

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

Project Title:

Wildlife-Habitat Relationships in Minnesota

ENRTF ID: 030-A

Category: A. Foundational Natural Resource Data and Information

Total Project Budget: \$ 397,124

Proposed Project Time Period for the Funding Requested: 1.5 years, July 2015 - October 2016

Summary:

Our project will develop a detailed wildlife-habitat relationship database for the state and conduct the Combined Habitat Assessment Protocols tool on two sub-basins to demonstrate its explicit accounting methodology.

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Sponsoring Organization: Northwest Habitat Institute

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Location

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

Range map for moose (*Alces alces*) in the Columbia River Basin, developed by the Northwest Habitat Institute.

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



PROJECT TITLE: Wildlife-Habitat Relationships in Minnesota

I. PROJECT STATEMENT

Work under this project will: (1) develop a detailed wildlife-habitat relationship (WHR) dataset for the state of Minnesota that includes all 595 bird, mammal, reptile, amphibian and fish species, as well as 103 insect, spider, and mollusk Species of Greatest Conservation Need, and (2) conduct the Combined Habitat Assessment Protocols (CHAP) tool on two sub-basins to demonstrate its explicit accounting methodology for planning, assessments, mitigation, and conservation actions that involve species, habitats, and ecological functions at coarse- to fine-scale (project-scale) levels.

Minnesota is projected to grow by more than 1 million people in the next 20 years. Where and how we grow influences the state's water and land health, and all associated species. Conservation-based approaches are imperative for protecting, restoring, and minimizing impacts to the natural environment. Minnesota does not yet have a comprehensive dataset of its fish and wildlife species that is operationally integrated with habitat conditions or ecological functions. Nor do we have an efficient assessment tool to assess, minimize, or mitigate project impacts on these species or habitats. State Wildlife Action Plans are framed around 16 coarse-scale vegetation/aquatic communities (i.e., 'habitats') and the 25% of states' species that are listed as Species of Greatest Conservation Need. We need to fully integrate the other 75% of the species into a comprehensive system, and better refine/define our habitat types so that they accurately reflect species compositions, and allow for practical management scenarios, permitted actions, and monitoring metrics.

Minnesota Rules (e.g., 2009, 4410.0400, 4410.1100, 4410.4300), require that an Environmental Assessment Worksheet (EAW) be developed to determine whether a proposed project has potential for significant environmental effects. A question on EAW forms requires identifying fish and wildlife habitats at or near the site, how the proposed project would affect them, and measures to minimize the impacts. About two-thirds of environmental review projects involving commercial, industrial, or residential development have a local entity serving as the responsible governmental unit. We must improve the efficiency and net environmental output of these reviews. The process must be transparent, cost efficient and based upon sound science.

Our approach builds upon WHR and CHAP work done in 9 western states and 1 Canadian province, detailed around 1200 wildlife species and 50 habitats. While there has been solid work done on describing and mapping vegetation communities in Minnesota, only a few pieces of a WHR dataset currently exist in the state. We will draw upon these existing works to the maximum extent practicable. By definition, vegetation classification schemes, without the explicit integration of wildlife species, do not, and cannot, equate to 'wildlife habitat.' Because habitat and biodiversity are frequently seen as a foundation for ecosystem services, there is a need to establish a method based on the best available ecological information that is transparent, repeatable, and can be employed in every habitat type. The CHAP approach is a spatially explicit accounting tool that provides a metric of per acre value for an area based upon the fish and wildlife species, habitats, and functions (triad) potentially or actually found there. CHAP is based on a conservation planning methodology developed by the Northwest Habitat Institute in collaboration with 11 other state and federal resource agencies.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Habitats, Structural Conditions, Key Ecological Functions (KEF), and Management Activities **Budget: \$129,892**

Using native breeding species and existing plant and aquatic community descriptions, develop and finalize habitat descriptions, including structural conditions and habitat elements. Conduct species expert panels and extensive literature review to build specific WHR with habitats, structural conditions, habitat elements, KEFs, and management activities for an integrated fish and wildlife species-habitat dataset (698 species).

Outcome	Completion Date
<i>1. Habitat Types defined, described, species integrated.</i>	<i>02/01/2016</i>
<i>2. Structural Conditions and Habitat Elements defined, described, species integrated.</i>	<i>02/01/2016</i>
<i>3. Key Ecological Functions for species defined, described, species integrated.</i>	<i>02/01/2016</i>
<i>4. Management Action Effects defined, described, integrated into WHR dataset.</i>	<i>02/01/2016</i>



Environment and Natural Resources Trust Fund (ENRTF) - 2015 Main Proposal
Project Title: Wildlife-Habitat Relationships in Minnesota

Activity 2: Species Distribution Maps

Budget: \$114,133

Create peer-reviewed, GIS-based distribution maps for the current distribution of wildlife and fish species (698 species). Maps based on published and unpublished surveys, literature review, and existing data and records.

