

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

---

**LCCMR ID: 011-A1**

**Project Title:** Increased Forest Monitoring to Address Escalating Stressors

---

**Category:** A1. Natural Resource Data and Information: Collection

---

**Total Project Budget:** \$ \$400,000

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

**Other Non-State Funds:** \$ 0

---

**Summary:**

This project will design and test an efficient and effective monitoring framework for three priority landscapes on state managed properties, while developing tools and frameworks to facilitate monitoring by others.

---

**Name:** Ann Pierce

**Sponsoring Organization:** DNR

**Address:** 500 Lafayette Rd  
Saint Paul MN 55155

**Telephone Number:** 651-259-5119

**Email** ann.pierce@state.mn.us

**Web Address** \_\_\_\_\_

---

**Location**

**Region:** Statewide

**Ecological Section:** 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 _____%

**PROJECT TITLE: Increased monitoring to better manage forest in the face of escalating stressors**

**I. PROJECT STATEMENT**

Minnesota’s forests are facing a multitude of threats including invasive species spread, fragmentation, and climate change. Addressing these issues through scientifically based management and a clear understanding of the impacts these pressures have on our forested systems is vital to sustaining an intact forested system that continues to provide services such as improved water quality, erosion and runoff control, and products into the future. Understanding how our forests are responding to our management and the changing environmental conditions will serve to help landowners and land managers sustain and restore key habitats, species, products, and other ecological benefits. Comprehensive long-term monitoring programs are vital components to evaluate progress, maximize learning, and adapt management to changing conditions. Existing monitoring programs are often expensive and impossible to sustain in the long-term or at a large scale. This project will design and test an efficient and effective monitoring framework for three priority conservation landscapes (Figure) on properties managed by the state, while developing tools and frameworks to facilitate monitoring in other priority landscapes and other land managers. Minnesota’s forested landscapes are considered critical for conserving biodiversity and watershed services such as maintaining water quality, erosion control, and runoff reduction and contain some of the highest quality and most unique terrestrial, aquatic and wetland ecosystems and associated native species in Minnesota. A comprehensive forest monitoring framework will serve to help inform and coordinate management decisions as we grapple with the escalating threats posed by invasive species and climate change in order to continue to serve the public interest in the conservation of these landscapes, while integrating biodiversity, timber, and wildlife management.

**II. DESCRIPTION OF PROJECT ACTIVITIES**

**Activity 1: Monitoring plan and procedures.** \_\_\_\_\_ *Budget:* \$ \_\_\_\$ 200,000 \_\_\_\_\_

The project will design a monitoring plan that will guide management goals, objectives, and activities in three pilot landscapes, incorporating the local expertise of landowners and resource specialists. In addition the project will draw on current monitoring and research efforts. The plan will identify indicators for monitoring conditions within these forest landscapes associated with key forest ecosystem benefits such as:

- 1. Forest structure and composition
  - a. Biodiversity
  - b. Wildlife habitat
  - c. Production potential
- 2. Hydrologic processes
  - a. Water quality
  - b. Erosion and runoff control
- 3. Nutrient cycling
  - a. Carbon cycling

Finally, the plan will identify specific benchmark values important and effective in measuring management and conservation success and triggering future adaptive management responses.

<b>Outcome</b>	<b>Completion Date</b>
1. Prioritized monitoring goals and objectives.	10/2011
2. Monitoring procedures including indicator variables and sampling designs.	04/2012
3. Benchmarks or threshold values for adaptive management and restoration.	10/2012
4. Report and presentation of monitoring plan.	10/2012

**Activity 2: Implement monitoring procedures.** \_\_\_\_\_ *Budget:* \$ \$ 150,000 \_\_\_\_\_

Initiating field tests of monitoring procedures for these landscapes will provide essential baseline data needed to monitor the status and trends of key indicators of ecosystem benefits (Activity1 above) in high value forest landscapes. Sampling will also provide baseline data for evaluating adaptive management and conservation activities.

