

**Environment and Natural Resources Trust Fund
2014 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 005-A

Contaminants in Minnesotas Loons and Pelicans: Phase 2

Category: A. Foundational Natural Resource Data and Information

Total Project Budget: \$ 259,936

Proposed Project Time Period for the Funding Requested: 2 years, July 2014 - June 2016

Summary:

This project is designed to assess the potential impact of petroleum, dispersant, and heavy metal contaminants on Minnesotas common loons and white pelicans through radiotelemetry, geolocators, and contaminant analysis.

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Sponsoring Organization: MN DNR

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Location

Region: Statewide

County Name: Statewide

City / Township:

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



Environment and Natural Resources Trust Fund (ENRTF)

2014 Main Proposal

Project Title: *Contaminants in Minnesota's Loons and Pelicans: Phase 2*

I. PROJECT STATEMENT

In summer of 2010, subadult loons and white pelicans from Minnesota were exposed to crude oil and dispersants in the Gulf of Mexico due to the Deepwater Horizon oil spill. LCCMR funding in 2011 provided three years of field studies in which telemetry showed that loons were wintering in the area affected by the oil spill. Analysis of loon and pelican blood, tissue, egg, and bill knob samples revealed that those birds had picked up both oil and dispersant contaminants in the Gulf. This could cause long term sublethal impacts including reproductive failure, population declines, or reduced longevity in these long-lived species. This project will allow continued monitoring for pollutant levels and population trends for these two birds in FY '14 and '15.

II. DESCRIPTION OF PROJECT ACTIVITIES

TOTAL BUDGET: \$259,936

Activity 1: Migration patterns and wintering distribution of juvenile common loons.

Budget: \$ 138,936

Describe movements and wintering ground use of juvenile loons produced in Minnesota during their first two years of life, using satellite transmitter and geolocator tag technologies.

Outcome	Completion Date
1. Capture & outfit at least 15 juv. loons in 2014 with transmitters and geolocator tags	Sept 1, 2014
2. Monitor satellite data for loon movements and survival.	June 30, 2016
3. Recover geolocator tags via carcass recovery or recapture to download data	June 30, 2016
4. Produce final report	June 30, 2016

Activity 2. Analysis of adult loon feathers to determine presence and levels of PAHs and DOSS to verify exposure on wintering grounds

Budget: \$ 7,800

Analyze 26 loon feather samples for both PAH and DOSS contaminants to verify exposure to PAH and DOSS contaminants while on Gulf of Mexico wintering grounds.

Outcome	Completion Date
1. 26 Feather samples submitted to University of Connecticut for analyses @ \$300 ea	Sept 1, 2014
2. Samples analyzed by Univ. of Connecticut and results provided to USGS	Jan 1, 2015
3. Data analysis and incorporation into final report.	June 30, 2015

Activity 3. Determine levels of contaminants in loon blood samples

Budget: \$20,000

Determine extent of mercury/heavy metal exposure in Minnesota loons from 125 blood samples.

Outcome	Completion Date
1. Blood samples submitted to Frontier Global Sciences Inc. for analyses	Sept 1, 2014
2. Samples analyzed by Frontier Global Sciences Inc and results provided to USGS	Jan 1, 2015
3. Data analysis and incorporation into final report.	June 30, 2015

Activity 4. Determine statewide abundance and distribution of American White Pelicans in 2014 and estimate numbers of pelican fledglings at selected Minnesota colonies.

Budget: \$31,500

Obtain estimates of numbers of nesting pelicans in Minnesota at all active known colonies in 2014.

**Environment and Natural Resources Trust Fund (ENRTF)****2014 Main Proposal****Project Title:** *Contaminants in Minnesota's Loons and Pelicans: Phase 2*

Outcome	Completion Date
1. Estimate of nesting birds at all nesting colonies in Minnesota.	Nov 30, 2014
2. Analysis of statewide trends and determination of stable or declining numbers	Jan. 1, 2015
3. Determine of location and size of all active colonies.	Nov. 30, 2014
4. Estimate of young birds at specific colonies in Minnesota.	Nov. 30, 2014
5. Determine ratio of young birds to adults as an indicator nesting reproduction	Jan. 1, 2015

Activity 5. American White Pelican Egg Contamination Study**Budget:** \$31,000

We will collect 50 eggs from the American white pelican colony breeding at Marsh Lake in 2013 and 2014 to determine if petroleum contaminant concentrations are declining from 2011 levels.

Outcome	Completion Date
1. Collection of 50 pelican eggs and analysis of PAH and DOSS contamination levels.	Jan. 1, 2015

Activity 6. Analysis of loon tissues and blood from salvaged MN loons.**Budget:** \$10,000

Samples of blood and fatty tissues from dead loons salvaged from Minnesota lakes in 2014 and 2015 will be analyzed by the Univ. of Connecticut for analysis of PAH and DOSS contamination levels.

Outcome	Completion Date
1. Analysis of blood and tissues of 25 dead loons for PAH and DOSS, and final report	Jan. 1, 2015

Activity 7. White pelican satellite telemetry.**Budget:** \$20,700

Four white pelicans will be outfitted with solar-powered satellite radios to monitor summer and winter movements related to nesting season activities, foraging behavior, and wintering locations related to oil spill sites.

