

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

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**LCCMR ID: 136-F1+2+5**

**Project Title:** Building Species and Habitat Resilience to Climate Change

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**Category:** F1+2+5. Climate Change and Air Quality

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**Total Project Budget:** \$ \$370,000

**Proposed Project Time Period for the Funding Requested:** 3 yrs, July 2011 - June 2014

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

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**Summary:**

This project will develop "resilience clinics," "climate proofing" planning exercises, and webinars to help natural resource managers develop resilient management strategies for a range of possible future climate scenarios.

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**Sponsoring Organization:** DNR

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**Location**

**Region:** Statewide

**Ecological Section:** Statewide

**County Name:** Statewide

**City / Township:**

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<input type="checkbox"/> Funding Priorities	<input type="checkbox"/> Multiple Benefits	<input type="checkbox"/> Outcomes	<input type="checkbox"/> Knowledge Base
<input type="checkbox"/> Extent of Impact	<input type="checkbox"/> Innovation	<input type="checkbox"/> Scientific/Tech Basis	<input type="checkbox"/> Urgency
<input type="checkbox"/> Capacity Readiness	<input type="checkbox"/> Leverage	<input type="checkbox"/> Employment	<input type="checkbox"/> TOTAL <input type="checkbox"/> %

# 2011-2012 MAIN PROPOSAL

**PROJECT TITLE:** Building Species and Habitat Resilience to Climate Change

## I. PROJECT STATEMENT

**Why:** Unprecedented changes have the potential to rapidly impact and diminish wildlife habitats, species populations, and natural resources in Minnesota. These changes include habitat loss, fragmentation, invasive species spread, and climate change. As the most recent challenge, climate change is the least understood but potentially the most pervasive change facing Minnesota resources. Climate change is already impacting Minnesota's wildlife and habitats. For example, a dramatic Moose population decline in northwestern Minnesota was attributed to heat stress brought by a warming climate. Warming waters have caused fishkills and population declines of a coldwater fish called Tullibee, an important forage species for gamefish. Lake ice-out dates have retreated earlier by 5-7 days since 1950, and the record-breaking early ice-out dates of 2010 only reinforce this trend. Future projections suggest that climate change will continue and impacts will likely increase in severity, profoundly challenging wildlife managers, foresters, ecologists, and recreation managers as they seek to sustain Minnesota's natural resources and quality of life.

Several factors exacerbate these challenges. First, there is high uncertainty in the type, magnitude, and location of change. Second, synergistic effects among landscape change, invasives, and climate changes are highly likely but are poorly understood. Optimal solutions will maintain or increase the resilience of species, habitats, and ecosystems to a wide range of potential changes. While numerous resilience strategies exist, many natural resource managers feel paralyzed by the combined effect of high uncertainty and the flood of information on climate change and related challenges.

**Goal:** This project seeks to enable natural resource managers to “get ahead of the curve” and develop management plans with robust and resilient strategies that will sustain valued resources through a range of uncertain but possible future climate scenarios.

**How:** To meet this goal, the project will develop a series of training webinars, “resilience clinics,” and “climate-proofing” planning exercises. The project will help DNR and partners learn how to implement a climate change response framework that integrates assessment, planning, management, and monitoring activities (Fig. 1). The webinars, clinics and planning exercises will develop knowledge and planning skills necessary to reach the endgame of the framework: implementing effective management responses to climate change (mitigation and adaptation strategies<sup>1</sup>). The project content will draw on assessments of climate vulnerability including DNR's proposed “Climate Vulnerability Assessment for Minnesota Habitats and Species” LCCMR project. In addition, the project will build on the work of DNR's recently established Climate and Renewable Energy Steering Team, and successful “Climate Clinics” conducted by the Nature Conservancy in 2009-10.

### **Activity 1: Training Webinars and “Resilience Clinics”**

**Budget:** \$ 220,000

**Webinars.**—*Targeting a general audience of 300 natural resource managers from a variety of organizations (foresters, wildlife managers, ecologists, recreationists, planners), DNR and partners will develop a series of Minnesota-specific training webinars that will provide up-to-date climate assessment information, projections of future scenarios and associated uncertainties, and management approaches that minimize negative impacts of climate changes to Minnesota's natural resources. Webinar technology provides an economical approach to reaching a potentially unlimited audience (webinar recordings will be available on a DNR website).*

<sup>1</sup> *Adaptation* strategies help natural and human systems prepare for or adjust to unavoidable climate change (e.g., maintaining or restoring habitat corridors, planting a diversity of tree species). *Mitigation* strategies reduce or sequester greenhouse gas emissions (e.g., increasing forest cover to sequester carbon).

