recording systems (Song Meters), which are weatherproof recorders which provide digital audio files that can be analyzed for species present (i.e., frogs) utilizing a protocol developed by the National Park Service for long term monitoring of amphibians. These units will remain with project partners for implementing long term monitoring programs.



Outcome	Completion Date
1. Baseline data for rare species collected and analyzed. Basin-specific maps produced with important habitats and populations identified. The numbers of surveys completed, new species locations obtained, and important habitat areas identified improves current knowledge (e.g., MCBS and SWAP).	June 1, 2018

Activity 3: Identify Priority Conservation Actions

Budget: \$34,560

Analyze all data, finalize database and Species Checklist, finalize monitoring recommendations, and deliver Amphibian and Reptile Conservation Toolset. The Toolset will include, a) priority species, actions and habitat areas, b) a spatial database, c) Species Checklist, d) a set of maps, e) survey protocols, and f) a flowchart and narrative on how to apply these tools for conservation planning (e.g., land preservation or habitat management) and for inventory and monitoring in the Basin, with partner examples. For species deemed sensitive by the state or stakeholders specific locality information may be generalized in final deliverables (i.e., State Endangered or Threatened Species), with users directed to the original data source for specific locality requests.

Outcome	Completion Date
1. Final report, priority species and habitat areas identified, and Toolset delivered, improves conservation and monitoring of rare amphibians and reptiles in the Basin.	June 30, 2018

III. PROJECT STRATEGY

A. Project Team/Partners

Project Partners Receiving Funds:

- Gary S. Casper, Ph.D. (UWM Field Station): Primary Investigator, responsible for all aspects of the project including reporting, planning, data analysis, and field data acquisition.
- Brandon Seitz (Grand Portage National Monument): Coordinate surveys on GPNM lands, perform surveys, supply data, review reports, utilize toolset for informing conservation planning.

Project Partners Not Receiving Funds:

- Mitchell Travis (Grand Portage Band of Lake Superior Chippewa): Coordinate access to tribal lands, review reports, utilize toolset for informing conservation planning.
- Shannon Walz (Wolf Ridge Environmental Learning Center): Coordinate access to WRELC lands, review reports, utilize toolset for informing conservation and environmental education planning.
- Susan Catton (Superior National Forest): Coordinate access to Forest lands, review reports, utilize toolset for informing conservation planning.
- Janelle Long (Hawk Ridge Bird Observatory): Coordinate access to HRBO lands, review reports, utilize toolset for informing conservation and environmental education planning.

B. Project Impact and Long-Term Strategy

The long-term strategy is to implement conservation initiatives for rare amphibians and reptiles in the Basin, by better defining species most in need and where their greatest conservation opportunities are, and improving monitoring of responses to climate change. The Toolset will be provided directly to agencies, NGOs, tribal governments, and other stakeholders, and results published for wider dissemination. Several existing long-term initiatives will benefit including the Minnesota Frog and Toad Survey, County Biological Survey, and State Wildlife Action Plan.

C. Timeline Requirements

The 3 year timeline is developed to first perform needed data review and survey preparation (7/2015 - 3/2016), then perform 2½ seasons of field surveys with ongoing updates to databases (3/2016 - 6/2018), and finally analyze data, perform final stakeholder consensus meetings, and finalize and deliver products (9/2017 - 6/2018).

