

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

LCCMR ID: 153-E2

Project Title:

Climate Change Adaptation Plans for Minnesotas Natural Resources

LCCMR 2010 Funding Priority:

E. Natural Resource Conservation Planning and Implementation

Total Project Budget: \$ \$635,000

Proposed Project Time Period for the Funding Requested: 3 years, 2010 - 2013

Other Non-State Funds: \$ \$0

Summary:

This project will develop climate change adaptation plans for DNR and multi-owner landscapes, integrating existing and emerging knowledge, mitigation and adaptation actions, and effectiveness monitoring of these actions.

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Sponsoring Organization: DNR

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Location:

Region: Statewide

County Name: Statewide

City / Township:

_____ Knowledge Base	_____ Broad App.	_____ Innovation
_____ Leverage	_____ Outcomes	
_____ Partnerships	_____ Urgency	_____ TOTAL

MAIN PROPOSAL

PROJECT TITLE: Climate Change Adaptation Plans for Minnesota's Natural Resources

I. PROJECT STATEMENT

Climate change is projected to impact the health and productivity of Minnesota's lands and waters and the animals and plants that depend on them, and exacerbate detrimental effects of habitat loss and invasive species. Climate change also threatens to diminish the services natural lands provide us—from clean water and forest products to outdoor recreation. The 2008 "*Minnesota Statewide Conservation and Preservation Plan*" calls for reducing the impact of climate change on natural resources, and efforts to reduce greenhouse gas emissions and adapt to changing conditions are proliferating. However, natural resource managers and decision makers lack a comprehensive framework for integrating climate change assessment results into planning and management guidelines for Minnesota lands and waters at statewide, regional, and local scales.

The Department of Natural Resources seeks to implement and test an adaptive climate change response framework. This framework will integrate existing and emerging research and assessment results, mitigation and adaptation actions, and effectiveness monitoring of these actions (Fig. 1). Key aspects of this work include interdisciplinary and multi-agency collaboration and communication. The project will serve as a catalyst for regional collaboration among federal, state, and private entities in effective management planning in the face of climate change.

Two positions will coordinate efforts to 1) conduct a rapid assessment of status needs for climate change adaptation and mitigation efforts, 2) develop an integrative climate change response framework and adaptation plan for DNR, and 3) implement the planning framework in several pilot landscapes and test a process for modifying management plans to effectively incorporate climate adaptation and mitigation components.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Rapid Assessment of Status and Needs

Budget: \$ 70,000

DNR will convene internal and multi-organizational teams to assess and summarize the status of agency adaptive capacity, evaluate social aspects of climate change impacts, identify barriers to adaptation and mitigation activities, and prioritize goals for adaptation and mitigation planning. This effort will draw heavily on existing ad-hoc or formal initiatives engaged in these topics (e.g., interagency and U of MN climate adaptation forums and projects).

Deliverable

1. Inter-organizational planning workshop, status and needs assessment
2. Evaluation of social impacts of climate change on natural resources/recreation
2. Interactive website for maintaining project communications and results
3. Status and needs assessment final report

Completion Date

Sept. 2010
Jun. 2011
Dec. 2010
Dec. 2010

Result 2: Climate Change Response Framework and DNR Adaptation Plan **Budget:** \$ 280,000

The project will develop an integrative climate change response framework including assessment, mitigation, adaptation, and monitoring. Project components will summarize the best available science on potential climate change impacts on Minnesota natural resources, conduct opportunity analyses on the highest-leverage adaptation and natural resource-based mitigation activities, draw on vulnerability and connectivity analyses developed by other projects, and identify priorities for additional vulnerability

assessments and monitoring. A DNR climate change response plan will recommend operational orders, policies, and guidelines for developing more specific Division and unit plans.

