Environment and Natural Resources Trust Fund
2016 Request for Proposals (RFP)

Project Title: **ENRTF ID: 029-A**

North Shore Wildlife Conservation Toolset

Category: A. Foundational Natural Resource Data and Information

Total Project Budget: $ 284,113

Proposed Project Time Period for the Funding Requested: 4 years, July 2016 to June 2020

Summary:

We will develop a Conservation Toolset allowing major North Shore landowners to implement high priority conservation actions for rare birds, amphibians and reptiles, including innovative new monitoring techniques.

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Sponsoring Organization: Great Lakes Ecological Services, LLC

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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:

Study area, example acoustic recorder.

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

I. PROJECT STATEMENT

Many rare wildlife species sensitive to climate change reside along the North Shore of Lake Superior, where landowners often lack local baseline data and conservation planning capacity for managing them. We will address these needs for selected amphibians, reptiles, and breeding birds identified in the MN State Wildlife Action Plan, thereby implementing conservation and monitoring strategies identified by the MN County Biological Survey and other conservation initiatives, by "*drilling down*" the conservation goals and actions to a local implementation. We will further develop and implement innovative survey and monitoring techniques, and build conservation capacity with major landowners with a Conservation Toolset of species occurrence, monitoring and habitat information. This will identify Species of Local Conservation Interest, thereby improving conservation outcomes. To achieve these goals we will advance original research for monitoring breeding birds and amphibians through automated recording systems, which complement the MN Breeding Bird Atlas and Frog Survey data by providing information on species that are difficult to detect, or are in remote areas. These methods also allow for continued annual monitoring to detect changes, with greatly improved sample sizes. We will conduct wildlife surveys, improve species distribution databases, and address conservation planning and actions. This Conservation Toolset will include searchable databases and comprehensive species checklists identifying critical habitat needs. We will provide resources and training for implementation of these tools. We have performed extensive field work in the Basin since 2005, and made conservation and monitoring recommendations in a series of reports. In cooperation with the National Park Service we have used this methodology for monitoring amphibians, which we will now apply to breeding birds. These efforts have identified gaps in knowledge important to management and conservation.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Develop Baseline Data and Work Plan **Budget: $37,920**

Update existing species distribution databases to identify Species of Local Conservation Interest, develop a Survey Plan with a target species list and initial sites identified, purchase equipment and supplies, and produce draft Species Checklists. Species will be assigned local conservation rankings identifying species most in need, and their threats and opportunities, and be vetted with stakeholders for consensus (inc. regional species experts). The Species Checklists will be updated in Year 4 from survey results.

Outcome	Completion Date
1. Identify highest priority rare species in the Basin, draft species maps and checklists produced with conservation status rankings, Year 1 survey plan produced with equipment purchased and sites identified.	March 31, 2017

Activity 2: Field Surveys and Data Analyses **Budget: $162,553**

Field data acquisition for 3 field seasons (April-July of 2017-19), with locations and priorities determined in Activity 1. Surveys will include visual encounter searches, frog call surveys, aquatic funnel trapping, cover object surveys, and deploying weatherproof digital acoustic recording units. Equipment will remain with project partners for implementing long term monitoring programs. Survey protocols will be consistent with other existing programs (e.g., MN DNR, USGS, National Park Service).

Outcome	Completion Date
1. Survey data collected and analyzed. Monitoring protocols completed. Survey data and new species locations obtained improves current knowledge.	June 1, 2019

Activity 3: Data Analyses and Reporting **Budget: $45,720**

Analyze all data. Finalize spatial (GIS) and tabular databases, Species Checklists, maps, and monitoring protocols. Frog and bird acoustic data analyzed with development of recognizer software for automated scanning of large numbers of samples. Eight frog species recognizers should be completed by 2016, covering most of the frog species in the Basin, with additional frog and bird recognizers developed under this funding.

Outcome	Completion Date
1. Final report and Toolset delivered, improves conservation and monitoring of rare wildlife in the Basin.	January 1, 2020

Activity 4: Produce Conservation Toolset **Budget: $37,920**

Package and deliver Conservation Toolset to stakeholders and grantor. The Toolset will include items listed in Activity 3, and a flowchart and narrative on how to apply these tools for habitat preservation and management, and 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 and Toolset delivered, improves conservation and monitoring of rare wildlife in the Basin.	June 30, 2020

III. PROJECT STRATEGY

A. Project Team/Partners

Project Partners Receiving Funds: to perform surveys, supply data, review reports, utilize toolset for informing conservation planning.

