Environment and Natural Resources Trust Fund
2010 Request for Proposals (RFP)

LCCMR ID: 156-E2

Project Title:

Ecosystem Monitoring

LCCMR 2010 Funding Priority:

E. Natural Resource Conservation Planning and Implementation

Total Project Budget: $ $500,000

Proposed Project Time Period for the Funding Requested: 2 years, 2010 - 2012

Other Non-State Funds: $ N/A

Summary:

This project will design and implement comprehensive monitoring plans for two priority conservation landscapes in northeastern Minnesota and develop tools and frameworks to facilitate monitoring in other landscapes.

Name: Bob Leibfried

Sponsoring Organization: DNR

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Web Address:

Location:

Region: NE

County Name: Lake

City / Township:

_____ Knowledge Base _____ Broad App. _____ Innovation

_____ Leverage _____ Outcomes

_____ Partnerships _____ Urgency _____ TOTAL

MAIN PROPOSAL

PROJECT TITLE: Ecosystem Monitoring for Adaptive Management in Intact Forest Landscapes

I. PROJECT STATEMENT

As Minnesota landowners identify priority conservation landscapes and work to sustain and restore key habitats, species, and ecological services, there is vital need for comprehensive monitoring programs to evaluate progress, maximize learning, and adapt management to changing conditions. Existing monitoring programs lack the resources needed to fill this need, and monitoring efforts should target the highest priority landscapes and natural resources. Over the past 10 years, two collaborative management partnerships have formed around nationally recognized priority landscapes in Northeastern Minnesota—The Sand Lake-Seven Beavers and Manitou Landscapes (each about 100,000 acres in size). These landscapes are considered critical for conserving biodiversity and watershed values because they contain some of the highest quality and most unique terrestrial, aquatic and wetland ecosystems and associated native species within northeastern Minnesota ecoregions. The partnerships have provided large landowners a forum for making informed, coordinated management decisions in order to serve the public interest in the conservation of these landscapes, while integrating biodiversity, timber, and wildlife management. The two landscapes lie within the broader, boreal transitional biome—a region considered highly sensitive to emerging biotic and climatic changes. This sensitivity, along with uncertainty about the future, makes effective monitoring even more important than in the past.

A comprehensive monitoring program is needed for the partnerships to detect the type and magnitude of changes occurring and to integrate findings into adaptive planning and management efforts. Improved monitoring capacity is also needed to maintain forest certification for DNR and partners. This project will design and test a monitoring plan for these two priority conservation landscapes, while developing tools and frameworks to facilitate monitoring in other priority landscapes. In addition, the project will be designed so that results integrate with a University of Minnesota study that aims to inform management and land use choices by examining alternative future scenarios of ecological, climatic, and economic change in the larger boreal transitional biome.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Monitoring plan and protocols. **Budget:** $ 200,000

The project will design a monitoring plan that will clarify management goals and objectives in the landscapes, incorporating the local expertise of landowners and resource specialists involved in the partnerships. In addition, the project will draw on current regional monitoring and research in the boreal transitional forest biome. The plan will identify indicators for monitoring conditions within these high value forest landscapes, including forest structure and function, key wildlife habitats for species of greatest conservation need and game species such as moose and grouse, hydrologic processes, aquatic system function, and carbon cycling. Finally, the plan will identify specific benchmark values for measuring management and conservation success and triggering future adaptive management responses.

Deliverable	Completion Date
1. Prioritized monitoring goals and objectives.	10/2010
2. Monitoring protocols including indicator variables and sampling designs.	04/2011
3. Benchmarks or threshold values for adaptive management and restoration.	10/2011
4. Report and presentation of monitoring plan to collaboratives and others.	10/2011

Result 2: Implement monitoring protocols **Budget:** $ 200,000

Initiating field tests of monitoring protocols for these landscapes will provide essential baseline data needed to monitor the status and trends of key indicators of ecosystem function (Result 1 above) in high value forest landscapes. Sampling will also provide baseline data for evaluating adaptive management and conservation activities.

Deliverable	Completion Date
1. Field test of monitoring protocols.	12/2011
2. Data analysis and preliminary reports.	04/2012
3. Technical and executive summary reports, including recommended improvements in protocols.	06/2012

Result 3: Monitoring framework to be applied in other landscapes. Budget: $ 100,000

Based on the results of Results 1 and 2 above, the project will develop a monitoring framework and protocols that can be applied to other forested landscapes. The project will use existing forums for outreach and education (collaboratives, workshops, conferences) along with a new website to deliver the framework to other groups and landscapes.