Deliverable	Completion Date
1. Draft Adaptation-Mitigation Framework	Sept. 2010
2. Brief summary of best available science on potential climate change impacts in Minnesota	Mar. 2011
3. Opportunity Analysis—Adaptation: identify key opportunities for improving adaptation capacity in Minnesota	Sept. 2011
4. Opportunity Analysis—Mitigation: estimate potential for increases in carbon sequestration through quantitative modeling	Sept. 2011
5. Recommendations for vulnerability assessments and monitoring activities	Oct. 2011
6. DNR climate adaptation plan including recommendations for new DNR policies, operational orders, and strategies to address adaptation and mitigation needs	Dec. 2011

Result 3: Piloting Adaptive Landscape Plans

Budget: \$ 285,000

To be effective, the planning framework described above must be readily applicable to strategic and operational management planning at relevant geographic scales. This result will implement the framework in several pilot landscapes and test a process for modifying management plans to incorporate climate adaptation and mitigation components. Workshops involving scientists and managers will prototype a plan revision process for forest, wetland, grassland, and aquatic/watershed system plans. Two of these plans will be selected for a more detailed examination resulting in comprehensive recommendations for incorporating climate adaptation and mitigation components.

Deliverable	Completion Date
1. Workshops prototyping plan revision process	Jan. 2012-Oct. 2013
2. Detailed recommendations for revising two landscape plans	Jun. 2013
3. Report on lessons learned, recommendations for broader-scale implementation of climate change planning at strategic and operational levels	Jun. 2013

III. PROJECT STRATEGY

A. Project Team/Partners

This project will be managed by Jim Manolis, Ph.D., Andy Holdsworth, Ph.D., and Keith Wendt 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, the US Forest Service (Mary Shedd), the Minnesota Forest Resources Council (Clarence Turner), The Nature Conservancy (Meredith Cornett, Mark White), and the University of Minnesota (Peter Reich, Lucinda Johnson, others).

B. Timeline Requirements

The timeline for this project will be 36 months.

C. Long-Term Strategy

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.

Project Budget

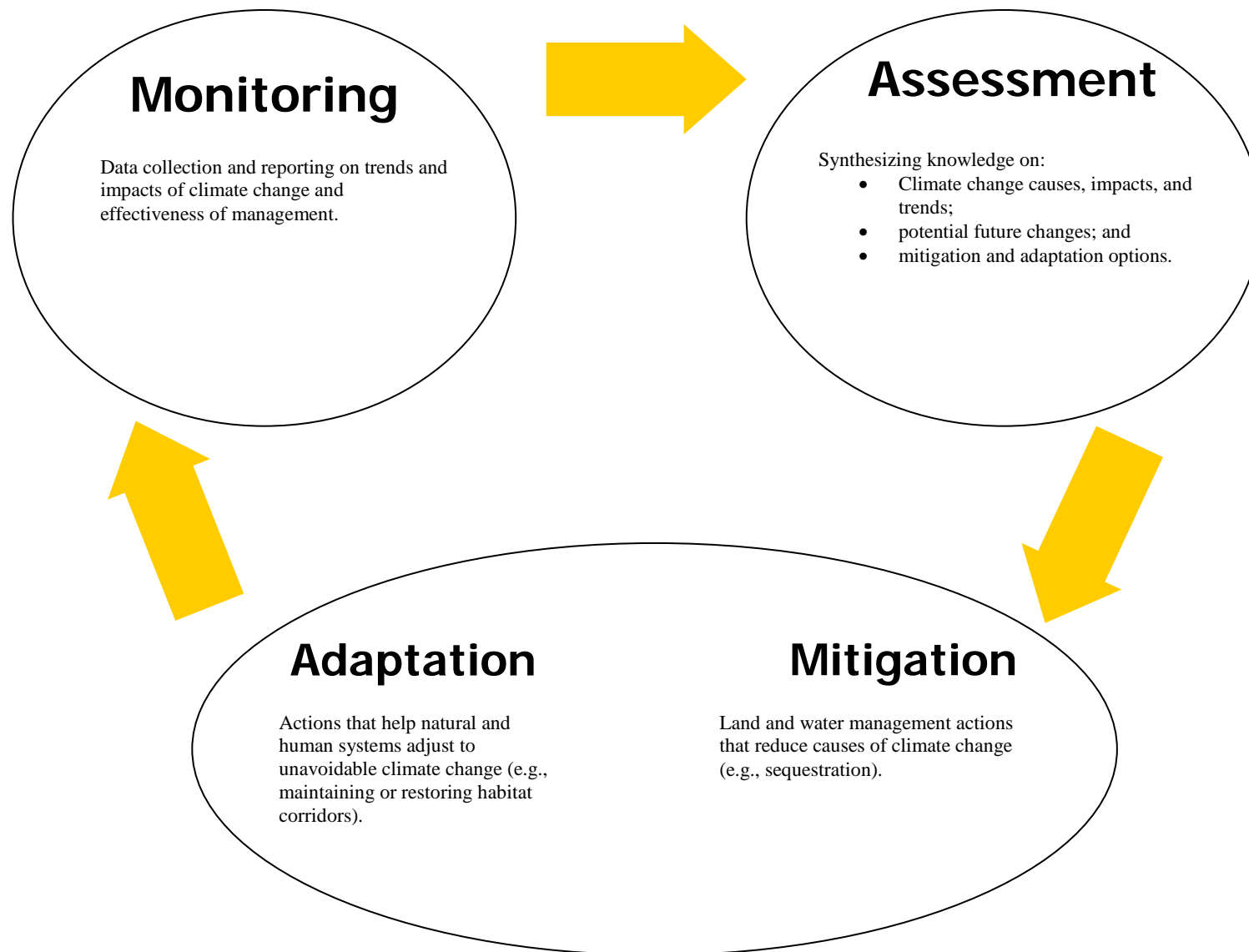
IV. TOTAL PROJECT REQUEST BUDGET (3years)