- Gary S. Casper (Great Lakes Ecological Services) - 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 and perform surveys on GPNM lands.
- Edmund J. Isaac (Grand Portage Band of Lake Superior Chippewa) - coordinate surveys and perform on tribal lands.

Project Partners Not Receiving Funds: Will coordinate access to lands they control, review reports, and utilize toolset for informing conservation planning.

- Mike Schrage (Fond du Lac Band of Lake Superior Chippewa)
- Susan Catton (Superior National Forest)
- Janelle Long (Hawk Ridge Bird Observatory): Will also provide bird experts for development and testing of the breeding bird acoustic monitoring protocol.

B. Project Impact and Long-Term Strategy

The long-term strategy is to implement conservation initiatives for rare wildlife in the Basin, by better defining species most in need, 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, Breeding Bird Surveys and State Wildlife Action Plan.

C. Timeline Requirements

The 4 year timeline is needed to obtain 3 field seasons of data collection. We will first perform data review and survey preparation (7/2016 - 3/2017), then perform 3 seasons of field surveys with ongoing updates to databases (4/2017 - 7/2019), and finally analyze data and finalize and deliver products (8/2019 - 6/2020).

2016 Detailed Project Budget

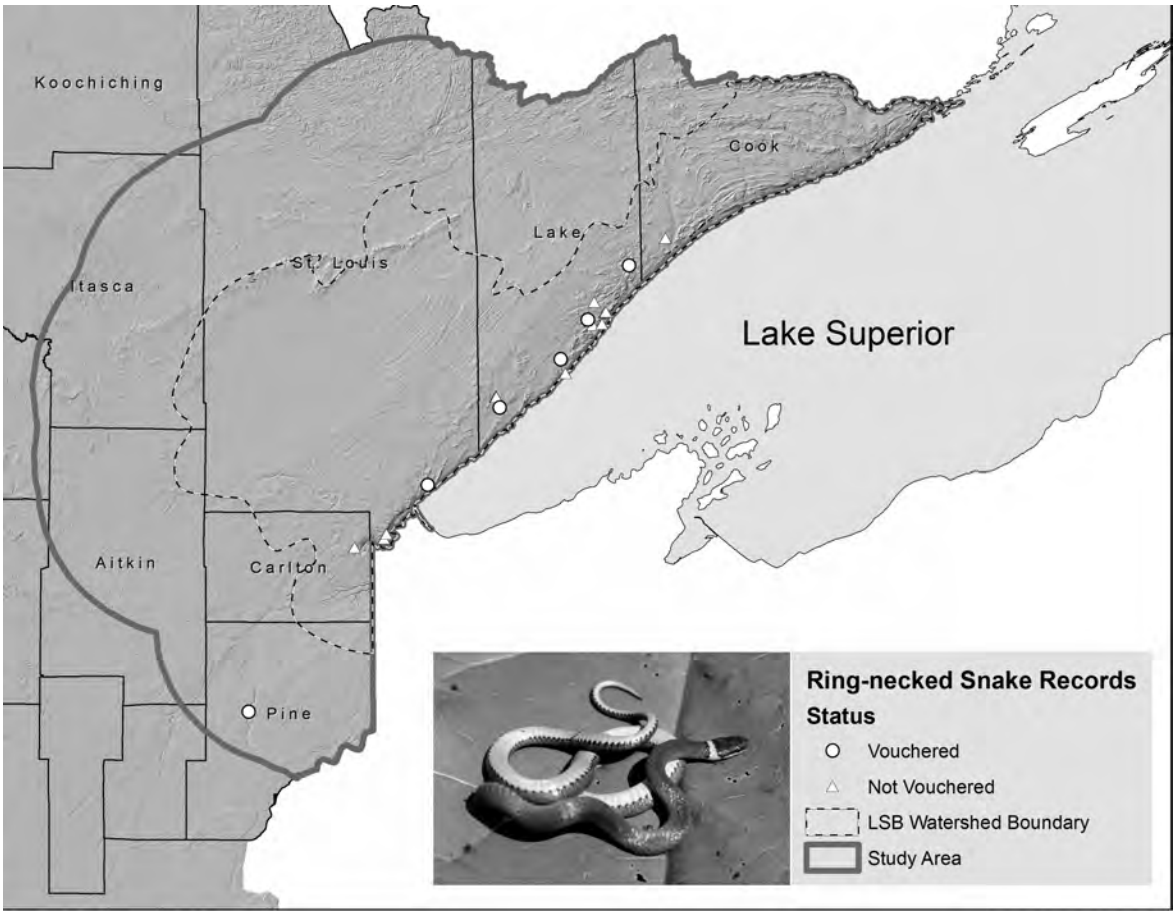
Project Title: *North Shore Wildlife Conservation Toolset*