Outcome	Completion Date
1. Analysis of movement patterns related to nesting season activity.	Jun 30, 2015

III. PROJECT STRATEGY**A. Project Team/Partners**

This effort involves the DNR Nongame Wildlife Program (Division of Ecological and Water Resources), U of MN Dept of Ecology & Behavioral Biology, US Geological Survey, North Dakota State U Dept of Biology, AudubonMN, Frontier Global Sciences, and the Center for Environmental Sciences & Engineering at the U of Connecticut. All partners will receive funds for this project except DNR Nongame.

B. Timeline Requirements

This project includes two field seasons of activity-summertime of 2014 and 2015. This project will also include analysis of samples collected previously and archived until funding is available to carry out contaminant analysis.

C. Long-Term Strategy and Future Funding Needs

This project is part of a ten-year project to assess the long term impacts of the Deepwater Horizon oil spill on Minnesota's Common Loons and White Pelicans. The MN DNR received a \$250,000 LCCMR allocation in 2011 to initiate this study. Additional work is necessary to analyze possible long term population changes or declines.

2014 Detailed Project Budget

Project Title: Contaminants in Minnesota's Loons and Pelicans: Phase 2

IV. TOTAL ENRTF REQUEST BUDGET 2 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel: None.	
Contracts: USGS-Juvenile loon migration study, loon feather analysis, & blood analysis	\$79,400
Contracts: University of MN, Statewide pelican survey and fledgling survival estimate	31,500
Contracts: North Dakota State University, Pelican egg contamination study	31,000
Contracts: U of Conn, Loon tissue, feather, and blood analysis for PAH & DOSS	17,800
Contracts: Frontier Global sciences, loon heavy metal analysis	20,000
Contracts: Audubon Minnesota, Pelican satellite telemetry-pelican movements & migration	20,700
Professional Services: Direct & necessary services required to support this appropriation	4,936
Equipment/Tools/Supplies: 15 satellite transmitters (\$41,350) and 15 geolocators (\$13,350)	\$54,600
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 259,936

V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ Being Applied to Project During Project Period: USGS senior loon biologist salary match-\$10,000; AudubonMN salary match-\$10,000; U of MN salary match-\$17,000	\$37,000	<i>Secured</i>
In-kind Services During Project Period: Project Manager support from the Nongame Wildlife Program supervisor, 15% time for two years plus travel.	\$30,000	<i>Secured</i>
Remaining \$ from Current ENRTF Appropriation: To be spent in FY '14	\$71,600 FY 11	<i>Unspent</i>
Funding History: LCCMR allocation July 2011. Special Investigations: Species of Concern, Part A	\$ 250,000	<i>Underway</i>

COMMON LOON AND WHITE PELICAN RESEARCH SITES FY '14 – FY '15

Tamarac NWR
Tamarac Lake
Blackbird Lake
Loon Marsh



Lake Vermilion

Burntside Lake

Fox Lake

Big Mantrap Lake

Sagatagan and
Stump Lakes

Lake George

Marsh Lake

Pigeon Lake

KEY:

Loons-black type
Pelicans-red type



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Program Manager Qualifications

Project Manager: Carol Henderson
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Carol Henderson, a 40-year employee of the Minnesota Department of Natural Resources (MNDNR) has been supervisor of the MNDNR's Nongame Wildlife Program since 1977. The Nongame Wildlife Program is within the MNDNR Division of Ecological and Water Resources. He has a B.S. in zoology from Iowa State University (1968) and a Master of Forest Resources degree in ecology from the University of Georgia (1970). His graduate studies included coursework in forestry, wildlife management, ecology, journalism, feature writing, and public relations.

In 1977 he was hired to create and develop Minnesota's new Nongame Wildlife Program for the Department of Natural Resources. He has continued in that role to the present and has developed a comprehensive program for the development and protection of Minnesota's nongame and endangered wildlife species. During the past 37 years Henderson has developed a statewide program for the conservation of nongame wildlife that has received both national and international recognition. He has helped plan and carry out restoration of peregrine falcons, bald eagles, eastern bluebirds, river otters and trumpeter swans in Minnesota. In 2012 Henderson received the Gary T. Myers Bird Conservation Award from the North American Bird Conservation Initiative as the outstanding bird conservationist in North America.

From 1982 to 2011 Henderson provided the LCMR/LCCMR with 15 biennial workplans for the Nongame Wildlife Program and six-month updates for implementation of the Nongame Wildlife Program budget as specified within those workplans.

Henderson has also received several allocations from the LCMR/LCCMR for three major conservation initiatives All LCCMR projects were successfully completed within the allocated budgets and within stated timelines.

Minnesota Wildlife Tourism Initiative. \$250,000 for FY '98-'99.

Lakescaping for Wildlife and Water Quality Initiative, 5 allocations totaling \$1,068,100 from FY '98 through FY '11.

Digital Photography Bridge to Nature Initiative, \$160,000, FY '11-'12.

Organization Description: The Minnesota Department of Natural Resources (DNR)'s mission is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.