BUDGET ITEM	AMOUNT
Personnel:	
Project Coordinator and Project Scientist (2 FTE), including salary and fringe	\$ 480,000
Contracts:	
Carbon Sequestration Opportunity Analysis (quantitative modeling exercise)	\$ 50,000
Summary of potential climate impacts on natural resources	\$ 20,000
Visiting scientists for workshops	\$ 20,000
Social Impact analysis	\$ 30,000
Project website development/maintenance	\$ 15,000
Equipment/Tools/Supplies:	
Computer, office, phone expenses	\$ 5,000
Printing/copying	\$ 5,000
	\$ -
Travel:	
In state	\$ 5,000
Out state	\$ 5,000
TOTAL PROJECT BUDGET REQUEST TO LCCMR	\$ 635,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
In-kind Services During Project Period: Project management services including supervision of project coordinator, oversight of project contracts, and voluntary services provided by project task force members.	\$ 150,000	
Funding History: <i>No Previous funding History</i>	\$ -	

Fig. 1. An Adaptive Framework for Managing Land and Water in the Face of Climate Change



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 14 years he has focused on integrated resource management and linking science with natural resource policy and management. He currently leads projects that focus on integrating biodiversity and forest management, implementing forest certification standards, and advising DNR leaders on carbon science and policy. 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>. Previous positions involved 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 has Ph.D. and M.S. degrees in Conservation Biology from the University of Minnesota (1999, 1996).

Lead Team Member: Andrew Holdsworth is Science Policy Coordinator in the Policy, Research, and Planning Section within DNR's Office of Management and Budget Services. Andrew Holdsworth works to advance conservation planning, performance measurement, and integrated resource management at DNR. He received a PhD in Conservation Biology from the University of Minnesota where he was advised by Peter Reich and Lee Frelich. His research expertise is in forest ecology, invasive species, fire ecology, sustainable forest management, and natural resource assessment. Prior to his graduate and agency work in Minnesota, he conducted cross-border biodiversity, water resource, and climate change vulnerability assessments in the southwestern U.S. and forest fire management research in the Brazilian Amazon.

Lead Team Member: Keith Wendt has been with the Minnesota Department of Natural Resources since 1981. He now manages the Policy, Research, and Planning Section within DNR's Office of Management and Budget Services. Wendt's team of resource scientists and policy planners work to advance integrated resource management, conservation performance measurement, research, and strategic planning. He has been building integrated policy frameworks to address complex forest issues for over a decade. Wendt previously served as DNR Plant Ecologist and Research Supervisor for the Natural Heritage Program. Prior to DNR, Wendt was an academic staff member at the University of Wisconsin Arboretum, where he co-founded the journal "Restoration and Management Notes" - a journal of the Society for Ecological Restoration. He did MS degree work in Vegetation Ecology and Environmental Planning at the University of Wisconsin, Madison.

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.