

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

LCCMR ID: 082-C

Project Title:

Ecological Restoration Training Cooperative

LCCMR 2010 Funding Priority:

C. Habitat Restoration, Enhancement, and Acquisition

Total Project Budget: \$ \$621,016

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

Other Non-State Funds: \$ \$36,000

Summary:

Improve ecological restoration success in Minnesota by developing and offering a training program for restoration professionals. Training opportunities will include courses and webinars covering planning, implementation and monitoring restorations.

Name: Susan Galatowitsch

Sponsoring Organization: U of MN

Address: 1970 Folwell Ave
St. Paul MN 55108

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Email: galat001@umn.edu

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Web Address: www.consbio.umn.edu/SG

Location:

Region: Statewide

County Name: Statewide

City / Township:

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

MAIN PROPOSAL

PROJECT TITLE: *ECOLOGICAL RESTORATION TRAINING COOPERATIVE*

I. PROJECT STATEMENT

Ecological restoration is increasingly relied on as a conservation strategy. Initiatives to restore prairies, wetlands, streams, lakeshores, and forests have been supported anticipating improved environmental quality. Despite an expanded knowledge base, restoration project failure rates remain high. For example, poor plant selection and installation results in a substantial loss of expensive native seed in both prairie and lakeshore restoration. By adopting best-practices, high-quality restorations more frequently can be economically feasible.

Although Minnesota has many competent restorationists, the quality of work varies across the profession and lack of expertise contributes to project failures. A variety of workshop-based programs educates the public about restoring ecosystems, but these must focus on a limited range of practices feasible for individual landowners. Some colleges offer a restoration ecology course; these are typically global in scope and focus more on concepts than techniques. Currently, professional restoration training is limited to what is gained on-the-job, often through trial-and-error.

Our aim is to improve ecological restoration success in Minnesota by developing training opportunities for practicing restoration professionals. High-quality training opportunities need to reach a large number of professionals statewide. Our solution is to establish the Ecological Restoration Training Cooperative, to be based at the University of Minnesota, and coordinated as a partnership between state agencies and the University. Web-based, instructor-guided learning, combined with field sessions offered at multiple locations will be the first of its kind in the US for restoration. At least 700 Minnesota restoration professionals actively involved in planning, plant or seed production, installation, maintenance and monitoring, could benefit. Increased professional competency should improve restoration outcomes not only for state programs, but also local government and private sector initiatives.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Develop ecological restoration training courses. Budget: \$390,000

Web-based instructional technology has greatly advanced in recent years; people in remote locations can now effectively learn from instructor-guided multimedia lectures, collaborative projects and discussions. We will rely on web-based instruction for delivering much of the content of the courses. Some topics, though, require field-based instruction which will be offered at multiple statewide locations. Five application-oriented courses (12-16 hrs each) will be developed that fill an immediate need of multiple agencies. The University of Minnesota will develop course content collaboratively with state agency staff. Course content will also be reviewed and tested by experienced practitioners.

Deliverables: The following five courses will be developed

1. Designing and Using Native Seeds
2. Vegetation Management for Restored Ecosystems
3. Monitoring Restoration Success
4. Revegetating Drastically Altered Lands
5. Restoration for Biodiversity Conservation

Completion Date

Beta-versions:
January 2012

Final versions:
January 2013

Result 2: Offer ecological restoration training courses. Budget: \$ 58,000

Each course will be offered at least once/yr. University faculty (Galatowitsch) will be the main instructor responsible for overseeing course quality and participant performance and will teach web-based parts of all courses. Field sessions will be taught by a group of trainers from state

agencies, UM outreach centers, and the private sector. All trainers will have extensive prior experience and receive formal training from the project team.

Deliverable	Completion Date
1. Offer 5 courses to the restoration community after beta-testing	July 2013

Result 3: Establish opportunities for continued restoration training. Budget: \$ 118,016

For recent advances in restoration practice and science, a webinar series and an annual conference will be offered. Some examples of webinar topics include: effects of seed source location, wave breaks for lakeshore restoration, direct seeding and forest regeneration. These will be 1-2 hr on-line presentations by experts with Q & A sessions. Information on webinars, conferences, and courses will be available on a training coop website. This website will also provide links to new restoration ecology publications, plant identification resources, and to the "Community of Practice" discussion forums, where practitioners can exchange ideas on finding solutions to restoration problems.

Deliverable	Completion Date
1. Training website (including "Community of Practice" online forums)	December 2010
2. Six webinars (3 per year)	July 2013

Result 4: Produce a comprehensive plan for restoration training in MN. Budget: \$ 55,000

We will review other environmental training programs as precedents. We will also collaborate with agency and private-sector restoration professionals to identify key additional training needs (e.g., advisory panel, "on-site training"), to determine how to apply training completion as a professional credential for contracts, and to plan for long-term program sustainability.