Outcome	Completion Date
1. Field test of monitoring procedures.	12/2012
2. Data analysis and preliminary reports.	04/2013
3. Technical and executive summary reports, including recommended improvements in procedures.	06/2013

**Activity 3: Monitoring framework outreach and development for other landscapes and land managers.** \_\_\_ Budget: \$ 50,000

Based on the results of Activity 1 and 2 above, the project will develop a monitoring framework and procedures that can be applied to other forested landscapes and used by other land managers. The project will use existing forums for outreach and education (collaboratives, workshops, conferences, University Extension) along with a new website to deliver the framework and other tools such as long-term implementation of monitoring, planning for monitoring projects among other useful information to other land managers.

Outcome	Completion Date
1. Monitoring framework, design and procedures outreach at workshops, conferences and other venues designed for land managers.	04/2013
2. Website to facilitate dissemination of framework, monitoring plan, and evaluation of procedures based on field tests.	12/2011

**III. PROJECT STRATEGY**

**A. Project Team/Partners**

An interdisciplinary team will implement this project. The Project Manager is Ann Pierce, DNR Ecological Resources Conservation Management and Rare Resources Unit Supervisor. Partners include Rick Klevorn (Division of Forestry), Cynthia Osmundson (Division of Fish & Wildlife) and Ecological Resources will receive funding along with external partners represented on landscape collaborative providing technical advice and input (University of Minnesota, The Nature Conservancy, Superior National Forest, and the Minnesota Forest Resources Council. 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:** Ann Pierce, Daren Carlson (Division of Ecological Resources), Jim Manolis (OMBS).

**B. Timeline Requirements**

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

	Jul – Dec 2011	Jan – Jun 2012	Jul – Dec 2012	Jan – Jun 2013
Result 1: Monitoring Plan	X	X		
Result 2: Implement Plan		X	X	X
Result 3: Monitoring Framework Outreach				X

**C. Long-Term Strategy and Future Funding Needs**

Long-term monitoring of high value forest ecosystems and adaptive forest management projects 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.

## 2011-2012 Detailed Project Budget

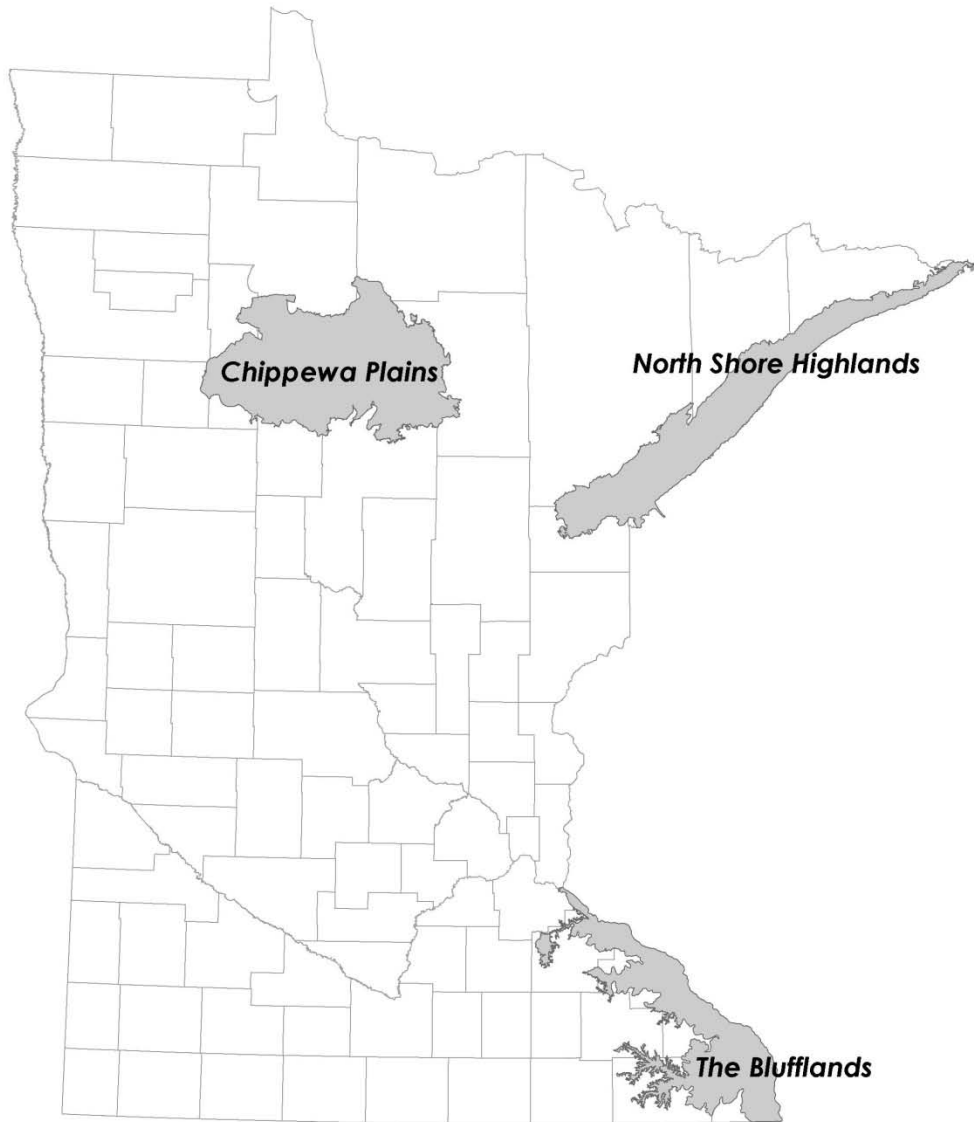
### IV. TOTAL PROJECT REQUEST BUDGET (2 years)

