

**Environment and Natural Resources Trust Fund
2011-2012 Request for Proposals (RFP)**

LCCMR ID: 216-H

Project Title: Helping the Canada Lynx Population in Minnesota Recover

Category: H. Other Ideas

Total Project Budget: \$ \$75,570

Proposed Project Time Period for the Funding Requested: 2 yrs, July 2011 - June 2013

Other Non-State Funds: \$ 0

Summary:

Canada lynx are a threatened species under ESA in Minnesota. We will develop economically and environmentally sound solutions to restore the Canada lynx population while avoiding costly litigation.

Name: Ron Moen

Sponsoring Organization: U of MN - NRRI

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Location

Region: NE

Ecological Section: Southern Superior Uplands (212J), Northern Superior Uplands (212L), No. Minnesota and Ontario Peatlands (212M)

County Name: Cook, Koochiching, Lake, St. Louis

City / Township: Duluth

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

PROJECT TITLE: Helping the Canada lynx population in Minnesota recover

I. PROJECT STATEMENT

Residents and visitors never forget their first sight of iconic northwoods species like moose, wolves, and Canada lynx. There are at least 5,000 moose, about 3,000 wolves, but only 100 to 200 Canada lynx living in Minnesota. Yet from 1930 to 1970 an average 170 Canada lynx per year were harvested in Minnesota. Harvest levels fluctuated up and down with the snowshoe hare cycle and periodic “invasions” of Canada lynx from Ontario. After very low population levels in the 1980s and early 1990s, Canada lynx numbers increased in the 2000s.

An ongoing Canada lynx radiotelemetry study (see map) has led to some unexpected findings. For example, many lynx radiocollared in Minnesota have gone to Ontario and returned. One male has been radiocollared for over 5 years. Findings of the radiotelemetry project that can be used to improve management of Canada lynx in Minnesota include:

1. Conditions are suitable for Canada lynx survival and reproduction in Minnesota
2. Some lynx range across large areas, others settle down for years in a small area
3. Lynx are at the southern edge of their geographic range
4. Lynx make cross-border movements from Minnesota into Ontario
5. Lynx will occasionally “invade” Minnesota during periods of hare scarcity in Canada
6. About 70% of Canada lynx mortality is human caused
7. At least 20% of Canada lynx radiocollared in Minnesota have died in Ontario

The primary goal of this proposal is to use these biological findings to inform management decisions and avoid the protracted litigation process that has been underway for decades on wolf management.

Management must be based on legal considerations because Canada lynx were listed as a Threatened Species under the Endangered Species Act (ESA) in 2000. Over 8,000 mi² of northeastern Minnesota was designated as Critical Habitat for Canada lynx (see map). By law federal agencies (USFS, NPS, DOT, USFWS) must follow provisions in the ESA, the National Forest Management Act (NFMA), and the National Environmental Policy Act (NEPA) when management decisions could impact Canada lynx. The U.S. Fish and Wildlife Service (USFWS) must review any federal-funded project for possible impact.

An analysis by a Cook County business group predicted a negative economic impact of Critical Habitat designation for NE MN. Citizen input to USFWS Critical Habitat meetings indicated concern of a possible economic impact. Yet the USFWS Economic analysis indicated relatively little effect in Minnesota. These types of issues, with contrasting perceptions, can be addressed in the proposed project.

Goals of the project:

Biological findings on Canada lynx living in Minnesota can be applied to speed recovery and ensure persistence of the Canada lynx in Minnesota. Facts and consequences should be considered from a logical perspective rather than an emotional perspective, and this becomes possible with the approach I propose. Many stakeholders have expressed dissatisfaction with the current system, individuals have expressed a desire to consider an alternative solution, and this proposal provides a mechanism to develop alternatives by a biologist who can communicate with stakeholders and agencies. It should be possible to develop solutions that benefit the Canada lynx population in an economically and environmentally sound manner. If this approach does not succeed with the existing baseline support, the alternative is the litigation process that is now occurring with the wolf.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Identify conflict issues and develop compromise solutions Budget: \$ 75,570

Contacts with regulatory agencies and stakeholders to establish interest are completed. I have letters on file from agencies (US FWS, the MN DNR, the Superior National Forest, local government agencies) and stakeholder groups (e.g., forest harvest, trapping, environmental, economic) supporting the effort.

