

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

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**LCCMR ID: 215-G**

**Project Title:**

Making Ecosystem Services Pay in Agricultural Watersheds

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**LCCMR 2010 Funding Priority:**

G. Creative Ideas

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**Total Project Budget: \$** \$247,200

**Proposed Project Time Period for the Funding Requested:** 2 years, 2010 - 2012

**Other Non-State Funds: \$** \$250,000

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**Summary:**

Partners will utilize local food and perennial biofuels markets and conservation incentives to encourage farmers to diversify Chippewa River watershed fields, resulting in measureable ecosystem improvements compared to modeled benefits.

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**Sponsoring Organization:** Land Stewardship Project

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**Location:**

**Region:** Central

**County Name:** Chippewa, Swift

**City / Township:**

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

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# MAIN PROPOSAL

## PROJECT TITLE: Making ecosystem services pay in agricultural watersheds

### I. PROJECT STATEMENT

The Minnesota River basin faces many serious environmental problems, such as water quality degradation, wetland and upland habitat and biodiversity loss, wildlife population declines, and increased flooding. Many of these problems have been attributed, in part, to agriculture, the dominant land use in the basin. However, agriculture, if adapted to generate ecosystem services in addition to producing food or energy, can yield significant, measurable ecological and local economic benefits for farmers and communities. The Land Stewardship Project (LSP) and partners propose to implement a comprehensive, innovative approach to achieve these benefits in a target area, the Chippewa River watershed (CRW).

The Chippewa River watershed provides habitats for several Species in Greatest Conservation Need (SGCN) such as the *Lasmigona compressa* mollusk. The Minnesota River Prairie subsection profile of the Minnesota Department of Natural Resources (DNR) Action Plan for Minnesota Wildlife, which includes the CRW, lists 116 SGCN. Habitat degradation and loss through sediment and other pollution issues are the most significant challenges. The Chippewa River Watershed Project (CRWP) is a partnership among many groups that has 10 years of monitoring data on sub watersheds within the CRW and is subject to two total maximum daily loads. This area, due to its proximity to local markets, can provide locally-produced food and perennial biomass crops for bioenergy.

LSP and partners will leverage locally available food and perennial biomass markets and federal and state conservation funding to support targeted land-use diversification that enhances water quality, increases biodiversity and vegetative cover, restores wetlands and riparian buffers, encourages sustainable livestock grazing, and increases perennial crops. These practices, in a multifunctional agricultural context, will provide vital ecosystem services such as reduced nutrient and sediment inputs to waterways, improvement of fish habitat, reduced flooding, increased on-farm wildlife habitat, reduced greenhouse gas emissions and increased carbon sequestration. They will also yield multiple rural economic benefits such as increased farm profitability, the development of value chains to move products from farm to local institutional buyers, and a landscape conducive to ag- and eco-tourism. We will use modeling to predict ecosystem benefits and, after outreach and adoption of land-use practices, will monitor results in a second phase. The proposed project will help the CRWP reach its long-term goals, improve downstream conditions and be a replicable approach for obtaining targeted ecological improvements and expanded economic development. We will seek guidance from MN DNR Working Lands Project in West Central MN on wildlife habitat goals and targeting for habitat quality.

### II. DESCRIPTION OF PROJECT RESULTS

#### **Result 1: Target agricultural land-use changes to achieve watershed goals. Budget: \$124,000**

LSP and partners previously used the Agricultural Drainage and Pesticide Transfer model and Soil and Water Assessment Tool to predict results in watersheds. Based on extensive monitoring, the CRWP estimates that a 9% increase of land area under perennials in the Chippewa River watershed would achieve water quality goals for in-stream Total Suspended Solids and Nitrogen. We will develop a realistic scenario to target land-use changes that could be achieved if sufficient markets and incentives can be brought to bear and use biophysical and economic modeling to estimate the impacts.

#### **Deliverable**

1. Model results from targeting increases in perennial crops, resource conserving crop rotations, decreased nutrient applications and tillage practices in targeted areas
2. Identify potential landowners to engage throughout the project
3. Provide landowners with environmentally- and economically- sound options
4. Update estimates based on the range of practices discussed in 3.

#### **Completion Date**

December 2010

December 2010 +

January 2011

April 2011

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**Result 2: Engage farmers, institutions that have relevant markets and agencies with appropriate incentives to facilitate needed land-use changes. Budget: \$100,200**

It is critical to engage farmers, landowners and institutional leaders with markets for food and biomass that could come from locally produced and diversified landscapes needed to meet water quality goals. In this part of the project we will integrate these economic developmental goals with watershed level goals to protect water quality, landscape level goals and foster expanded wildlife habitat.

