Environment and Natural Resources Trust Fund
2014 Request for Proposals (RFP)

Project Title: **ENRTF ID:** **119-E**

Building Habitat and Watershed Resilience to Climate Change

Category: E. Air Quality, Climate Change, and Renewable Energy

Total Project Budget: $ 510,000

Proposed Project Time Period for the Funding Requested: 3 Years, July 2014 - June 2017

Summary:

This project applies state-of-the-art “resilience clinics" and "climate-smart" management frameworks to guide resource professionals in their work to steward risk-prone habitats and watersheds through a range of future climate scenarios.

Name: Jim Manolis

Sponsoring Organization: MN DNR

Address: 500 Lafayette Rd, Box 10
St. Paul, MN 55155

Telephone Number: (651) 259-5546

Email jim.manolis@state.mn.us

Web Address http://www.dnr.state.mn.us/index.html

Location

Region: 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 _____%

I. PROJECT STATEMENT

Why: Unprecedented and interacting changes—from climate change to habitat loss, fragmentation, and invasive species—have the potential to rapidly impact and diminish wildlife habitats, species populations, and natural resources. Climate change is the least understood but potentially the most pervasive change facing Minnesota resources; there are strong signs that it is already impacting wildlife and habitats. For example, Aspen, Minnesota's most common tree, has declined in response to recent droughts and insect outbreaks in northeastern Minnesota. Warming waters have caused fishkills and population declines of a coldwater fish called Cisco, an important forage species for gamefish. Extreme weather events are on the rise, with the record floods and droughts of 2012 as poignant examples. According to future projections, climate change will continue to accelerate. We must prepare for a future in which our natural resources are more risk-prone due to climate shifts.

Several factors exacerbate these challenges. First, there is uncertainty in the type, magnitude, and location of change. Second, synergistic effects among landscape change, invasives, and climate changes are highly likely but are not completely understood. While numerous resilience[1] strategies exist, many natural resource managers feel paralyzed by the combined effect of uncertainty and the growing flood of information on climate change.

Goals: This project has two goals that will address the 2014 Funding Priority E: "Air Quality, Climate Change, and Renewable Energy." First, the project seeks to enable natural resource managers to develop robust and resilient strategies to sustain valued resources through a range of possible future climate scenarios. Second, the project will pilot state-of-the-art conservation planning tools to prioritize habitat acquisitions in the face of climate change.

How: To meet these goals, the project will develop a series of "resilience clinics" and "climate-smart" planning exercises. DNR and partners will learn how to implement a "climate change response framework" that integrates assessment, planning, management, and monitoring activities (Fig. 1). Participants will develop knowledge and planning skills necessary to reach the endgame of the framework: implementing effective management responses to climate change. The project will build on the work of DNR's Climate and Renewable Energy Steering Team and recent partner experiences developing climate change strategies.

Activity 1: "Resilience Clinics" **Budget: $170,000**

DNR and partners will develop "Resilience Clinics" focusing on 10 existing conservation projects representing different habitats, watersheds, or landscapes throughout Minnesota. Leaders and collaborators involved in these projects will work through a structured series of web-conferences focused on understanding climate vulnerability and developing resilience strategies for their projects. Participants will attend a face-to-face workshop at the end of the series to synthesize findings and get feedback from peers and scientists. Total time commitment for each clinic will be approximately 2-3 days over a year-long period. Results will be summarized in case studies and will be posted on a project website and also on a national website, the "Climate Adaptation Knowledge Exchange."

Outcome	Completion Date
1. Resilience clinic design document	1/1/14
2. Completed clinics	1/1/15
3. Clinic reports & evaluations	5/1/15

[1] Resilience strategies help human and natural systems to endure through and adapt to change. Examples include increasing diversity of tree plantings to increase adaptability to future changes, and increasing connectivity of habitats to allow species to migrate as the climate changes.

Activity 2: Pilot Project: Land Asset Planning for Resilience **Budget: $170,000**

This activity will enhance DNR's ongoing Strategic Land Asset Management program by utilizing state-of-the-art conservation prioritization tools. Within a pilot landscape such as the Aspen Parklands in northwestern Minnesota, we will seek a more climate-resilient portfolio of land assets while also optimizing multiple benefits such as water quality, habitat, and biodiversity. The project will build on DNR's recent work that used new conservation targeting tools for Scientific and Natural Area and watershed planning, but will take it the next step by explicitly incorporating climate change.