2015 Detailed Project Budget

Project Title: *Amphibian and Reptile Conservation in Lake Superior Basin*

IV. TOTAL ENRTF REQUEST BUDGET: 3 years

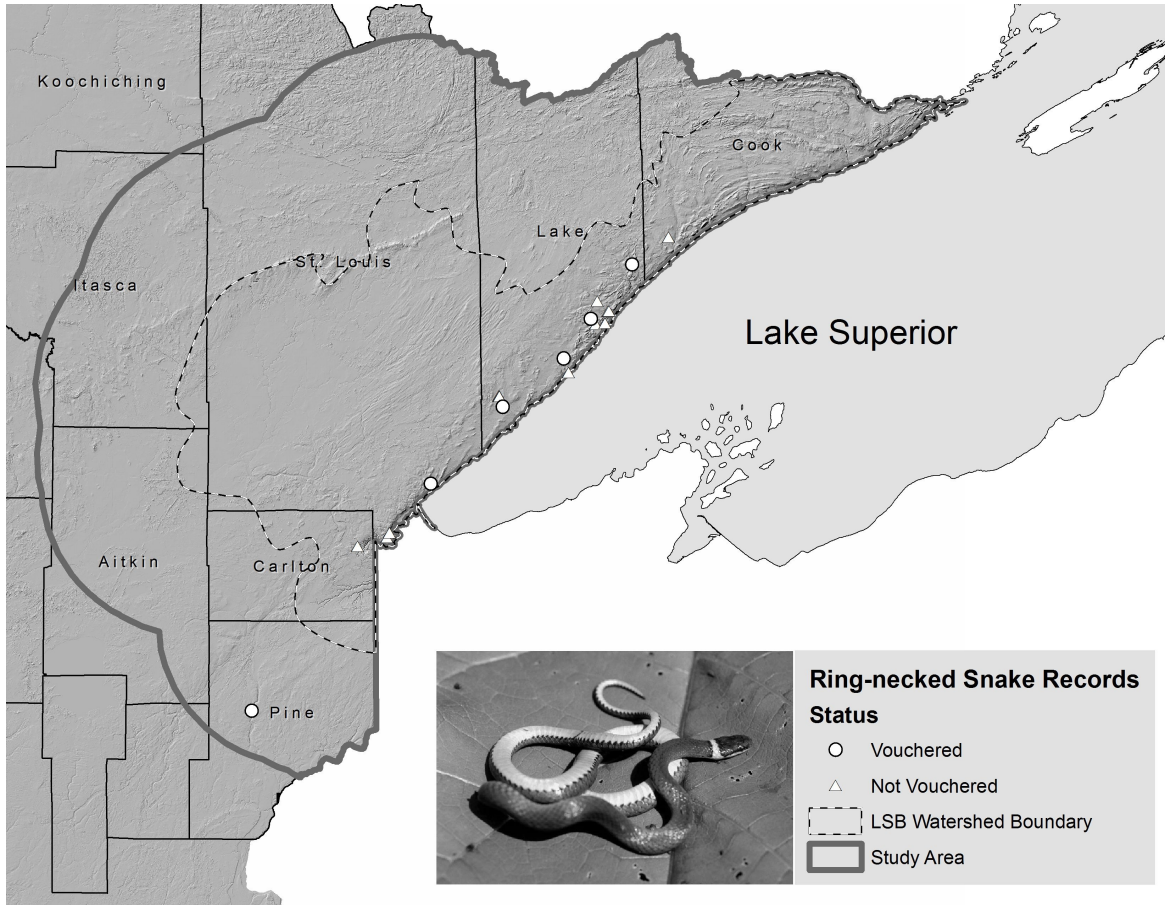
<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel:	\$ -
Dr. Gary S. Casper: Responsible for managing all aspects of the project, including coordination with partners, conducting and supervising field surveys, database and GIS data development, map production, and reporting. Conduct 13 weeks of field surveys with 2 teams of 2 people each. Expenses for field surveys are estimated at \$5040/wk X 13 = \$65,520 (80% salary, 20% benefits). Expenses for 20 weeks of professional services (office time) for Dr. Casper and one assistant are estimated at \$4431/wk X 20 = \$57,600 (80% salary, 20% benefits).	\$ 123,120
Grand Portage National Monument: 2 Seasonal Employees (80% salary, 20% benefits), 3 mo/year for 2 years, wildlife surveys and data acquisition.	\$ 16,000
Equipment/Tools/Supplies:	\$ -
Survey supplies: snake cover boards \$1500 (50 sheets 3/4 inch ext. plywood at \$30 each), turtle hoop nets \$1500 (20 at \$75 each), misc. supplies \$100 (cloth bags, ziplock bags).	\$ 3,100
Automated Recording Devices: 40 weatherproof Song Meter SM3 Acoustic Recorders (Wildlife Acoustics Inc.) at \$31,814 (quantity discount w shipping) for 3 partners (Grand Portage Band of Lake Superior Chippewa, Wolf Ridge Environmental Learning Center, Superior National Forest), and 10 for a yet to be determined partner or location (possibly a second Superior National Forest set). Batteries \$720 (160 D-cell alkaline per year X 3 yrs = 480 at \$1.50 ea.) and 40 Class 4 SD cards \$800 (\$20 each). Sales tax est. at \$1500.	\$ 34,834
Travel: Mileage for in-state travel for field surveys - 500 mi/wk for 13 wks X 2 teams = 13,000 mi. X 0.55/mile = \$7150. Lodging for 100 nights at \$85 each = \$8500. Meals for 4 people for 65 days at \$25/person/day = \$6500.	\$ 22,150
Additional Budget Items:	\$ -
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 199,204

V. OTHER FUNDS *(This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)*

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ To Be Applied To Project During Project Period:	\$ -	N/A
Other State \$ To Be Applied To Project During Project Period:	\$ -	N/A
In-kind Services To Be Applied To Project During Project Period:	\$46,200	Secured
Grand Portage Band of Lake Superior Chippewa: Project partner staff time @ \$13,800		
Superior National Forest: Project partner staff time @ \$15,000		
Grand Portage National Monument: Project partner staff time @ \$10,000		
Wolf Ridge Environmental Learning Center: Project partner staff time @ \$3,400		
Hawk Ridge Bird Observatory: Project partner staff time @ \$4,000		
Funding History:	\$ -	N/A
Remaining \$ From Current ENRTF Appropriation:	\$ -	N/A

Attachment 4

Project Title: Amphibian and Reptile Conservation in Lake Superior Basin



Example map for assessing range limits, knowledge gaps, and important habitat areas.