Regulatory agencies (FWS, DNR, SNF) must act within the framework of the ESA and applicable state laws. The language of laws must be interpreted, however, and it is in that context that it is possible to develop solutions. Stakeholders, economic agencies, and developers support decisions in some cases, but there are also frustrations and complaints by some affected individuals. Some frustrations and complaints may be justified, others may be based on misinformation or a lack of understanding.

Minnesota is in a unique position with biological data from radiocollared animals in this state that can guide decisions and recommendations. After developing constraints within which the USFWS must operate to meet legal requirements we will meet individually with stakeholders in the first year of the project. Following synthesis of stakeholder needs and concerns we will identify possible compromise solutions. These solutions will be vetted in small group meetings. Ultimately, we will use a process model similar to what was used recently by the DNR with the Moose Advisory Committee, and has been used previously with the Wolf Roundtable.

Outcome	Completion Date
1. Summary of what is possible from legal framework	9/30/2011
2. Identification of problem areas with stakeholders	6/30/2012
3. Develop and negotiate solutions that acceptable to all parties	6/30/2013

III. PROJECT STRATEGY

A. Project Team/Partners

Ron Moen, University of Minnesota Duluth. Canada lynx radiotelemetry project lead scientist.

Primary agency contacts who have reviewed this proposal, support the concept, and will work with me in its implementation:

Richard Baker, Endangered Species Coordinator, Minnesota Dept. of Natural Resources

Tony Sullins, Field Supervisor, U.S. Fish and Wildlife Service

Tamara Smith, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service

B. Timeline Requirements: July 2011 to June 2013.

C. Long-Term Strategy and Future Funding Needs

I have worked on the biological aspects of the lynx project for 7 years now, and I will continue to do so in the future. I will continue developing the economic and sociological applications described in the proposal because I think it is the best approach for Canada lynx and for Minnesota.

Each stakeholder has a vested interest in a positive outcome to the Canada lynx situation in Minnesota, and being a part of the process should lead to both compromises and a sense of ownership in the result.

I do not envision future funding needs for this proposed work— if we don't succeed with the funding support requested for this project more dollars will not help.

2011-2012 Detailed Project Budget

IV. TOTAL TRUST FUND REQUEST BUDGET 2 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel:	
PI (Moen) 5% effort; 67% S, 33% FB	\$ 9,381
Undergrad Student 15% AY, 50% summer; 91.8% S, 8.2% FB (summer only)	\$ 11,093
Temp Hire 45% effort; 90% S, 10% FB	\$ 42,342
Contracts:	
Other:	
Conference call services	\$ 1,000
Equipment/Tools/Supplies:	
	\$ 2,000
Travel:	
\$56/day per diem x 50 days for 25 overnights = \$2800+vehicle/mileage)	\$ 9,800
Additional Budget Items: N/A	
TOTAL ENVIRONMENT & NATURAL RESOURCES TRUST FUND \$ REQUEST	\$ 75,616