**Resilience Clinics.**--For a smaller group of natural resource managers (50-75), DNR and partners will develop more focused and intensive “Resilience Clinics” drawing on the successful “Climate Clinic” approach developed by the Nature Conservancy. These clinics will focus on 10 specific existing conservation projects in different habitats and landscapes throughout Minnesota. Participants will complete “homework” assignments focused on understanding climate vulnerability and developing resilience strategies for their projects. Following each assignment, participants will engage in interactive web-conferences, and will attend a capstone face-to-face workshop at the end of the series to synthesize findings and get feedback from peers and scientists.

<b>Outcome</b>	<b>Completion Date</b>
1. Webinar and resilience clinic design document	Dec. 2011
2. Case studies to use in webinars and clinics	June 2012
3. Completed Webinars and Clinics	June 2013
3. Clinic Reports & Evaluations	Sept. 2013

**Activity 2: “Climate-proofing” Landscape and Habitat Management Plans**

**Budget:** \$ 150,000

To effectively address climate change, natural resource managers must integrate vulnerability assessment information and resilience strategies into strategic and operational management planning at relevant geographic scales. This activity will prototype a process for “climate-proofing” management plans in 4-5 pilot landscapes, including forests, wetlands, grasslands, and aquatic/watershed systems, engaging a selected set of managers (up to 30) that participated in the webinars and climate clinics. Two of the pilots will focus on DNR administered lands (e.g., State Parks or Wildlife Management Areas), and the others will focus on multi-ownership landscapes. Workshops will engage managers, scientists, and policy-makers.

<b>Outcome</b>	<b>Completion Date</b>
1. Workshops prototyping planning process	Jan. 2012-Oct. 2013
2. Completed plan amendments	Jun. 2014
3. Report on lessons learned, recommendations for broader-scale implementation of climate change planning at strategic and operational levels	Jun. 2014

**III. PROJECT STRATEGY**

**A. Project Team/Partners**

This project will be managed by Jim Manolis, Ph.D., of the Policy, Research, and Planning unit in DNR’s Office of Management and Budget Services. The project will partner with numerous other organizations including DNR Divisions, DNR climate adaptation and carbon sequestration teams, the US Forest Service, the Minnesota Forest Resources Council (Clarence Turner), The Nature Conservancy (Meredith Cornett, Mark White), and the University of Minnesota (Peter Reich, Lucinda Johnson, others). Partners will play an advisory role and will not receive funding unless a very specific contracting role is identified. Nature Conservancy staff from other states may serve as contractors.

**B. Timeline Requirements**

The timeline for this project will be 36 months.

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

Building capacity for effective climate change adaptation and mitigation will be a long-term effort. This project will lay a foundation for such long-term change, and will help integrate knowledge gained from several other funded and proposed projects. DNR and partner organizations will need to utilize a variety of funding sources to build such long-term capacity over time. We expect to submit future LCCMR proposals to fund adaptive management and monitoring projects that arise out of the climate clinics and climate-proofing planning effort.

## 2011-2012 Detailed Project Budget

### INSTRUCTIONS AND TEMPLATE (1 PAGE LIMIT)

*Attach budget, in MS-EXCEL format, to your "2011-2012 LCCMR Proposal Submit Form".*

*(1-page limit, single-sided, 10 pt. font minimum. Retain bold text and DELETE all instructions typed in italics. ADD OR DELETE ROWS AS NECESSARY. If a category is not applicable write "N/A", leave it blank, or delete the row.)*