**Deliverable**

	<b>Completion Date</b>
1. Work with UMM and other institutional leaders to set purchasing goals for locally-raised food produced in ways that meet the changes in Result 1	January 2011
2. Identify goals and aggregation options to meet perennial biomass needs for UMM gasifier.	December 2010
3. Develop a fact sheet on relevant farm programs and how to apply	December 2010
4. Meet individually to recruit farmers and landowners to adopt practices	Through Feb 2012
5. Host 4 meetings with farmers and those with markets or incentives	Mar & Nov 2011

**Result 3: Prepare reports, publications and plan for Phase II. Budget: \$23,000**

It will take longer than two years to achieve implementation across the landscape and to monitor to see if predicted results are achieved. We will conclude the first phase of this project with a report detailing the expanded market development, outreach and program incentives needed to achieve the level of implementation necessary for change, as well as the monitoring plan required to show results.

**Deliverable**

	<b>Completion Date</b>
1. Determine number of landowners and markets and incentives still needed to achieve predicted landscape level results	Mar 2012
2. Identify monitoring strategies and reporting vehicles	Mar 2012
3. Complete report identifying ongoing partner roles and future funding strategies	June 2012

**III. PROJECT STRATEGY**

**A. Project Team/Partners** LSP (Terry VanDerPol and Tom Taylor)—Coordinate project, conduct farmer and institutional outreach; Agricultural Research Service Morris Lab (Abdullah Jaradat)—Assist with soil carbon and greenhouse gas predictions relative in modeling and agronomics of perennial biomass crops; Chippewa River Watershed Project—Assist with GIS, modeling input, SWAT modeling and outreach to farmers in watershed; National Fish and Wildlife Foundation—Convene agencies that can provide additional incentives, organizing and monitoring; UM, Morris (Lowell Rasmussen )—Provide a market for biomass purchasing; UM, Morris (Sandy Olson-Loy)—Work with UMM dining facilities for expanded purchasing; UM, West Central Research and Outreach Center (Dennis Johnson)—Assist with outreach on management intensive rotational grazing on environmentally sensitive lands; Consulting economist (John Westra)—Conduct economic analysis and integrate with biophysical modeling results

**B. Timeline Requirements** Because adoption and monitoring the effects of land use changes takes time, the timeline for the overall project has two phases. Phase I is the modeling, initial outreach with farmers and institutions, and convening farmers. Phase II, which will be the ongoing implementation, monitoring and interpretation activities, will necessarily follow this LCCMR funding round.

**C. Long-Term Strategy** All of the partners have been involved in efforts that prepare the ground for this work. This project seeks to strategically integrate these efforts to show how watershed level ecosystem improvements can be achieved. Funds will be sought to continue the outreach and monitoring past this project and to compare to predicted results and conduct outreach on performance-based efforts.

