

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

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**LCCMR ID: 091-C**

**Project Title:**

Prairie Monitoring of Trends and Management Effectiveness

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**LCCMR 2010 Funding Priority:**

C. Habitat Restoration, Enhancement, and Acquisition

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**Total Project Budget: \$** \$650,000

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

**Other Non-State Funds: \$** \$100,000

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**Summary:**

This project expands on status, trend, and effectiveness monitoring of Minnesota's rare native prairie to track anticipated or unexpected environmental changes in order to evaluate protection and management actions.

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**Sponsoring Organization:** DNR

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**Location:**

**Region:** Regional

**County Name:** Statewide

**City / Township:**

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

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# MAIN PROPOSAL

## PROJECT TITLE: Prairie monitoring of trends and management effectiveness

### I. PROJECT STATEMENT

Minnesota's native prairie covered about 18 million acres at the time of the public land surveys (1847-1908); currently less than one percent remains. Recent acceleration of efforts to maintain or restore prairies have accentuated the need for long term data collection, storage and analysis using a consistent set of monitoring protocols to: 1) detect changes and long-term trends (status and trend monitoring) and 2) evaluate the success of prairie management and restoration activities (effectiveness monitoring). Long-term status and trend monitoring provides critical data to help inform how prairie is to be protected and maintained over time as related to anticipated or often unexpected changes. The results of effectiveness monitoring are crucial for evaluation of whether or not management actions are achieving desired outcomes, and subsequently help direct adaptive management decisions. The *LCCMR Statewide Conservation and Preservation Plan* recognizes that by investing in our knowledge infrastructure through activities such as monitoring, "action and policy will become more effective and precise over time (SCCP, 2008)."

### II. DESCRIPTION OF PROJECT RESULTS

**Result 1:** *Long-term status and trend monitoring of prairie plant and animal communities*

**Budget:** \$350,000

This result addresses questions about the overall condition and viability of Minnesota's native prairie over time to more effectively track changes due to climate change and fragmentation. This expands on a prairie-monitoring pilot project funded in part by The Minnesota Environment and Natural Resources Trust Fund as part of the 2008 *Accelerated prairie management, survey, acquisition and evaluation* project. The monitoring focus for that pilot project was on sampling protocol development and sensitivity analyses for vegetation and birds on 50 high-quality prairie sites in western Minnesota. This project will support additional field data collection on these high quality prairie sites and will also focus on refinement of sampling protocols to 1) determine the effective frequency (i.e., years between sampling) and to 2) determine the most effective number of sites to sample in order to detect long-term trends. Continued database development for long-term storage of these standardized data will continue to be coordinated with project partners. Finally, insects have been identified as a key animal group for monitoring, given that many are solely associated with native prairie and play critical functional roles. Yet, information on this group is sparse, so this project includes an assessment to identify focal insects to include in long-term monitoring of prairie communities as potential indicators of prairie condition and quality.

#### Deliverable

1. *Plant and bird community monitoring on 24-30 high-quality prairie sites*
2. *Report on prairie insect indicators for prairie status.*
3. *Data entry, analysis, and reporting of results*
4. *Report on a long-term prairie monitoring framework*

#### Completion Date

*8-10 sites by 12/31/10, 8-10 more by 12/31/11, 8-10 more by 12/31/12*  
*06/30/13*  
*06/30/13*  
*06/30/13*

**Result 2: Effectiveness monitoring as part of the prairie adaptive management collaborative**  
**Budget: \$300,000**

DNR Divisions of Ecological Resources, Parks & Trails and Fish & Wildlife, the US Fish and Wildlife Service (USFWS), and The Nature Conservancy (TNC) are members of the prairie adaptive management collaborative that began in 2007. The collaborative has developed hierarchical monitoring protocols (most-detailed to least-detailed) to sample prairie vegetation to help inform achievement of management goals ranging from control of exotic species to maintenance of high quality prairie plant communities that support a diverse assemblage of native plant and animal species. The collaborative is collectively storing and sharing vegetation data providing for a larger, more robust dataset. As part of this result, the collaborative partners will be testing the utility of the various levels of the hierarchical vegetation monitoring protocols to determine how to best assess the success of management and restoration objectives in focal prairie areas undergoing active management by fire, grazing, haying, etc. In particular, the most effective protocol related to the maintenance of high quality native prairie composition objectives will be evaluated. Field sampling data on vegetation will be collected at various levels of the hierarchical protocol over the three years, and added to the databases for analyses. Assessment of sampling frequency (annual/ multiple year intervals) needed to efficiently achieve optimal results for the different levels of the hierarchy will be completed for vegetation as well as for selected animals. This result supports ongoing effectiveness monitoring, and begins a sequence of more detailed plant and animal monitoring data on a longer rotation.

