

**Environment and Natural Resources Trust Fund
2019 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 034-AH

Red-headed Woodpeckers: Indicators of Oak Savanna Health

Category: H. Proposals seeking \$200,000 or less in funding

Sub-Category: A. Foundational Natural Resource Data and Information

Total Project Budget: \$ 171,000

Proposed Project Time Period for the Funding Requested: June 30, 2021 (2 yrs)

Summary:

Red-headed woodpeckers are a flagship species of threatened oak savannas in Minnesota. We aim to better understand red-headed woodpecker population ecology and develop a unified management plan for restoration.

Name: David Andersen

Sponsoring Organization: U of MN

Title: Leader, MN Cooperative Fish and Wildl. Res. Unit

Department: Department of Fisheries, Wildlife, and Conservation Biology

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Location

Region: Central

County Name: Anoka

City / Township:

Alternate Text for Visual:

Red-headed woodpeckers have experienced dramatic population declines and are a key component of oak savanna ecosystems.

<input type="checkbox"/>	Funding Priorities	<input type="checkbox"/>	Multiple Benefits	<input type="checkbox"/>	Outcomes	<input type="checkbox"/>	Knowledge Base	
<input type="checkbox"/>	Extent of Impact	<input type="checkbox"/>	Innovation	<input type="checkbox"/>	Scientific/Tech Basis	<input type="checkbox"/>	Urgency	
<input type="checkbox"/>	Capacity Readiness	<input type="checkbox"/>	Leverage	<input type="checkbox"/>		TOTAL	<input type="checkbox"/>	%
<input type="checkbox"/> If under \$200,000, waive presentation?								



PROJECT TITLE: Red-headed Woodpeckers: Indicators of Oak Savanna Health

I. PROJECT STATEMENT

The red-headed woodpecker (*Melanerpes erythrocephalus*), is the flagship species of the oak savanna ecosystem, and like other cavity-excavators, plays a crucial role in maintaining healthy oak savanna by creating habitat for other species in live and dead trees. Red-headed woodpeckers are considered ecosystem engineers and a keystone species, and their presence may have far-reaching effects on species richness and ecosystem health. Historically red-headed woodpeckers were common across the Midwest, but populations have experienced dramatic regional declines estimated at 67% since 1970. The situation in Minnesota is even grimmer: since 1967, this species has experienced an average annual decline of 6%, representing a cumulative loss of nearly 95% of the population. Although the rate at which red-headed woodpeckers are declining has slowed since 1990, **populations in Minnesota do not appear to have stabilized.**

Fragmented patches of oak savanna exist across Minnesota, and there is considerable interest and effort from land managers to preserve and restore this rare ecosystem. Efforts to support red-headed woodpeckers and other oak savanna specialists through habitat restoration are ongoing at a number of sites, but these initiatives have been challenged by **a general lack of information on the factors that make savannas desirable for this species.** Fortunately, red-headed woodpeckers occur in relatively stable numbers (>100 breeding adults annually) at the Cedar Creek Ecosystem Science Reserve (hereafter “Cedar Creek”) despite dramatic declines in surrounding regions. Since 2008, a citizen-scientist initiative of the Audubon Chapter of Minneapolis has been monitoring this species at Cedar Creek, and has generated some basic information on population size and nest cavity use. In 2017, a formal research collaboration was established with partners at the University of Minnesota and the University of Toledo in Ohio to address key information gaps about red-headed woodpecker ecology, with a particular emphasis on identifying the aspects of oak savanna habitat that support nest success, survival, and migration patterns. **Our GOALS** are to address population declines in a species of great conservation concern, assess the outcomes of ongoing management and conservation efforts in an endangered ecosystem, and to develop a unified management plan for restoring oak savanna for red-headed woodpeckers and other oak habitat specialist species in Minnesota and throughout the Midwest.

The OUTCOMES we plan to achieve are to:

1. Identify oak savanna habitat characteristics and adult condition and behaviors associated with successful production of young, the factors related to whether and where individuals migrate, and the consequences of migratory status on productivity and survival.
2. Develop a long-term management plan for restoring oak savanna to support red-headed woodpeckers and other oak habitat specialists in Minnesota and the Midwest.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Capture and mark 70 red-headed woodpeckers with tracking units in Minnesota, acquire movement and habitat use data for marked birds **ENRTF BUDGET: \$ 85,500**

We will mark 20 adult red-headed woodpeckers with GPS units during the summer breeding season at Cedar Creek. Each GPS unit will collect up to 300 precise locations on a pre-programmed schedule throughout the year. Those data will be downloaded when the woodpeckers are recaptured the following year (2020) and used to estimate survival and dispersal. We will mark an additional 50 woodpeckers (15 nestlings and 10 adults each in 2019 and 2020) with radio-transmitters to study fledgling survival, behavior, and habitat associations. Capture, marking, and tracking will be conducted by the postdoctoral researcher and field technicians.