Deliverable	Completion Date
1. Part 1 of plan: analysis of precedents for ERTC	December 2010
2. Part 2 of plan: training and credentialing needs	June 2012
3. Complete plan including financial model	December 2012

III. PROJECT STRATEGY

A. Project Team/Partners

Project Team: Susan Galatowitsch, Professor, Univ. MN, Dept. Horticultural Science (Project manager and curriculum/course development); Lori Graven and Mary Davis, UM College of Continuing Education (Financial planning, tech-support and design for online course development); Jason Garms, MN DNR, Dan Shaw, BWSR, Ken Graeve, MnDOT (Interagency coordination, course content, field training).

Project Partners: MN Native Wildflower & Grass Producers Association (invited), Confirmed: MN Crop Improvement Association, MN Landscape Arboretum, West Central Research and Outreach Center.

B. Timeline Requirements (3 yrs) Yr 1 focuses on planning and curriculum development and launching website. Yr 2: the training program is tested and refined; web forums established. Yr 3: full implementation year; agencies pilot use of credential in contracting.

C. Long-Term Strategy

Training courses will be offered at least once/year. Professionals will be able to stay current through webinars, the online "community of practice" online forum, and annual conference. The training coop will be developed so it is financially sustainable over the long-term, relying on tuition revenues and recurrent instructional and technology contributions from the University of Minnesota, and minimal staff contributions from state agencies.

Project Budget
ECOLOGICAL RESTORATION TRAINING COOPERATIVE

IV. TOTAL PROJECT REQUEST BUDGET (3 years)

BUDGET ITEM	AMOUNT
Personnel:	
Postdoctoral Associate (100%, 2.8 yrs, 75.6% salary, 24.3% fringe) Responsible for working with project manager to develop course content, gather input from stakeholders, arrange webinar speakers, conduct analysis of comparable training programs, train trainers, offer field sessions of courses, facilitate instruction of on-line portion of courses.	\$ 185,080
CCE* Program Director-Online Distance Learning (3%, 3 yrs, 75.6% salary, 24.3% fringe). Responsible for entire online course development process-including tech support & production.	\$ 8,610
CCE Program Director - Professional Education (10%, 3 yrs, 75.6% salary, 24.3% fringe). Responsible for planning, development, marketing & promotion	\$ 32,797
CCE Online Distance Learning Team: Instructional designer @12%, course developer @10%, Editor @10%, 3 yrs, 73% salary, 27% fringe.	\$ 135,506
CCE New Media Group: Multi-media programmers @10%, Audio Visual Specialist @10%, Web Developer @10% each for 1.5 yrs, 73% salary, 27% fringe.	\$ 28,051
CCE Program Planning Team: Program associate @10% and program secretary@10% for 3 yrs, 73% salary, 27% fringe. Logistics for stakeholder meetings, annual conference.	\$ 16,989
CCE Marketing Team: Graphic designers@5% and Marketing manager@10% for 1.5 yrs, 73% salary, 27% fringe	25,483
Contracts: Professional Services	\$ -
Field trainers - \$2500 pp x 10 trainers -- to complete training curriculum and co-teach field sessions of a course 4 times (for non-agency, non-UM personnel only)	25,000
Restoration professionals featured in teaching videos (non-UM, non-agency) (5 @\$1000)	5,000
Restoration professionals (private sector) attending regional stakeholder meetings (4 meetings x 20 people x up to \$100 reimbursable expenses)	8,000
Restoration professionals (private sector) serving as beta-testers for 5 training courses (\$500 pp x 5 classes x 5 per class)	12,500
Video simulations (5-10) - for online courses	25,000
Graphic designer	10,000
Webinar technical support	25,000
Conference services - for annual conference	10,000
Equipment/Tools/Supplies:	
Tools, implements and supplies for field training centers (\$10,000 x 5 locations), e.g., seed drills, field guides, backpack sprayers, soil & seed testing reagents	\$ 50,000
Travel: ALL TRAVEL IN MINNESOTA	
Travel to stakeholder workshops, field training centers to develop & offer training, production of training materials (e.g., videos): CCE: 14 trips x 500 x .55/mi, 14 nites food and lodging (2 people). Hort: 18 trips x 500 x .55.mi, 14 nites food and lodging (2 people).	\$18,000
TOTAL PROJECT BUDGET REQUEST TO LCCMR	\$ 621,016