#### IV. TOTAL TRUST FUND REQUEST BUDGET [Insert # of years for project] years

<b>BUDGET ITEM</b> (See list of Eligible & Non-Eligible Costs, p. 13)	<b>AMOUNT</b>
<b>Personnel:</b> Project Coordinator/Climate Change Scientist; 1FTE for 3 years; 70% Salary, 30% benefits.	\$ 240,000
<b>Contracts:</b> Contract(s) to conduct webinars and climate clinics. Nature Conservancy is a possible contractor but others will be considered.	\$ 124,000
<b>Equipment/Tools/Supplies:</b> Printing final reports.	\$ 3,000
<b>Acquisition (Fee Title or Permanent Easements):</b> None.	\$ -
<b>Travel:</b> Travel for project coordinator to attend design meetings and clinics.	\$ 3,000
<b>Additional Budget Items:</b> None	\$ -
<b>TOTAL ENVIRONMENT &amp; NATURAL RESOURCES TRUST FUND \$ REQUEST</b>	<b>\$ 370,000</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> None	\$ -	
<b>Other State \$ Being Applied to Project During Project Period:</b> DNR Shared Services charges	\$14,940	Pending but approved
<b>Other State \$ Being Applied to Project During Project Period:</b> Office rental, computer, and other required support expenses	\$24,000	Pending but approved
<b>In-kind Services During Project Period:</b> Project management services including supervision of project coordinator, oversight of project contracts, and voluntary services provided by project advisory team.	\$175,000	Secured
<b>Remaining \$ from Current ENRTF Appropriation (if applicable):</b> None.	\$ -	
<b>Funding History:</b> None	\$ -	

Figure 1. DNR’s climate change response framework for integrating assessment, planning, management, and monitoring.

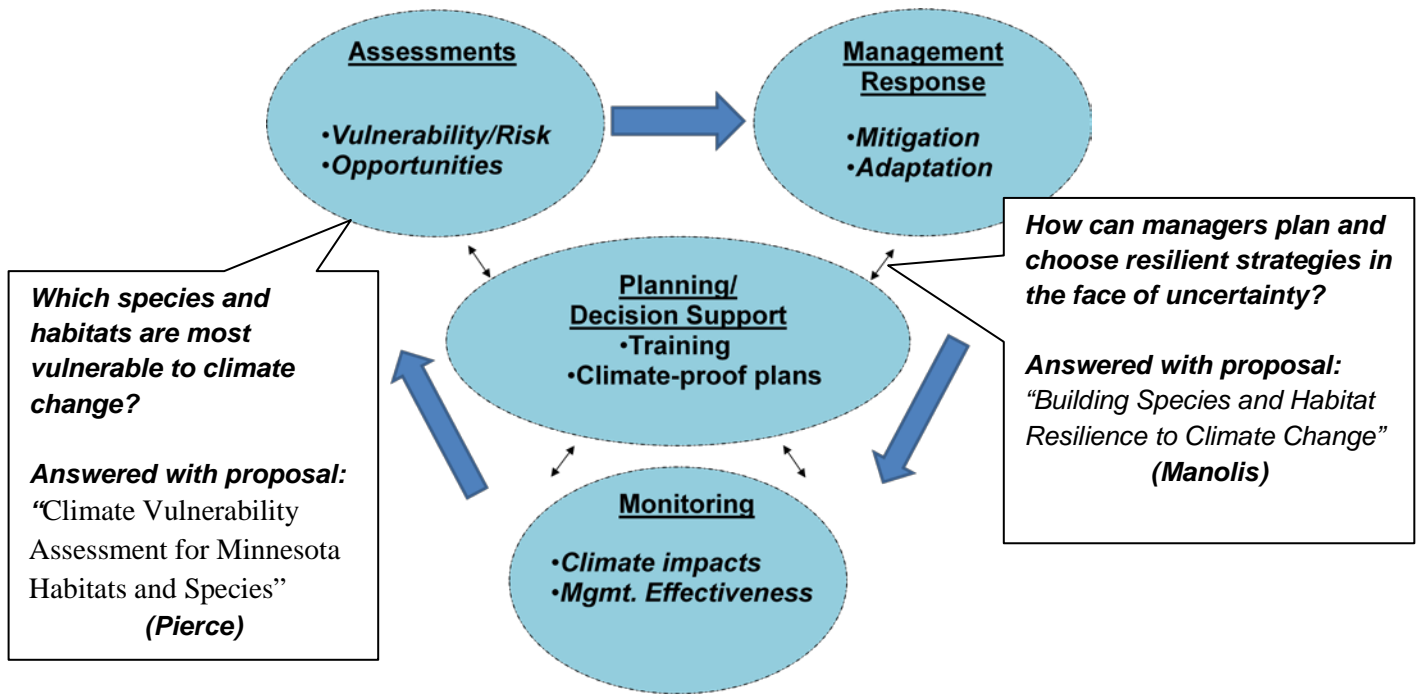
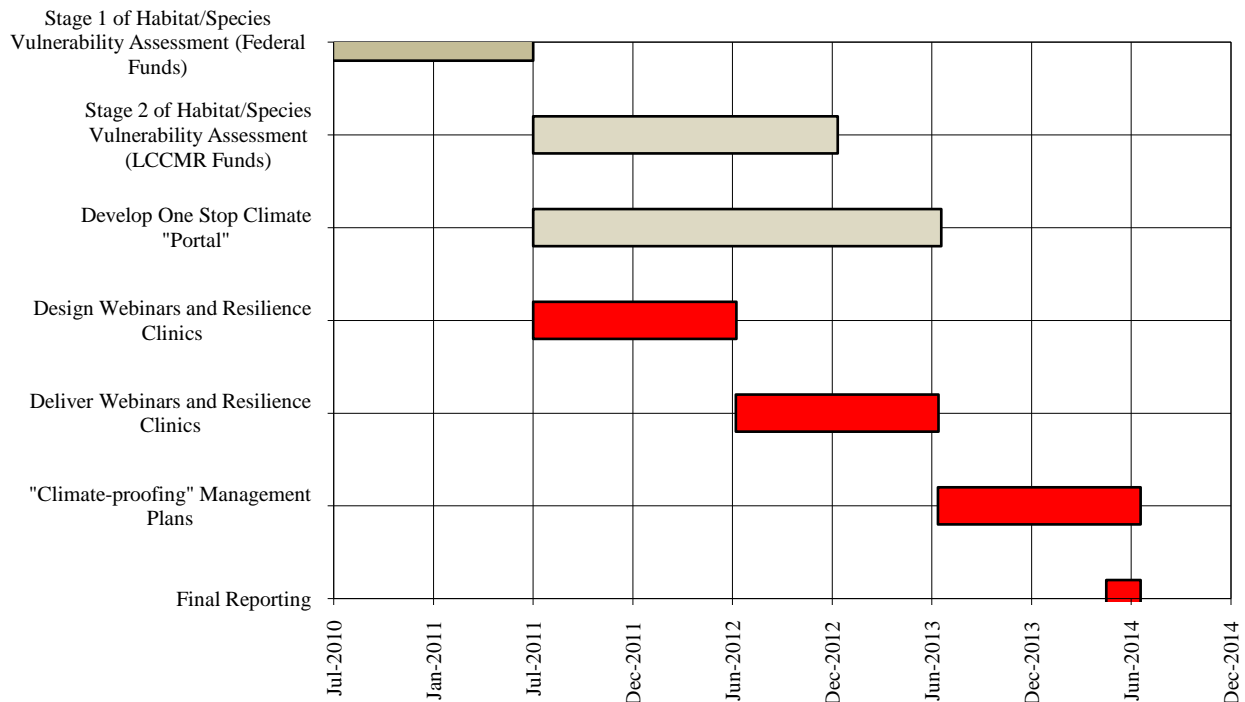