Example Checklist information: for use in property conservation assessments

Common Name: Northern Ring-necked Snake

Scientific Name: *Diadophis punctatus edwardsii*

Order: Serpentes MN Status: Special Concern

State Wildlife Action Plan Status: Species of Greatest Conservation Need

Basin Status: Species of Local Conservation Interest

Focal Species: Yes, for projects that support or enhance its critical habitat.

Critical Habitat: Forest clearings, forest edges, usually associated with bedrock outcrops or sandy soils, nests in moist rotting logs or decaying vegetation, feeds mainly on small salamanders and earthworms.

Comments: At its northern range limit in the Basin, possibly absent from Cook County but more surveys needed. North Shore bedrock outcrops in lake effect climate zone are critical habitat. Apparently stable populations known from several state parks but no quantitative demographic studies have been completed to assess viability. Can be confused with Northern Red-bellied Snake (Brown and Phillips 2012).

Attachment 6

Project Title: Amphibian and Reptile Conservation in Lake Superior Basin

Project Manager Qualifications & Organization Description:

Dr. Casper is a conservation biologist with the University of Wisconsin-Milwaukee Field Station and Great Lakes Ecological Services, LLC. He spent his youth in Minnesota and continues to conduct research there. His research emphasis is on amphibians and reptiles including wildlife surveys and monitoring, habitat and biodiversity assessments, conservation planning, and natural history research. He has supervised over 30 wildlife professionals, technicians and students over the past 3 decades, and published over 60 scientific papers including 2 books. Dr. Casper has access to an extensive inventory of equipment and supplies for conducting wildlife research, office and lab space, computers and software. He will be responsible for managing all aspects of the project, including coordination with partners, conducting and supervising field surveys, database and GIS data development, map production, and reporting.

Selected Relevant Studies:

Minnesota Amphibian and Reptile Assessments

Performed surveys for and extended range limits of Northern Ring-necked Snakes and Four-toed Salamanders in northeastern Minnesota. Trained DNR staff in survey techniques. Major funding: Minnesota DNR.

Amphibian and Reptile Inventory and Monitoring in the Lake Superior Basin

Performed inventories and developed monitoring methods for amphibians and reptiles in the Lake Superior Basin in collaboration with Lakehead University, Thunder Bay, Ontario. Major funding: National Fish and Wildlife Foundation, Great Lakes Indian Fish & Wildlife Commission, U.S. EPA, Ontario Ministry of Natural Resources.

National Park Service Amphibian Monitoring Program

Developed amphibian monitoring program based on automated recording devices for the National Park Service. Major funding: National Park Service.

Ottawa National Forest Amphibian and Reptile Inventory and Monitoring

Performed inventory of all species in the Forest and developed an ongoing Wood Turtle monitoring program now in its eighth year. Major funding: U.S. Forest Service.

Wildlife Biodiversity Assessments and Conservation Planning Tools

Performed surveys, developed monitoring methods, species checklists, spatial databases, and habitat models for all vertebrates and selected invertebrates in the Milwaukee Estuary Area of Concern for several land trusts, county governments, and Wisconsin DNR. A similar toolset is under development for the Duck-Pensaukee Watershed near Green Bay, Wisconsin. Major funding: National Fish and Wildlife Foundation, Wisconsin DNR, Wisconsin Coastal Management Program, Ozaukee County, U.S. EPA.

Selected Publications:

- Green, D. M., L. A. Weir, G. S. Casper, M. J. Lannoo (Editors). 2014. North American Amphibians: Distribution and Diversity. University of California Press, Berkeley. 352pp.
- Gallant, A. L., R. W. Klaver, G. S. Casper, and M. J. Lannoo. Global rates of habitat loss and implications for amphibian conservation. *Copeia*, 2007(4), pp. 967–979.
- Casper, G. S. 2008. Changes in Amphibian and Reptile Communities. Chapter 20 in D. Waller and T. Rooney (Editors), *The Vanishing Present: Wisconsin's Changing Lands, Waters, and Wildlife*, The University of Chicago Press. 507pp.

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