Deliverable	Completion Date
1. Monitoring framework, design and protocols.	04/2012
2. Website to facilitate dissemination of framework, monitoring plan, and evaluation of protocols based on field tests.	12/2010

III. PROJECT STRATEGY

A. Project Team/Partners: An interdisciplinary team will implement this project. The Project Manager is Bob Leibfried, DNR Ecological Resources Regional Manager, Grand Rapids. Representatives of the DNR Divisions of Forestry, Fish & Wildlife and Ecological Resources along with external partners (Lake County, St. Louis County, The Nature Conservancy, Superior National Forest, and the Minnesota Forest Resources Council), will form the core advisory team for the project. Scientific and technical experts, trained in terrestrial and aquatic ecological systems monitoring will be contracted to advise on the development of the monitoring plan and to implement the project. Contact has been made with Peter Reich (University of Minnesota) and Meredith Cornett (The Nature Conservancy) to prepare this proposal and it is anticipated that their involvement will be solicited upon approval of this project. ***Primary Proposal Contacts****:* Bob Leibfried, Ann Pierce, D. Lawson Gerdes (Division of Ecological Resources), Jim Manolis (OMBS).

B. Timeline Requirements

The timeline for this project is estimated to be 24months.

	Jul – Dec 2010	Jan – Jun 2011	Jul – Dec 2011	Jan – Jun 2012
Result 1: Monitoring Plan	X	X		
Result 2: Implement Plan		X	X	X
Result 3: Monitoring Framework Outreach				X

C. Long-Term Strategy

Long-term monitoring of high value forest ecosystems will be essential to detect and respond to changes brought by changing climate, land use, and management. This project will provide a pilot for longer-term monitoring programs, and resources for long-term monitoring will need to be secured. Future projects proposed by the Minnesota County Biological Survey include establishing long-term change-detection monitoring of ecological conditions in priority sites of outstanding and high biodiversity significance throughout Minnesota. New federal resources, state appropriations, and public-private partnerships will likely need to be applied to long-term monitoring efforts.

Project Budget

Attach budget, in MS-EXCEL format, to your "2010 LCCMR Proposal Submit Form".

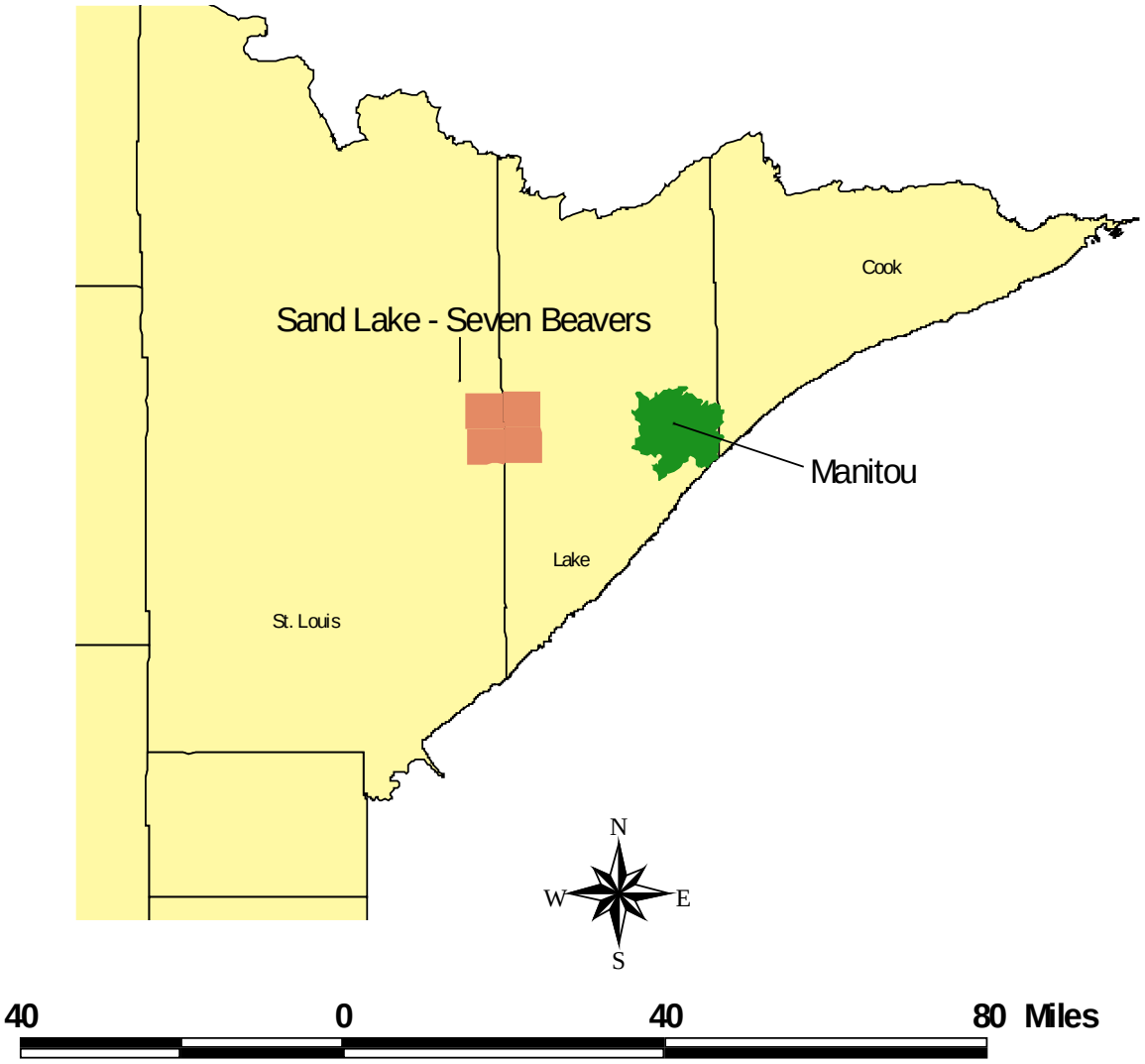
IV. TOTAL PROJECT REQUEST BUDGET (*[Insert # of years for project]* years)