Figure 2. Timeline showing elements two DNR proposals: “Climate Vulnerability Assessment for Minnesota Habitats and Species” (light bars) and “Building Species and Habitat Resilience to Climate Change” (dark bars).



## **Project Manager Qualifications and Organization Description**

**Project Manager:** Jim Manolis is a Science Policy Consultant with the Minnesota Department of Natural Resources Policy, Planning and Research Section, Office of Management and Budget Services. Over the past 15 years at DNR he has focused on integrated resource management and linking science with natural resource policy and management. He is currently team leader for DNR's Climate and Renewable Energy Steering team. Past responsibilities focused on integrating biodiversity and forest management, implementing forest certification standards, implementing DNR's old-growth forest policy, managing a multi-stakeholder assessment of forest spatial patterns for the Minnesota Forest Resources Council, and strategic natural resource planning. Jim was a David H. Smith Conservation Research Fellow from 2003-2005 <http://www.conbio.org/SmithFellows>, where he focused on landscape modeling in the 100,000-acre Manitou landscape in northeastern Minnesota. His research assisted an ongoing partnership of major landowners working to integrate biodiversity and forest management in the landscape. He continues to participate in this work as chair of the collaborative <http://manitoucollab.googlepages.com/home>. Jim has Ph.D. and M.S. degrees in Conservation Biology from the University of Minnesota (1999, 1996).

**Organizational Description:** The Minnesota Department of Natural Resources works with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and provide for commercial uses of natural resources in a way that creates a sustainable quality of life. This mission requires sharing stewardship with citizens and partners, working together to address often-competing interests.