<b>Deliverable</b>	<b>Completion Date</b>
1. Collection of most-detailed plant and animal community monitoring on 24-30 prairie sites.	8-10 sites by 12/31/10, 8-10 more by 12/31/11, 8-10 more by 12/31/12
2. Collection of least-detailed plant community data on 25-35 sites monitored each year in 35 sites	2010, 2011, and 2012
3. Hierarchical vegetation protocol assessment	06/30/13
4. Data entry, analysis, and reporting of results	06/30/13

### **III. PROJECT STRATEGY**

#### **A. Project Team/Partners**

The DNR Division of Ecological Resources is the lead for this project and is a member of the prairie adaptive management collaborative along with the DNR Divisions of Parks & Trails and Fish & Wildlife, the US Fish and Wildlife Service (USFWS), and The Nature Conservancy (TNC). To date, participation in the collaborative has been highly supported by all members who are working together to build robust effectiveness monitoring protocols and adaptive management models that can be used on many of the state's public and private lands.

#### **B. Timeline Requirements**

The 3 year duration of this project to include 3 field seasons, is necessary to collect a sufficient amount of data for statistical analysis.

#### **C. Long-Term Strategy**

Most components of this project are ongoing and of long duration. A database system providing long-term storage of monitoring information with standardized protocols will promote incorporation of monitoring as a necessary activity in future prairie proposals and funding requests for management and restoration. Monitoring information will be available to inform future funding opportunities, such as those provided through the ETF and the LOHC. Long-term monitoring requires ongoing funding and commitment, so alternative funding sources have and will continue to be utilized for these efforts.

## Project Budget

*Monitoring management effectiveness and trends on Minnesota prairies*

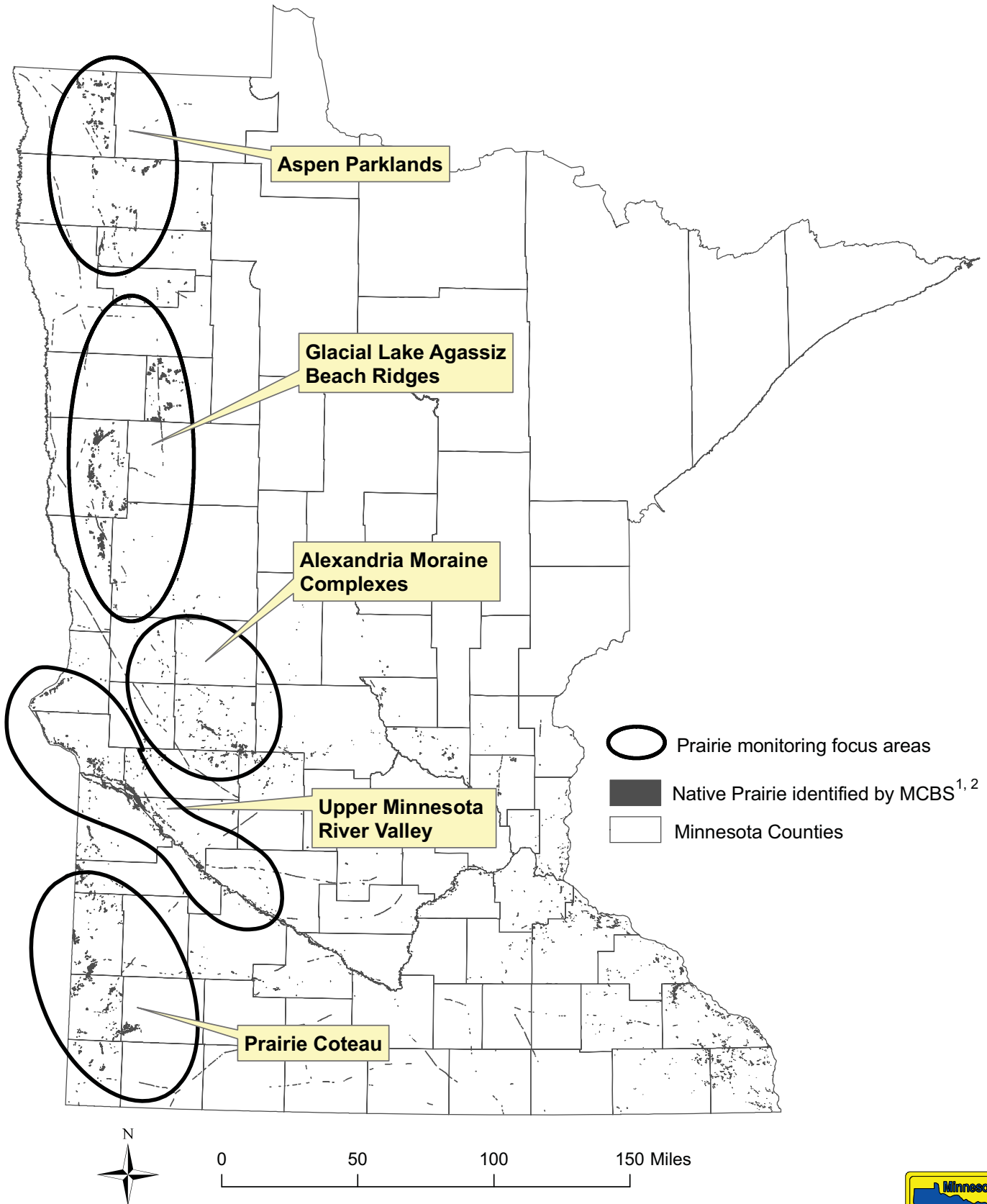
### IV. TOTAL PROJECT REQUEST BUDGET (3 years)