BUDGET ITEM *(See list of Eligible & Non-Eligible Costs, p. 13)*	**AMOUNT**
Personnel:	$ -
1FTE- 2 year Project Coordinator; 80% salary:20% benefits	$ 200,000
Contracts:	$ -
Monitoring/Survey constract with existing vendor	$ 200,000
Monitoring protocal development; University of MN work plan under exitsting master contract or contract with existing vendor	$ 45,000
Equipment/Tools/Supplies:	$ -
Field survey equipment	$ 20,000
Phone	$ 1,000
Computer	$ 3,000
Acquisition (Fee Title or Permanent Easements):	NA
Travel:	$ -
in-state travel: technical expert meetings and field visits	$ 5,000
Out-state travel: regional interstate coordination	$ 1,000
Additional Budget Items: Website technical services and printing	$ 25,000
TOTAL PROJECT BUDGET REQUEST TO LCCMR	$ 500,000

V. OTHER FUNDS

SOURCE OF FUNDS	**AMOUNT**	**Status**
Other Non-State $ Being Applied to Project During Project Period:	NA	
Other State $ Being Applied to Project During Project Period:	NA	
In-kind Services During Project Period: 1800 hours (I.e. DNR and nonprofit staff) technical guidance over 2 years and staff supervision	$ 2,700	
Remaining $ from Current Trust Fund Appropriation (if applicable):	NA	
Funding History:	NA	

Location of Sand Lake-Seven Beavers and Manitou Landscapes in Minnesota



Bio for Bob Leibfried
1 May 2009

Bob was named the NE Regional Manager for Ecological Resources in 2007 and has been employed by the Minnesota DNR for 24 years. He began his career with the Division of Minerals on a project to determine hydrologic and water quality impacts to peat mining. His work as a hydrologist also included investigating the use of constructed wetlands to treat mine water discharge. In 1989 he joined the Division of Waters as the staff hydrologist for the NE Region focusing on administering Public Waters Rules. In 1998 Bob began a joint appointment between Waters and Minerals to focus on predicting hydrologic impacts of abandoned mine pits, using computer models to simulate future conditions.

Bob has a B.S. degree in Forest Science from the University of Minnesota and a M.S. degree in Forest Hydrology from Penn State University. His masters' thesis work was on acid precipitation, specifically, the chemical interactions between acid snowmelt and soils and the resultant impact on stream water chemistry.

Organization Description:

The Department of Natural Resources mission is to:

- *conserve and manage the state's natural resources;*
- *provide outdoor recreation opportunities; and*
- *provide for commercial uses of natural resources; in ways that create a sustainable quality of life.*