V. OTHER FUNDS

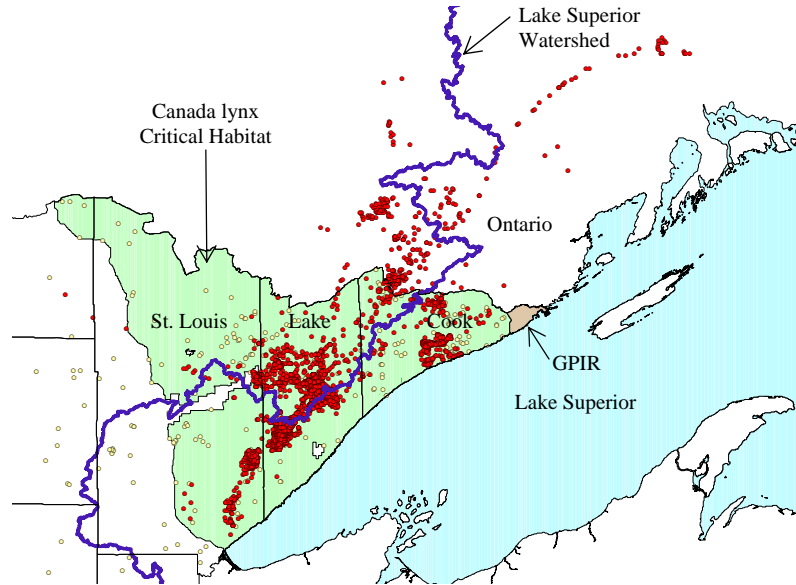
<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ Being Applied to Project During Project Period:		
Other State \$ Being Applied to Project During Project Period:		
In-kind Services During Project Period:		
Cooperation/Discussion with US FWS biologist -- Time TBD		
Cooperation/Discussion with MN DNR biologist -- Time TBD		
Remaining \$ from Current ENRTF Appropriation (if applicable):		
Funding History:		
	\$ -	
Notes on Match/Other Funds: Federal rules don't allow us to list federal dollar amounts in the columns to right. I have applied for additional funds specifically for this project under CDFA 66-469 - Great Lakes Program FWS-10-ES-GLRI (GLRI 2010, \$120,420). In the federal application even partial funding was requested to initiate this process.		
About \$800K in federal funds were used in the 7 year Canada lynx radiotelemetry project that made this proposed solution possible.		
	\$ -	

Helping the Canada Lynx Population in Minnesota Recover

Over 15,000 Lynx locations (dark symbols) between 2003 and 2009 from GPS and VHF radiotelemetry.

All lynx were collared in Minnesota. Lynx sightings reports (open symbols) are maintained by MN DNR. Some of these reports are verified, others are reported but are not verified.

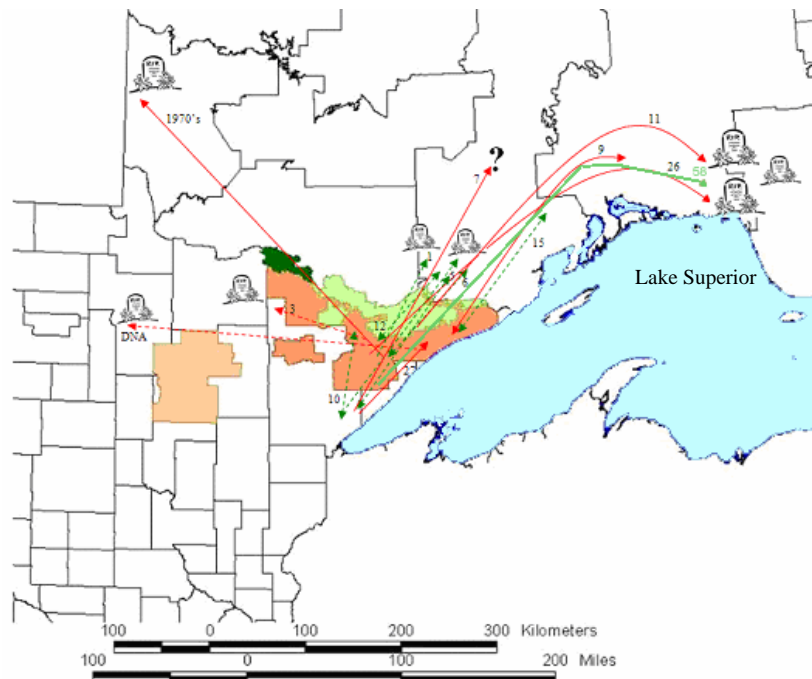
The pending federally-funded project is located within the Lake Superior Watershed, about half of lynx range in Minnesota.