1. Digital Range maps for 698 fish and wildlife species	06/01/2016
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Activity 3: Statewide Habitat Map

Budget: \$62,364

GIS-based spatial mapping of current and past habitat conditions at the sub-basin level. This reflects digital maps of the habitat types for Minnesota. Habitat maps based upon native species relationships.

1. Statewide Habitat Map (digital)	06/01/2016
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Activity 4: Final Report and Digital Products

Budget: \$59,977

Final Report would include: 1) WHR Habitat determinations, 2) Habitat descriptions, 3) Descriptions of Habitat Structural Conditions, 4) Descriptions of Habitat Elements, 5) Species Ecological Functions, 6) Management Action Effects, 7) Appendixes of Minnesota Species, 8) Digital geo-spatial datasets of WHR and Species distributions, 9) WHR Manual, and 10) CHAP Users Guide.

1. Final report and Digital Products	11/01/2016
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Activity 5: Minnesota WHR/CHAP Training Workshops

Budget: \$30,759

Conduct three formal training workshops in Minnesota, one in the Metro area, other two out-state, to guide users on WHR and CHAP development and applications. We will offer operational case examples from MN-based projects. Each Training workshop is anticipated to be two days in length.

1. Three WHR/CHAP training workshops	01/01/2017
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III. PROJECT STRATEGY

A. Project Team/Partners

Recipients of funding: Northwest Habitat Institute: Thomas O’Neil, David H. Johnson (lead author of *Wildlife-Habitat Relationships in Oregon and Washington*), Andy Hacketthorn and Cory Langhoff.

In-Kind Contributing Partner: USDA Forest Service, Northern Research Station, St. Paul (0.25 FTE, Dr. Mark Nelson, Research Ecologist). We anticipate adding 10+ In-Kind Contribution Partners before start of project.

B. Project Impact and Long-Term Strategy

Our project will provide the state with comprehensive wildlife-habitat-based datasets for 700 fish and wildlife species, along with a tool to implement these datasets. We anticipate that these datasets, made freely-available, will be primarily housed by the DNR, while federal agencies, universities, and other permitting- and development-based entities may do so as well. Species-habitat relationships are stable, so it will be only the poorly-known species that will need potential WHR refinements. CHAP has been successfully incorporated with WHRs into various frameworks for conservation planning across the western United States. Users of CHAP can: determine habitat quality for multiple fish and wildlife species; establish a baseline and future condition values; evaluate species and habitats and present them in terms of functions by habitat type; quantify a per acre metric that measures benefits of fish and wildlife; present findings in a spatial context using GIS; determine impacts and mitigation; use common definitions, mapping standards and consistent protocols. In so doing, identifying specific wildlife species’ needs will enable more effective conservation, ecological assessments, restoration and mitigation efforts at the site-, watershed-, or statewide-scale.

C. Timeline Requirements

The proposed project will be completed within 18 months of the allocation of funds.

2015 Detailed Project Budget

Project Title: Wildlife-Habitat Relationships in Minnesota

INSTRUCTIONS AND TEMPLATE (1 PAGE LIMIT)

Attach budget, in MS-EXCEL format, to your "2015 LCCMR Proposal Submission Form".

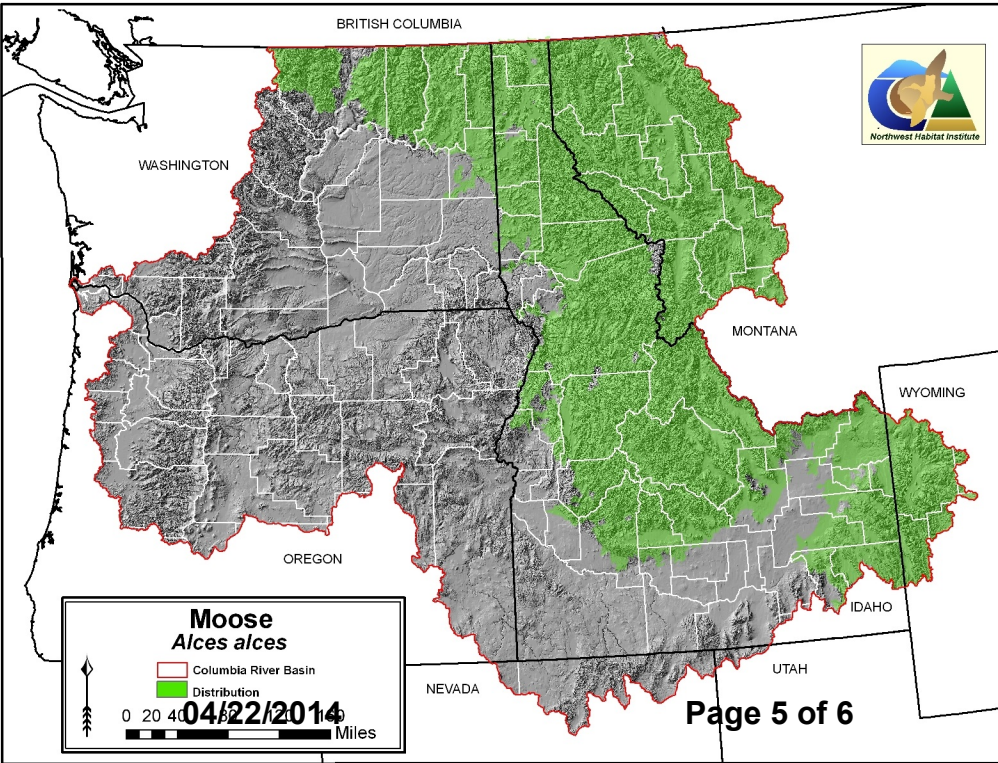
(1-page limit, single-sided, 10 pt. font minimum. Retain bold text and DELETE all instructions typed in italics. ADD OR DELETE ROWS AS NECESSARY. If budget item row is not applicable put "N/A" or delete it. All of "Other Funds" section must be filled out.)

