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

Project Title: **ENRTF ID:** **007-A**

Contaminants in Minnesotas Loons and Pelicans-Phase 3

Category: A. Foundational Natural Resource Data and Information

Total Project Budget: $ 141,000

Proposed Project Time Period for the Funding Requested: 2 years, July 2015 - June 2017

Summary:

This project will allow for continuing analysis of blood, feather, and tissue samples of loons for contaminants and for recapture of loons outfitted with geolocators to allow downloading of data.

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Location

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

Lakes are shown in northern Minnesota where most loon capture and research will be done.

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

I. PROJECT STATEMENT

The Deepwater Horizon oil spill of 2010 caused mortality among Minnesota-origin common loons and American white pelicans in the Gulf of Mexico. This project will continue to collect data that will help identify the possible impacts of petroleum (PAH) and dispersant (DOSS) contaminants in the Gulf on the long term health of loon populations. Those contaminants could create a continuing sub-lethal threat to Minnesota's loons and pelicans that could affect longevity, reproductive success, and behavior. Research initiated with ENRTF funding in 2011 has already revealed that loons and pelicans from Minnesota winter in areas of the Gulf contaminated by PAH and DOSS and that they are carrying those contaminants in their feathers, blood, eggs, and body tissues. Continuing research is needed to 1) complete the contamination analyses for loons, and to look for possible sublethal effects of this contamination, 2) monitor loons already equipped with satellite transmitters, and recapture loons outfitted with geolocators to retrieve accumulated data.

Phase 3 of this project will involve two components: 1) continue collecting loon feathers, blood, tissues, and eggs and analyze them to determine contamination levels and to correlate the presence of contaminants with nesting and fledging success of those loons to assess possible sublethal impacts; 2) Continue monitoring subadult loons equipped with satellite transmitters to identify migration corridors, survival, survival, and areas of the Gulf utilized by subadult loons; and recapture loons equipped with geolocators to retrieve migration and wintering data.

The data gathered by this project will be essential in the process of gathering information for the US Fish and Wildlife Service as they prepare their federal Natural Resource Damage Assessment and Restoration case against BP for damages and losses caused by the Deepwater Horizon oil spill to Minnesota's loons and pelicans.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Loon Contaminant Analysis and Reproductive Success Study **Budget: $ 67,000**

Loon feathers, blood, unhatched eggs, and tissue samples will be analyzed for PAH and DOSS contamination to assess if contamination levels are increasing or decreasing over time. Loonwatcher volunteers will observe nests of loons with color-banded leg bands from which samples were taken to gather data on whether or not there is a difference in egg hatchability or fledging success for loons with high or low levels of contamination.

Outcome	Completion Date
1. Analysis for PAH and DOSS for 222 samples of loon blood, feathers, eggs, and tissues.	June 30, 2017
2. Volunteer observation of 40 loon nests for outcome of eggs hatching and chicks fledging (no cost, NWP funding match)	June 30, 2017

Activity 2: Monitor subadult loons with transmitters and recapture loons with geolocators. **Budget: $ 74,000**

Subadult loons outfitted with satellite, transmitters by the USGS in 2014 will be monitored to follow their movements in the Gulf of Mexico until they return to MN in spring of 2017 to determine their survival, areas of use, and migration patterns. Loons outfitted with geolocators will be recaptured to retrieve the geolocators and download their movement and diving data.

Outcome	Completion Date
1. Acquire and process satellite telemetry location data for all actively-transmitting loons; post movement data on USGS Loon Migration website.	June 30, 2017
2. Recover geolocator tags from adult loons that avail themselves to capture (i.e., breeding with chicks) during summer 2015; collect and preserve blood and feather samples for eventual submission for contaminant analyses.	September 01, 2016
3. Process geolocator tag data to extract movement and foraging pattern data.	June 30, 2016
4. Recover geolocator tags and carcasses of radiomarked subadult loons when feasible (including loons that die during migration or on wintering areas).	June 30, 2016

III. PROJECT STRATEGY

A. Project Team/Partners : US Geological Survey will carry out the loon satellite monitoring and recapture activities and collect samples for tissue analysis analysis through a collaborative agreement with the MN DNR using ENRTF funds identified in Activity 2, University of Connecticut Center for Environmental Sciences will carry out contaminant analysis through a contract with the MN DNR utilizing funds identified in Activity 1, US Fish and Wildlife Service will collaborate relating to sharing of data for preparing the NRDAR federal court case, and DNR Nongame Wildlife Program will provide project management and matching funds for personnel carrying out project management activities and cover costs for supplemental data collection relating to the Minnesota Loon Monitoring Program and collection and necropsy expenses for dead loons and unhatched loon eggs which will be provided to UConn for analysis.