Canada lynx L07 wearing a GPS radiocollar. L07 was first radiocollared in 2003. She gave birth to two litters of kittens in Minnesota (2004 and 2005). During much of the time she was radiocollared in Minnesota she wore a GPS collar and provided detailed movement and habitat use information.



Movements by radiocollared lynx into Ontario and returns to Minnesota. Movement paths are not exact but illustrate the distance moved by individual animals. Most movements have followed a SW-NE orientation. Movements have been made by both males and females.



2011-2012 LCCMR Project Manager Qualifications and Organization Description

Ronald A. Moen, Natural Resources Research Institute, University of Minnesota Duluth

Key Qualifications

Dr. Moen is a research associate at the Natural Resources Research Institute, non-tenure track assistant professor in the Department of Biology at the University of Minnesota Duluth, and holds appointments in the graduate programs of Integrated Biological Science (Duluth campus) and Conservation Biology (Twin Cities campus).

Education

University of Minnesota, Wildlife Conservation, Ph.D. 1995

University of Minnesota, Wildlife, M.S. 1988

Cornell University, Biological Sciences, B.S. 1984

Selected Grants

2010. Legislative-Citizen Commission on Minnesota Resources. R. Moen, M. Lenarz, M. Johnson. Identifying Critical Habitats for Moose in Northeastern Minnesota. \$507,000.

2009. U.S. Fish and Wildlife Service. S. Moore, A. Edwards, and R.A. Moen. Mooz (Moose) Habitat Use in a Changing Climate. \$199,999.

2009. U.S. Geological Survey. S. Windels, M.E. Nelson, R.A. Moen. Investigate Effects of Climate Change and Other Factors on Population Viability of Moose in Voyageurs National Park. \$307,700.

2008. National Park Service. R.A. Moen and S. Moore (Grand Portage Natural Resources and Grand Portage Indian Reservation). Beaver Populations in Grand Portage National Monument and the Grand Portage Indian Reservation \$18,985.

2008. MN DNR. R.A. Moen. Pine Marten and prey in NE Minnesota. \$20,000.

2004-2008. Over \$800,000 in grant funding from federal, state, and private sources for research project on Canada lynx in Minnesota. For full list of funders see www.nrri.umn.edu/lynx.

Selected Publications

Moen, R.A., J.R. Rasmussen, C.L. Burdett, K.M. Pelican. 2010. Hematology, serum chemistry, and body mass of free-ranging and captive Canada lynx in Minnesota. *Journal of Wildlife Diseases* 46:13-22.

Moen, R.A., C.L. Burdett, and G.J. Niemi. 2008. Movement and habitat use of Canada lynx during denning in Minnesota. *Journal of Wildlife Management* 72:1507-1513.

Moen, R. G.J. Niemi, and C. Burdett. 2008. Canada lynx in the Great Lakes region. Final report to USDA Forest Service and US Geological Survey and Minnesota Department of Natural Resources. NRRI Technical Report No. NRRI/TR-2008-14.

McCann, N.P., R.A. Moen, and G.J. Niemi. 2008. Using pellet counts to estimate snowshoe hare numbers in Minnesota. *Journal of Wildlife Management* 72:955-958.

Burdett, C.L., R.A. Moen, G.J. Niemi, and L.D. Mech. 2007. Defining Canada lynx space use and movements with GPS telemetry. *Journal of Mammalogy* 88:457-467.

Moen, R.A., J. Pastor, and Y. Cohen. 2001. Effect of animal movement on GPS telemetry locations. *Alces* 37:207-271.

Moen, R.A., J. Pastor, and Y. Cohen. 1997. Accuracy of GPS telemetry collar locations with differential correction. *Journal of Wildlife Management* 61:530-539.

Natural Resources Research Institute is a part of the University of Minnesota Duluth. NRRI's mission is to promote private sector employment based on natural resources in an environmentally sensitive manner. NRRI scientists have extensive experience in applied ecological research on terrestrial and aquatic systems.