**Project Title: Making ecosystem services pay in agricultural watersheds**

**Project Budget**

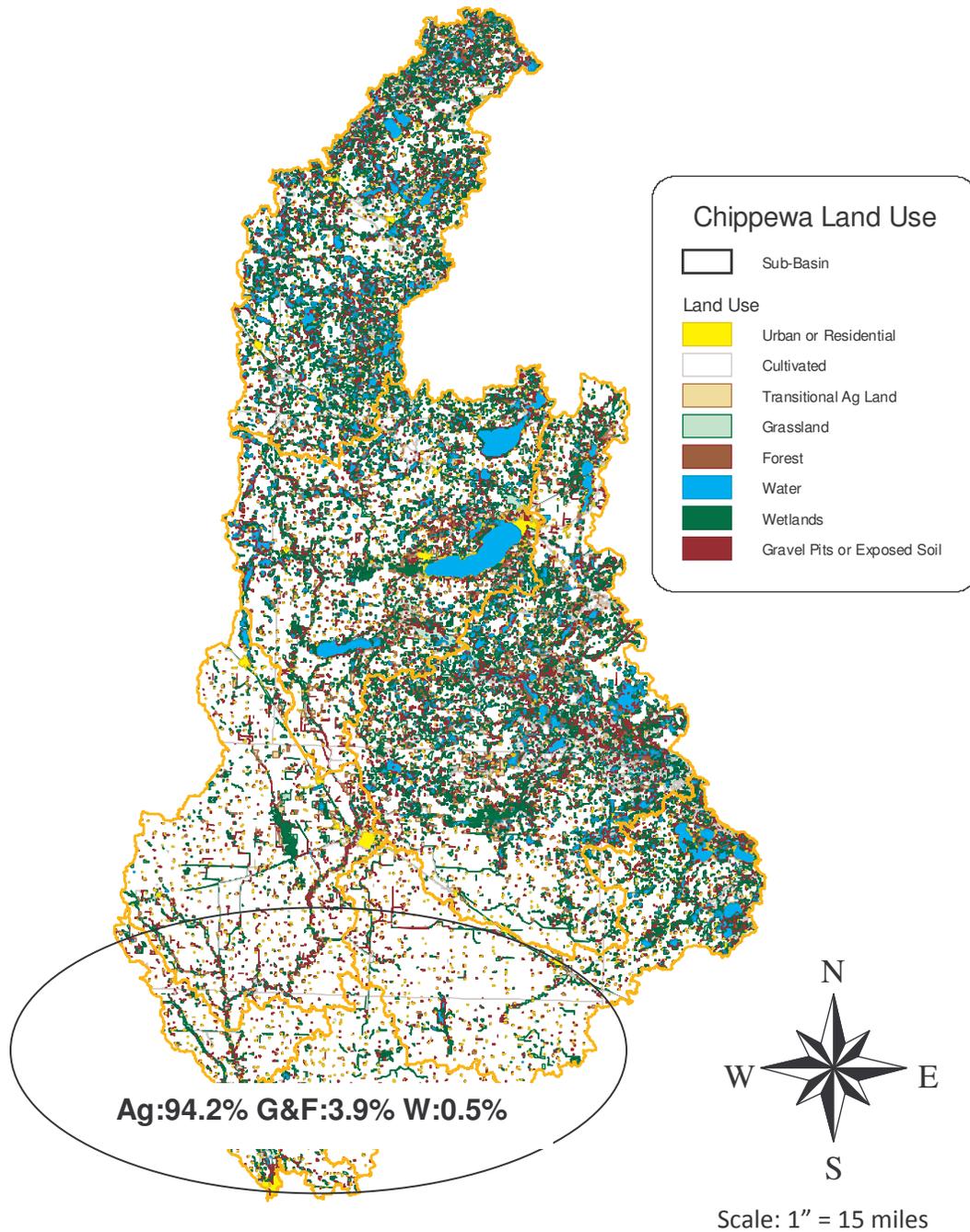
**IV. TOTAL PROJECT REQUEST BUDGET (Two years)**

<b>BUDGET ITEM</b> <i>(See list of Eligible &amp; Non-Eligible Costs, p. 13)</i>	<b>AMOUNT</b>	
<b>Personnel:</b> Project Manager: One person @.35FTE; 59% salary and 41% benefits to coordinate project and conduct outreach to institutions	\$	35,000
Project organizer: One person @.55FTE; 59% salary and 41% benefits to conduct outreach to institutions and farmers and prepare reports and publications	\$	45,000
	\$	-
<b>Contracts:</b> Chippewa River Watershed Project to prepare GIS maps, gather inputs for biophysical models, conduct modeling and monitoring outcome in second phase	\$	100,000
Consulting economist to model economic costs and returns, estimate incentives needed, integrate economics and biophysical modeling results and prepare presentations	\$	50,000
<b>Equipment/Tools/Supplies:</b> <i>In this column, list out general descriptions of item(s) or item type(s) and their purpose - one line per item/item type.</i>		NA
<b>Travel:</b> In-State Travel within watershed or between watershed, offices and partners offices @.45/mi	\$	4,500
	\$	-
<b>Additional Budget Items:</b> GIS maps @ 600 per map for printing and layout	\$	3,000
Meeting expenses for public meetings (rental and expenses)	\$	1,200
Copying @ .05\$/page	\$	1,500
Web site project page design and posting	\$	1,000
Brochure and Report design and printing for 4 pieces used for outreach and reporting to other watersheds, policy makers and researchers	\$	6,000
	\$	-
<b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>	\$	247,200