IV. TOTAL ENRTF REQUEST BUDGET: 4 years

BUDGET ITEM	AMOUNT
Personnel:	$ -
Great Lakes Ecological Services: Project Manager - Dr. Casper 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. Work will include 15 weeks of field surveys and 36 weeks of professional services (research, data analyses, reporting) estimated at $2,603/wk X 51 (80% salary, 20% benefits). Dr. Casper has unique skills in developing survey methods and analyzing acoustic data despite having moved from Minnesota to Wisconsin for graduate school.	$ 132,720
Great Lakes Ecological Services: Project Assistants - Conduct field surveys, perform data analysis. 36 weeks at $1,580/wk X 36 (80% salary, 20% benefits). Preference will be given to hiring Minnesota residents.	$ 56,880
Grand Portage National Monument: 2 Seasonal Employees (80% salary, 20% benefits), 3 mo/year for 3 years, wildlife surveys and data acquisition.	$ 24,000
Grand Portage Band of Lake Superior Chippewa: 1 Seasonal Employee (80% salary, 20% benefits), 4 mo/year for 3 years, wildlife surveys and data acquisition.	$ 15,000
Equipment/Tools/Supplies:	$ -
Survey supplies: snake cover boards $1,850 (50 sheets 3/4 inch ext. plywood at $37 each), misc. supplies $100 (cloth bags, ziplock bags).	$ 1,950
Automated Recording Devices: 35 weatherproof Song Meter SM2+ Acoustic Recorders (Wildlife Acoustics Inc.) for 4 partners (Grand Portage Band of Lake Superior Chippewa, Hawk Ridge Bird Observatory, Superior National Forest, Fond du Lac Band of Lake Superior Chippewa). Price includes data recording equipment (recorders, temperature loggers, timelapse cameras), batteries, digital storage, mounting hardware, software, and estimated sales tax.	$ 38,000
Travel: Mileage for in-state travel for field surveys - 500 mi/wk for 15 wks = 7,500 mi. X 0.575/mile = $4,313. Lodging for 75 nights at $100 each = $7,500. Meals for 2 people for 75 days at $25/person/day = $3,750.	$ 15,563
Additional Budget Items:	$ -
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 284,113

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

SOURCE OF FUNDS	AMOUNT	Status
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: 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 Fond du Lac Band of Lake Superior Chippewa: Project partner staff time @ $4,000 Hawk Ridge Bird Observatory: Project partner staff time @ $8,000	$50,800	Secured
Funding History:	$ -	N/A
Remaining $ From Current ENRTF Appropriation:	$ -	N/A



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

Automated Acoustic Recording System:

These recorders can obtain hundreds of acoustic samples in remote areas for a fraction of the cost of manual surveys. Automated scanning of these files greatly enhances monitoring programs by allowing for sample size to increase from 1-3 samples in current programs, to hundreds of samples per year with these systems.

Great Lakes Ecological Services, LLC

Qualifications & Organization Description

Great Lakes Ecological Services, LLC, is a sole proprietorship managed by Gary S. Casper, Ph.D. It provides consulting and research services on wildlife, with an emphasis on amphibians and reptiles. Dr. Casper also holds an appointment with the University of Wisconsin-Milwaukee Field Station. Areas of expertise include wildlife surveys and monitoring, habitat and biodiversity assessments, conservation plans, environmental impact statements, GIS based mapping and analyses, and research.

Selected Projects:

Amphibian and Reptile Biodiversity Assessments for the Lake Superior Basin
Research on inventory and monitoring methods for amphibians and reptiles in the Lake Superior Basin in collaboration with Lakehead University, Thunder Bay, Ontario. Developed amphibian monitoring program for the National Park Service, and assessed biodiversity and conservation concerns for the Lake Superior Binational Program. Major funding: National Fish and Wildlife Foundation, Great Lakes Indian Fish & Wildlife Commission, National Park Service, U.S. Forest Service, Minnesota DNR, U.S. EPA, Ontario Ministry of Natural Resources.

National Park Service
Developed amphibian monitoring program for the Western Great Lakes Inventory and Monitoring Network, including use of automated acoustic reecorders. Major funding: National Park Service.

Minnesota Amphibian and Reptile Assessments
Performed inventories and extended range limits for Northern Ring-necked Snakes and Four-toed Salamanders. Major funding: Minnesota DNR.

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. An amphibian and reptile inventory of Isle Royale National Park. Natural Resource Technical Report NPS/GLKN/NRTR—2008/146. National Park Service, Fort Collins, Colorado.

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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