Outcome	Completion Date
1. Mark 20 woodpeckers with GPS tracking units	September 2019
2. Acquire high-resolution GPS tracking data from marked woodpeckers	May 2020
3. Mark 50 woodpeckers with radio-transmitters, acquire habitat data	August 2020

Activity 2: Develop and share long-term plan for managing oak savannas in Minnesota to support red-headed woodpeckers

ENRTF BUDGET: \$ 85,500

We will evaluate red-headed woodpecker survival, movement patterns, and habitat use, which will be used to develop a long-term management plan for restoring oak savanna for red-headed woodpeckers. The postdoctoral researcher will lead data analysis, writing and dissemination of management plan to local, state, and federal management agencies and the public.

Outcome	Completion Date
1. Assess survival, year-round habitat use and selection patterns of RHWO	September 2020
2. Dissemination of findings to management agencies and the public	June 2021

III. PROJECT PARTNERS:

This project will be conducted cooperatively through the MN Cooperative Fish and Wildlife Research Unit at the University of MN. Project partners include University of MN/Cedar Creek principal investigators, the Audubon Chapter of Minneapolis, and Dr. Henry Streby (University of Toledo) who is providing partial funding for research in 2017 and 2018 at Cedar Creek and field sites in Ohio. Funds received from this ENRTF request will be received by the University of MN in an agreement with Dr. Andersen. Dr. Potter will serve as a University of MN collaborator and Dr. West will serve as the Postdoctoral Researcher conducting the research project.

A. Partners receiving ENRTF funding

Elena West, Postdoctoral Researcher, Audubon Chapter of Mpls/University of Toledo

B. Partners NOT receiving ENRTF funding

David E. Andersen, U.S. Geological Survey, MN Cooperative Fish and Wildlife Research Unit, Project Manager

Dr. Caitlin Barale Potter, Cedar Creek Ecosystem Science Reserve, University of Minnesota (Activity 2)

Keith Olstad, Chair, Audubon Chapter of Mpls Steering Committee (Activity 1)

Dr. Henry Streby, Assistant Professor, University of Toledo (Activities 1 and 2)

IV. LONG-TERM- IMPLEMENTATION AND FUNDING:

The proposed project will support and expand an ongoing collaborative partnership to 1) address critical knowledge gaps about the habitat needs of red-headed woodpeckers, and 2) inform oak savanna restoration activities to benefit this species and other oak habitat specialists. Results from this project will provide information about red-headed woodpecker habitat needs that will be disseminated to local, state, and federal management agencies, published in the peer-reviewed literature, and made available to the general public via our project website and popular articles.

V. TIME LINE REQUIREMENTS:

The project duration is 2 years (July 2019 – June 2021) which affords time to acquire tracking devices for deployment in 2019 and 2020, and collection of movement data in 2019 and continuing through the duration of the project. The postdoctoral researcher will begin working on this project in July 2019, mark woodpeckers with GPS devices and radio transmitters in 2019 and 2020, and acquire movement data in 2019 and 2020. Data analysis and interpretation will be completed by June 2021.