B. Project Impact and Long-term Strategy: The goal of this project is to assess the immediate and long term impacts that may affect Minnesota's population of loons and pelicans as a result of the DeepWater Horizon oil spill that occurred in 2010. The oil spill caused direct mortality for loons and pelicans in the Gulf of Mexico. It may also be causing long term sublethal effects that could reduce reproductive potential or longetivity for these long-lived birds. Collection and assessment of white pelican data will be completed under the terms of Phase 2 of this project. This Phasse 3 project is part of a 10-year long term strategy to quantify negative long term impacts on loons so that this information can be used by the US Fish and Wildlife Service in developing a federal court case that according to guidelines of the Natural Resources Damages and Restoration Act which will potentially result in award of damages from BP to the State of Minnesota over a 15 year period for restoration and management of loons and pelicans to the extent that they were affected by the oil spill. The Nongame Wildlife Program in the MN DNR will be providing supplemental funding for loon and pelican –related project management, data collection and analysis of data.

C. Timeline Requirements

Phase 3 will provide for a continuation of the collection and analysis of the hundreds of samples of loon feathers, blood, tissues, and unhatched eggs that are providing an in-depth look at the impacts of the Deepwater Horizon oil spill on Minnesota's loons. It also provides for a continuation of the monitoring of loons that are equipped with satellite transmitters and recovery of loons that have geolocator so that the data accumulated by those loons can be downloaded and analyzed. Once all of this data is collected and analyzed, it is anticipated that a final project phase will be submitted to synthesize all that has been learned from this study and to create a loon management/conservation position that would be subsequently be incorporated into the Nongame Wildlife Program.

2015 Detailed Project Budget

Project Title: Contaminants in Minnesota's Loons and Pelicans-Phase 3

IV. TOTAL ENRTF REQUEST BUDGET-2 years

BUDGET ITEM	AMOUNT
Personnel: N/A	$ -
Contracts: Contract with UConn for PAH and DOSS in loon samples-$67,000;	$67,000
Contracts: Collaborative agreement with US Geological Survey for continuing satellite monitoring of subadult loons and recapture of loons with geolocators-$74,000	$74,000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 141,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ Being Applied to Project During Project Period: USGS senior loon biologist salary match-$10,000	$10,000	*Secured*
In-kind Services During Project Period: Project Manager support from the Nongame Wildlife Program supervisor, 15% time for two years plus travel ($30,000) plus Nongame Endangered Species coordinator, 10% time plus travel ($15,000).	$45,000	*Secured*
Remaining $ from Current ENRTF Appropriation: To be spent in FY '14	$40,850	*Encumbered*
Funding History: LCCMR allocation July 2011. Special Investigations: Species of Concern, Part A. M.L. 2011, First Special Session, Chapter 2, Article 3, Section 2, Subd. 03p, "Species of Concern; Investigations - Part A: Minnesota Common Loons and American White Pelicans for $250,000 as approved on August 11, 2011.	$ 250,000	Underway

COMMON LOON RESEARCH SITES
LCCMR FY '16-17 FUNDING CYCLE-Phase 3.

Tamarac NWR
Tamarac Lake
Blackbird Lake
Loon Marsh

Lake Vermilion

Burntside Lake

Fox Lake

Big Mantrap Lake

Sagatagan and
Stump Lakes

Lake George

KEY:
Common loons-black type

Program Manager Qualifications

Project Manager: Carrol Henderson
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Carrol 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.

In addition to this LCCMR project investigating contaminants in Minnesota's Loons and Pelicans, Henderson has also received allocations from the LCMR/LCCMR for three major conservation initiatives including Lakescaping for Wildlife and Water Quality, Minnesota Wildlife Tourism Initiative, and Digital Photography Bridge to Nature. 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.