IV. TOTAL ENRTF REQUEST BUDGET 1.5 years

BUDGET ITEM	AMOUNT
Personnel:	
Thomas O'Neill, Project Manager; (70% salary, 30% benefits); 50% FTE, 1.5 years	\$ 84,094
David Johnson, Assistant ProjectCoordinator; (70% salary, 30% benefits); 50% FTE, 1.5 years	\$ 78,487
Cory Langhoff, Senior GIS Analyst; (70% salary, 30% benefits); 40% FTE, 1.5 years	\$ 57,442
Andy Hackethorn, Data Manager; (70% salary, 30% benefits); 40% FTE, 1.5 years	\$ 59,064
Rosemary Pazdral, Information Specialist; (90% salary, 10% benefits); 80% FTE, 1.5 years	\$ 70,725
Supplies:	
Plotting Maps	\$ 1,750
Software License	\$ 1,150
Printing/Copying/Ink	\$ 2,750
Research Materials	\$ 1,515
Travel:	
Air Travel (24 flights * \$350/flight)	\$ 8,400
Rental Car (6 trips * \$270/trip)	\$ 1,620
Parking (24 days * \$15/day)	\$ 360
Mileage (1800 miles * \$0.565/mile)	\$ 1,017
Additional Budget Items:	
Stipends for Expert Panel Members	\$ 28,750
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 397,124

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
In-kind Services To Be Applied To Project During Project Period:	
Mark Nelson, Research Ecologist USDA Northern Research Station (0.25 FTE, 1.5 years)	\$ 30,000



BRITISH COLUMBIA

WASHINGTON

OREGON

NEVADA

MONTANA

WYOMING

IDAHO

UTAH

Moose *Alces alces*

Columbia River Basin

Distribution

0 20 40 Miles

04/22/2014



Environment and Natural Resources Trust Fund (ENRTF) - 2015 Main Proposal
Project Title: Wildlife-Habitat Relationships in Minnesota

Project Manager Qualifications and Organization Description:

Thomas O'Neill, Project Manager – has 31 years of experience managing complex environmental assessment and habitat conservation projects. He was co-manager, author and primary editor in the development of the book “Wildlife-Habitat Relationships in Oregon and Washington” and co-authored the “Atlas of Oregon Wildlife.” He has designed, developed and maintained the Interactive Biodiversity Information System (IBIS), which contains extensive information about Pacific Northwest fish, wildlife, and their habitats. Thomas received a patent for a System for Assessing Habitat Value in 2010, and developed Combined Habitat Assessment Protocols (CHAP), which evaluates habitats and their biodiversity by using a biological accounting system and field inventories based on wildlife-habitat relationships. The CHAP tool has undergone multiple independent scientific reviews, is being used by several resource agencies in six states, and is the foundation for conservation planning at both the regional and project site scales. Thomas’ current and past responsibilities have included both supervising and collaborating with a staff of professionals actively involved in the analysis of biotic resources; evaluating landscape and hierarchical scales; the design and implementation of vegetation/wildlife ecology field studies; the design, development, and maintenance of a computer information system; utilizing geographic information systems (GIS) and mapping with remote sensing systems; multidisciplinary impact assessment and siting analysis for planned and existing energy development projects, post-operational monitoring studies for various energy related industry projects; project budgeting; technical and fiscal control and review of extensive contract services involving hydrology, geology, range analysis, and terrestrial and aquatic ecology; participant in ecological systems approaches and cumulative impact analysis.

The Northwest Habitat Institute management structure is designed to deliver responsiveness to client needs and technical quality of the product. Our structure is focused on the Project Manager as the primary point of contact and the person responsible for completion of the work by NHI. The Project Manager serves as a senior support to staff with a key role in ensuring the technical soundness of the products and the satisfaction of the client. The Project Manager will attend all meetings and is the senior reviewer of all work products, ensuring their technical and editorial quality.

Northwest Habitat Institute (NHI) is a 501(c) 3 non-profit scientific and education organization dedicated to promoting and disseminating the best available information about our native fish and wildlife species and their habitats through the development of data-rich and verifiable information, maps, and tools. NHI focuses on wildlife-habitat conservation by: distribution of science-based wildlife and habitat information through data-sharing, GIS map services and education; and by planning the restoration of native habitats.