<b>BUDGET ITEM</b> <i>(See list of Eligible &amp; Non-Eligible Costs, p. 13)</i>	<b>AMOUNT</b>
<b>Personnel:</b>	\$ -
1FTE- 2 year Project Coordinator; 80% salary:20% benefits	\$ 200,000
<b>Contracts:</b>	\$ -
Monitoring/Survey construct with existing vendor	\$ 150,000
<b>Equipment/Tools/Supplies:</b>	\$ -
Field survey equipment (data loggers)	\$ 15,000
Phone	\$ 1,000
Computer	\$ 3,000
<b>Acquisition (Fee Title or Permanent Easements):</b>	NA
<b>Travel:</b>	\$ -
in-state travel: technical expert meetings and field visits	\$ 6,000
Out-state travel: regional interstate coordination	\$ 1,000
<b>Additional Budget Items:</b> Website and outreach development (technical services)	\$ 24,000
<b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>	<b>\$ 400,000</b>

### V. OTHER FUNDS

<b>SOURCE OF FUNDS</b>	<b>AMOUNT</b>	<b>Status</b>
<b>Other Non-State \$ Being Applied to Project During Project Period:</b>	NA	
<b>Other State \$ Being Applied to Project During Project Period:</b>	NA	
<b>In-kind Services During Project Period:</b> 1800 hours (I.e. DNR and nonprofit staff) technical guidance over 2 years and staff supervision	\$ 2,700	pending biennial budget
<b>DNR Shared Services</b>	\$ 12,061	pending biennial budget
<b>Remaining \$ from Current Trust Fund Appropriation (if applicable):</b>	NA	
<b>Funding History:</b>	NA	

## Priority Conservation Landscapes



**Ann Pierce, Ph.D., Supervisor Conservation Management and Rare Resources Unit:**

Ann has a Ph.D. from the University of Minnesota in Conservation Biology (Ecosystem Ecology emphasis) and a Masters of Science from the University of Wisconsin in Natural Resources (Forest Ecology emphasis). She has worked for the DNR for fifteen years. Ann began her career in SE Minnesota as the Blufflands Coordinator working with local units of government to maintain and enhance the natural resources of the area. She continued this work focused on areas of high biodiversity significance in the blufflands landscape as Regional Plant Ecologist. Ann is currently heading the Conservation Management and Rare Resources Unit in the Ecological Resources Division of the DNR. In this role Ann directs the development of plans, strategies, policies, and procedures that effectively and consistently provide statewide direction for implementing programs. She also provides technical assistance and represents the conservation management unit's interest within the division of Ecological Resources and other departmental divisions to help guide resource conservation efforts. Ann also coordinates the unit's work activities with external partners and promotes partnership opportunities in order to achieve conservation objectives through integrated, coordinated, and cooperative ventures.

The Department of Natural Resources overall 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.