<b>BUDGET ITEM</b> <i>(See list of Eligible &amp; Non-Eligible Costs, p. 13)</i>	<b>AMOUNT</b>
<b>Personnel:</b> <i>Unclassified, temporary student workers, specialists and specialist intermediates (3 FTE), seasonal positions - 100% salary; unclassified specialist Sr as project coordinator (1 FTE, 3 yr position) - 70% salary, 30% benefits,</i>	\$ 500,000
<b>Contracts:</b> <i>Professional/technical contracts to be selected through state bid process.</i>	\$ 100,000
<b>Equipment/Tools/Supplies:</b> NA	\$ -
<b>Acquisition (Fee Title or Permanent Easements):</b> NA	\$ -
<b>Travel:</b> <i>Instate fleet, housing, meals as needed for project work.</i>	\$ 50,000
<b>Additional Budget Items:</b> NA	\$ -
<b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>	<b>\$ 650,000</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> <i>Potential funding includes federal State Wildlife Grants, federal USFWS grants.</i>	\$ 100,000	<i>Pending</i>
<b>Other State \$ Being Applied to Project During Project Period:</b> NA	\$ -	
<b>In-kind Services During Project Period:</b> NA	-	
<b>Remaining \$ from Current Trust Fund Appropriation (if applicable):</b> <i>2008 "Accelerated prairie management, survey, acquisition and evaluation" Result 5, 2 yr project, \$150,000 total funding. Remaining unspent will be spent prior to this grant.</i>	\$ 98,323	<i>Unspent as of 3/17/09</i>
<b>Funding History:</b> <i>Federal State Wildlife Grants, Minnesota Environment and Natural Resources Trust Fund, Reinvest in Minnesota since 5/1/2008</i>	\$ 331,309	

# MN DNR Prairie Monitoring Focus Areas



<sup>1</sup> Prairies mapped by MCBS in 1998. Locations shown were determined to be good and very good quality prairie as reported in Minnesota's Railroad Rights-of-Way Prairie: A Report to the 1999 Legislature (MNDNR, 1999).

<sup>2</sup> Prairies mapped by MCBS as of March 2009. Prairie communities included are: upland & wet prairie systems, and prairie complexes.



**PROJECT TITLE: Prairie monitoring of trends and management effectiveness**

**Project Manager Qualifications & Organization Description**

Organization Description: State Agency, Minnesota Department of Natural Resources. Our 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.

Project Manager: Daren Carlson.

Daren Carlson has worked as an Ecologist/ GIS analyst with the MN Department of Natural Resources (DNR) since 2000. He began work at the DNR in the Science Policy Section of the Office of Budget and Management Services where he helped implement the DNR Old-growth Policy Guidelines, leading to the evaluation and protection of over 40,000 acres of old-growth forest on state land. He became the lead Ecologist/GIS Analyst for the development of the State Wildlife Action Plan (SWAP) within the DNR Division of Ecological Services in 2003, and following successful completion of the plan, has continued on as the Monitoring Coordinator for plan implementation. He has successfully implemented a pilot prairie monitoring effort funded in part by The Minnesota Environment and Natural Resources Trust Fund as part of the 2008 *Accelerated prairie management, survey, acquisition, and evaluation* project. He served on technical teams for both the Phase I and Phase II development of the Statewide Comprehensive Conservation Plan.

Education:

B.S. 1992 Ecology, Evolution, and Behavior, Magna Cum Laude, University of Minnesota  
M.S. 2001 Conservation Biology, University of Minnesota