Outcome	Completion Date
1. Pilot analysis plan	1/1/15
2. Report summarizing results and lessons learned from pilot	1/1/16
3. Workshop demonstrating state-of-the-art tools	2/1/16

Activity 3: "Climate-smart" Landscape, Watershed, or Habitat Management Plans **Budget: $170,000**

This activity will build on the resilience clinics and land asset pilot project, but will go into more depth by fully integrating resilience strategies into strategic and operational management plans at relevant geographic scales. It will prototype a process for developing "climate-smart" management plans in 4-5 pilot landscapes, including forests, wetlands, grasslands, and aquatic/watershed systems, engaging a selected set of participants from the climate clinics. Two of the pilots will focus on DNR administered lands (e.g., State Parks, SNAs or Wildlife Management Areas), and the others will focus on multi-ownership landscapes or watersheds. Workshops will engage managers, scientists, policy-makers, and citizen leaders.

Outcome	Completion Date
1. Plan development workshops	4/1/17
2. Completed "climate-smart" management plans	4/1/17
3. Report on lessons learned, recommendations for broader-scale implementation of climate change planning at strategic and operational levels	6/30/17

III. PROJECT STRATEGY

A. Project Team/Partners

Project Manager: Jim Manolis, Ph.D., of the Policy, Research, and Planning unit in DNR's Operations Services Division. *Project Team:* DNR's Interdisciplinary Climate Change Adaptation Team. *Partners/Advisory Team*: The project will leverage the involvement of numerous other organizations including the Minnesota Interagency Climate Change Adaptation Team, the US Forest Service's Northern Institute of Applied Climate Science, the Minnesota Forest Resources Council, the Nature Conservancy, and the University of Minnesota (Susan Galatowitsch and others). Partners will play a general advisory role and will help determine the best sites, watersheds, and landscapes for the resilience clinics and planning exercises. They will not receive funding unless a very specific contracting role is identified.

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-smart planning efforts.

2014 Detailed Project Budget

Project Title: Building Habitat and Watershed Resilience to Climate Change

IV. TOTAL ENRTF REQUEST BUDGET: 3years

BUDGET ITEM	AMOUNT
Professional Services:	
Project Management Services	$30,600
Clinic/Workshop Content Development and Coordination	$275,400
This appropriation includes project management, content development, and coordination services that will be billed using a professional services rate of $68/hr. The professional services hourly rate includes salary and fringe for project staff, supervisory time, travel costs, supplies, agency directs, and related costs necessary to carry out the project's functions.	
Contracts:	
Analysis: Land Asset Management for Resilience	$ 120,000
Data Development for Land Asset Analysis	$ 50,000
Support for resilience clinics and planning workshops	$ 31,000
Equipment/Tools/Supplies: Printing reports	$ 3,000
	$ -
	$ -
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 510,000

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
In-kind Services During Project Period: Voluntary services provided by project advisory team, clinic and workshop participants	$ 120,000	*Pending*
Remaining $ from Current ENRTF Appropriation (if applicable):	$ -	
Funding History:	$ -	