2019 Proposal Budget Spreadsheet

Project Title: Red-headed Woodpeckers: an Indicator of Oak Savanna Health

IV. TOTAL ENRTF REQUEST BUDGET 2 years

BUDGET ITEM	AMOUNT
Personnel:	
Elena West, Postdoctoral Researcher, 100% FTE (79% salary/21% fringe for 2 years)	\$ 121,000
2 field technicians per year (2019 and 2020) @ 11 weeks per year (42% FTE for each of 2 years, 92.1% salary, 7.9% fringe)	\$ 28,484
Equipment/Tools/Supplies (for capturing and tracking woodpeckers):	
GPS Pinpoint Units (20 @ \$390 each; deployed in 2019)	\$ 7,800
Radio transmitters (50 @ \$125 each; 25 deployed in 2019 and 25 deployed in 2020)	\$ 6,250
Miscellaneous supplies (harnesses for GPS unit and transmitter device attachment, mist-nets, radio-telemetry receivers and antennas)	\$ 3,296
Travel (field technicians and postdoc travel to capture RHWO at Cedar Creek):	
4-wheel drive vehicle mileage [1 (2019 and 2020) vehicle @ \$0.56/mile x 25 miles/day x 90 days/year]	\$ 2,520
Field technician food and supplies in lieu of per diem [\$75 (2019 and 2020)/week x 11 weeks/year]	\$ 1,650
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 171,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ To Be Applied To Project During Project Period:	\$ 10,000	<i>Pending</i>
Other State \$ To Be Applied To Project During Project Period:	NA	NA
In-kind Services To Be Applied To Project During Project Period: Unrecovered indirect costs associated with this project (\$92,340 - University of Minnesota) PI salary (U.S. Geological Survey, 1 month/year x 2 years x \$14,000/month)	\$ 120,340	<i>Secured</i>
In-kind Services To Be Applied To Project During Project Period: David E. Andersen salary (U.S. Geological Survey; 1 month per year at		
Past and Current ENRTF Appropriation:	NA	NA
Other Funding History:		
Funding provided by the Audubon Chapter of Minneapolis RHWO Recovery Project for project coordinator, 2 field technicians in 2017 and 2018, and field supplies	\$ 16,000	<i>Ongoing</i>
Funding provided by Dr. Henry Streby for Postdoctoral Researcher (50% FTE for 18 months beginning in January 2018), tracking equipment and field supplies	\$ 75,000	<i>Ongoing</i>

Red-headed Woodpeckers: Indicators of Oak Savanna Health

Project Manager Qualifications & Organization Description

David E. Andersen is the Leader of the U.S. Geological Survey (USGS), Minnesota Cooperative Fish and Wildlife Research Unit (MN CFWRU; mncoopunit.cfans.umn.edu) and Adjunct Professor in the Department of Fisheries, Wildlife, and Conservation Biology on the St. Paul Campus of the University of Minnesota. Dr. Andersen received a Ph.D. in Wildlife Ecology (1988) and a Ph.D. in Zoology (1988) from the University of Wisconsin-Madison, an M.S. in Wildlife Ecology (1984) from the University of Wisconsin-Madison, and a B.S. from St. Olaf College (1981). He has worked at the MN CFWRU since 1989, having conducted research in avian ecology and conservation, working with graduate students on projects involving raptors, forest-nesting birds, waterfowl, shorebirds, and cranes. Dr. Andersen has advised or co-advised 29 M.S. students and 4 Ph.D. students, authored or co-authored over 100 scientific publications, and has served as Principal Investigator on dozens of research projects totaling several million dollars in external funding.

Dr. Andersen will serve as project coordinator, working with collaborators at Cedar Creek, the Audubon Chapter of Minneapolis, and the University of Toledo to conduct the proposed research. Dr. West has 10 years of experience surveying, capturing, and marking birds and will lead the field portion and data analysis of this project. Drs. Andersen and West will co-lead the writing and dissemination of the long-term management plan to inform oak savanna restoration activities for red-headed woodpeckers. Dr. Potter (Cedar Creek) will help coordinate field logistics and development of project protocols, and will assist with the writing and dissemination of the long-term management plan for red-headed woodpeckers. Dr. Streby will help coordinate field logistics, and assist with data analysis and writing. Mr. Olstad (Audubon Chapter of Minneapolis) will provide input into project protocols and objectives. Along with project collaborators, Dr. Andersen will seek funding from other entities (e.g., MN DNR, FWS, Audubon Society); develop project protocols; aid in data collection, management, and analyses; and provide logistical support to field activities.

Minnesota Cooperative Fish and Wildlife Research Unit – The MN CFWRU was established in 1987 and staffed beginning in 1989. The MN CFWRU's primary mission is to conduct research related to fish and wildlife addressing issues of regional, national, and international significance. Cooperators of the MN CFWRU include the USGS, FWS, MN DNR, University of Minnesota, and the Wildlife Management Institute. The MN CFWRU is currently staffed by 2 USGS scientists, who conduct research, train graduate students, teach graduate-level courses, and provide outreach. The MN CFWRU currently is involved in upwards of 15 projects involving over \$3 million in external research funding.

University of Minnesota – The University of Minnesota is a land-grant institution of higher education, and ENRTF funding granted for this project would be managed by the University of Minnesota.