**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> USDA AFRI proposal on Enhancing Ecosystem Services from Agricultural Lands being submitted by LSP and partners in May 2009	\$ 100,000	<i>Pending</i>
<b>Other Non-State \$ Being Applied to Project During Project Period:</b> A proposal submitted by National Fish and Wildlife Foundation to the Conservation Innovation Grant Program includes the Chippewa River and other watersheds that will model changes, seek adoption, and monitor results. It is a one of several proposals to be submitted for multi-year funding.	\$ 150,000	<i>Pending</i>
<b>Other State \$ Being Applied to Project During Project Period:</b>		
<b>In-kind Services During Project Period:</b> from LSP from other sources to support the involvement of George Boody and also cover administrative and organizational expenses associated with managing this project	\$ 35,000	
<b>Remaining \$ from Current Trust Fund Appropriation</b>	NA	
<b>Funding History:</b> National Fish and Wildlife Foundation for wildlife habitat related to food products from expanded grazing lands in western MN	\$ 100,000	

**PROJECT TITLE: Making ecosystem services pay in agricultural watersheds**



**Project Approach**

*Phase I (During Proposed LCCMR Project):*

Model ecosystem services and economics for land-use changes such as perennial crops, grazing, buffers, and diversified systems needed to achieve ecosystem goals in Chippewa River watershed



Involve area institutions to purchase food and biomass energy products from diversified fields  
 Identify appropriate incentives  
 Recruit farmer participation



*Phase II (After Proposed LCCMR Project)*

Continue institutional and farmer recruitment  
 Monitor results in Chippewa River watershed

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

**Project Manager:** Terry VanDerPol is director of LSP's Community-Based Food Systems and Economic Development Program. She has been a program organizer with LSP since 1997, beginning as convener/facilitator for the Chippewa River Whole Farm Planning and Monitoring team and a lead organizer in the Pride of the Prairie marketing initiative in western Minnesota. Terry is also a founding member of the Value-Added Graziers, a group of farmers and landowners in the Upper Minnesota River Basin who are developing ways to graze marginal land while protecting ground water quality and family sized farmers in the region. She is a member of the Upper Midwest Value Chain Project. She has a bachelor's degree in Sociology and Psychology from the University of Minnesota, Morris.

Tom Taylor, is and LSP organizer in the Montevideo office previously worked in food marketing.

In addition, George Boody, Executive Director of the Land Stewardship Project since 1993, will assist. He directed two interdisciplinary and collaborative research and education projects including the Multiple Benefits of Agriculture Initiative. George's background includes a master's degree in agriculture and nutrition and a bachelor's degree in biology from the University of Minnesota. He is lead author of two peer reviewed papers from the Multiple Benefits of Agriculture Initiative.

**Background on Land Stewardship Project (LSP):** Founded in 1982, LSP's mission is to foster an ethic of stewardship for farmland, to promote sustainable agriculture, and to develop sustainable communities. LSP is a membership organization, which works nationally, regionally in the Midwest and in Minnesota, focusing on farm, food and environmental issues. Soil erosion, water quality, biodiversity, greenhouse gas emissions and wildlife habitat are some of the critical environmental issues we address in the agricultural context. LSP's 22 full- and part-time organizers, educators and support staff are experienced and highly skilled, with a wealth of knowledge. LSP publishes *The Land Stewardship Letter* quarterly, the *LIVE-WIRE* (an e-zine) monthly, produces *Ear to the Ground*, a monthly podcast, and provides a weekly blog. For more information see <http://www.landstewardshipproject.org/index-aboutus.html>

LSP works in three major program areas.

- **Farm Beginnings<sup>®</sup>.** This twelve year-old training and mentoring program has over 360 graduates in Minnesota, 60% of whom are engaged in farming. And, 57% of those farming saying they use more conservation practices since taking the course. LSP has expanded the Farm Beginnings Program into five other states through licensing other programs and forming a Farm Beginnings collaborative.
- **Policy and Organizing.** LSP organizes members and constituents to advocate for federal, state and local farm and environmental policies that support conservation and environmental stewardship of soil and water, family-based farming and rural community development. For example, LSP worked successfully with other groups and members of Congress to successfully expand funding for the Conservation Stewardship Program, designed to pay farmers for improving water quality, reducing greenhouse gases, and other environmental benefits.
- **Community Based Food Systems and Economic Development:** This integrated program facilitates farm-to-consumer connections and promotes increased production and consumption of regional, sustainably raised food. It supports farmer collaborations for aggregation and distribution of products, and regional market development through institutional use of regionally produced foods in western and southeastern Minnesota and the St. Croix River Valley.

**Partners:** Include the Agricultural Research Service (USDA) lab in Morris, the Chippewa River Watershed Project, the National Fish and Wildlife Foundation, the University of Minnesota (UM), Morris, UM West Central Research and Outreach Center, and Dr. John Westra, an agricultural economist, who was worked closely with LSP in two previous studies on the economic and biophysical modeling.