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

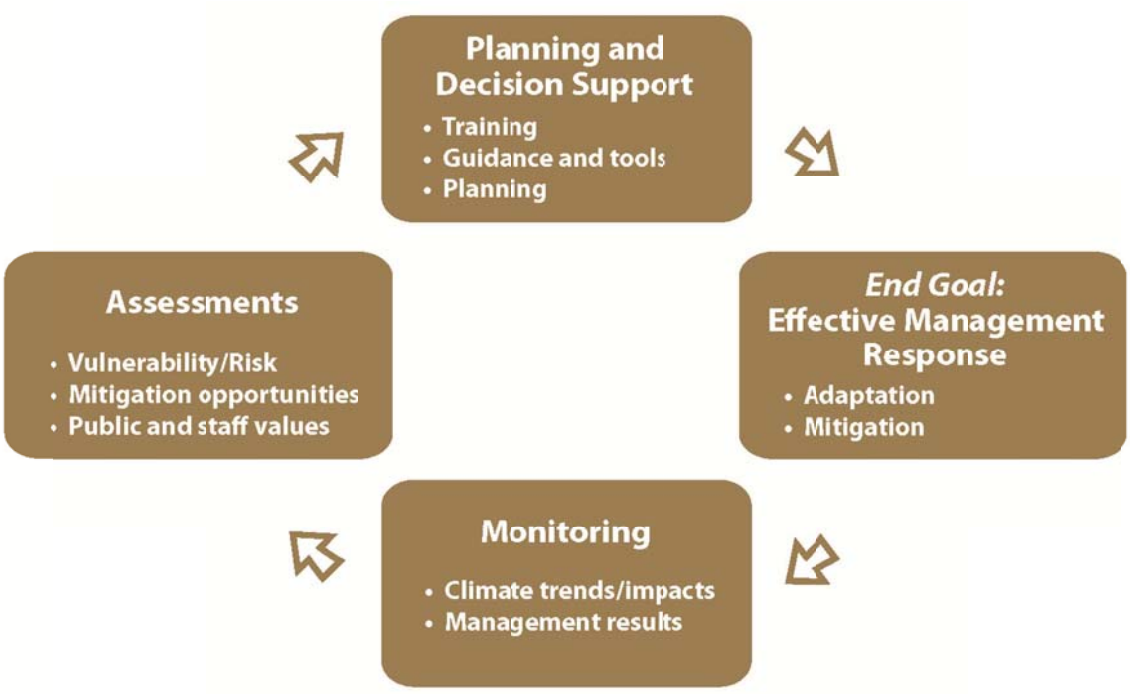
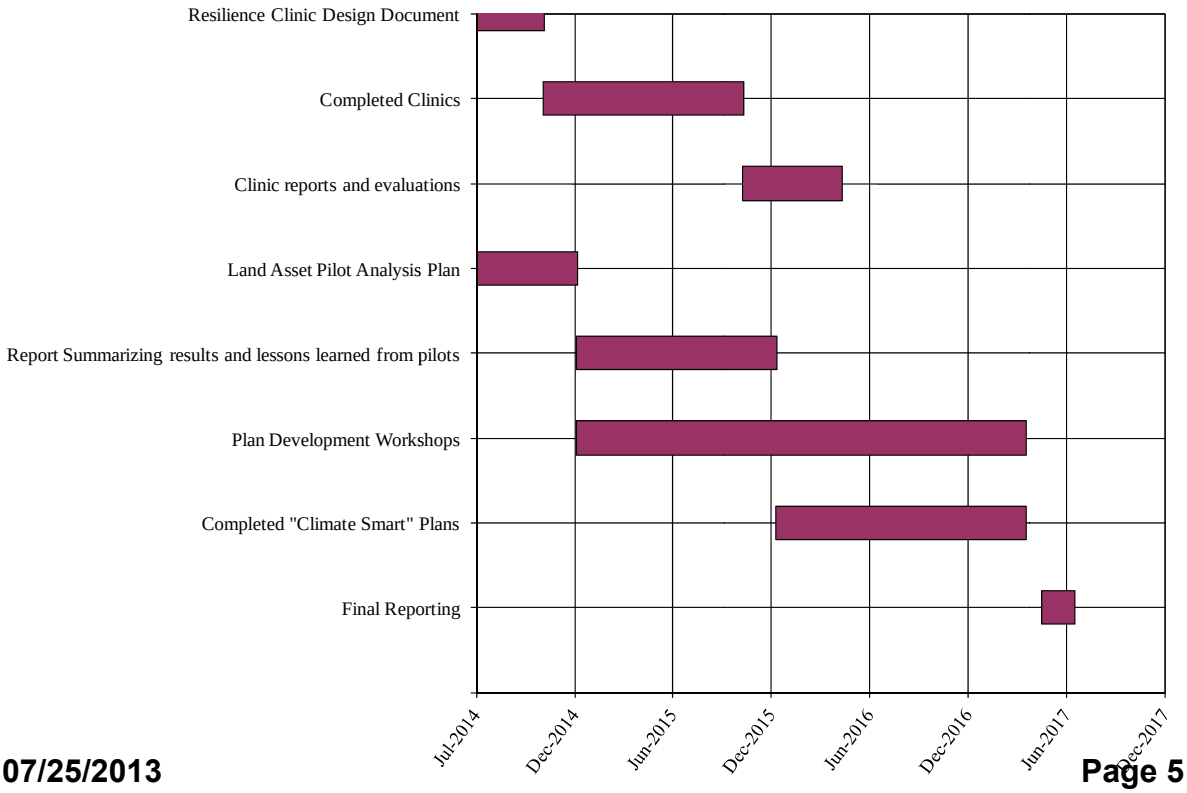


Figure 2. Project Timeline.



Project Manager Qualifications and Organization Description

Project Manager: Jim Manolis is a Research Scientist and Coordinator for DNR's Climate and Renewable Energy Steering Team. In this role, he recently led development of DNR's *Climate Change and Renewable Energy: Management Foundations* document (http://files.dnr.state.mn.us/aboutdnr/reports/conservationagenda/crest-ccref.pdf). Over the past 18 years at DNR Jim has focused on integrated resource management and linking science with natural resource policy and management. 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. 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.