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
In-kind Services During Project Period: In-Kind Salary UM (\$50,600), In-Kind Salary - DOT, BWSR (\$40,000) - Project Manager and Team Course Development and Training	\$90,600	Secure
Other Non-State \$ Being Applied to Project During Project Period: Participation fees from courses, webinars, conference during Yr 3 (full implementation year)	\$36,000	Pending
Funding History:	0	

*CCE=Continuing Education

ECOLOGICAL RESTORATION TRAINING COOP

PROPOSED TRAINING COURSES

1. Designing & Using Native Mixes
2. Vegetation Management
3. Monitoring Restoration Success
4. Revegetation of Drastically Altered Lands
5. Restoration for Biodiversity Conservation

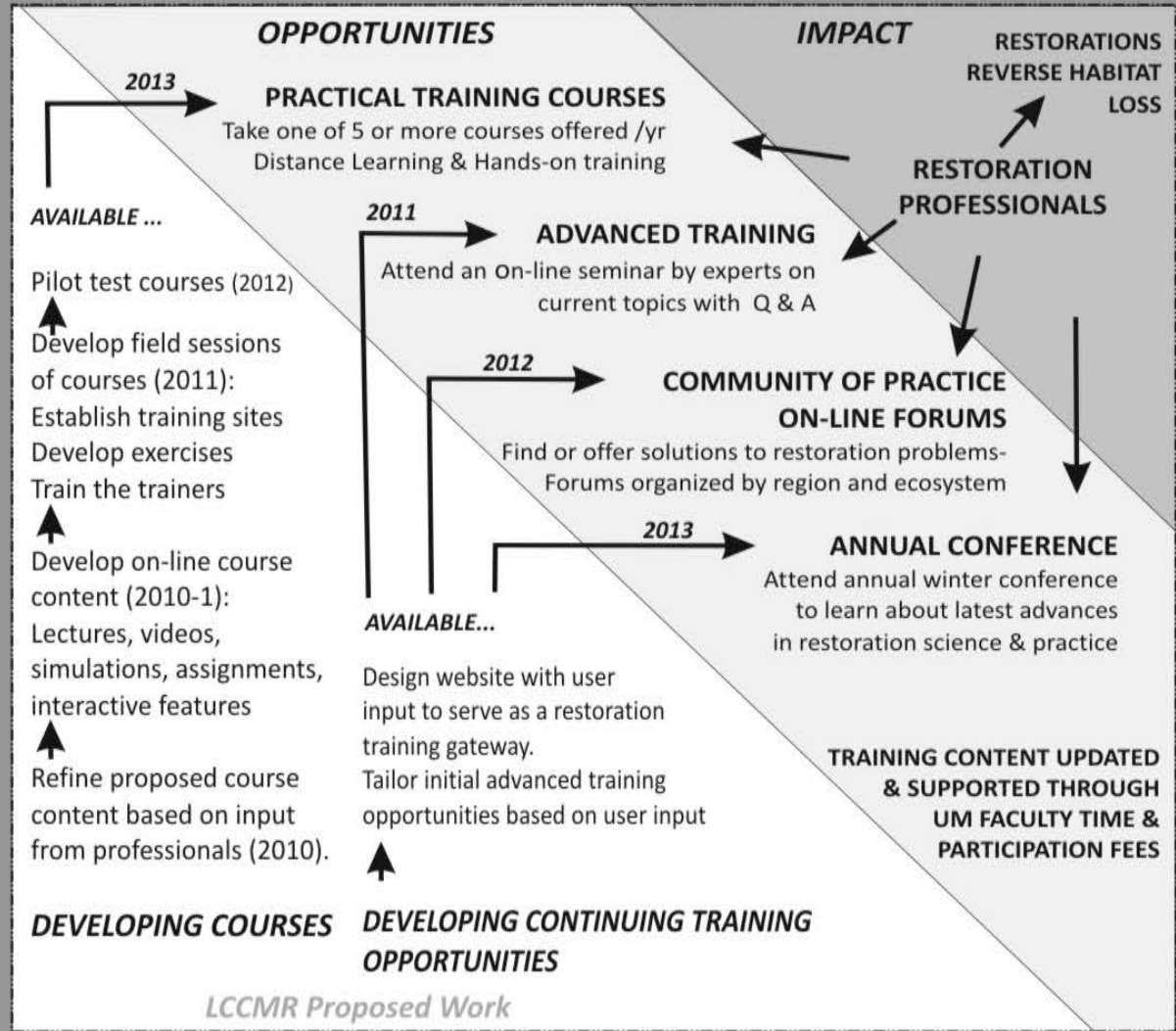
Others will likely be developed over time, based on need.

EXAMPLE COURSE CONTENT

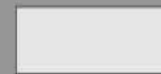
Designing & Using Native Seed Mixes

Professionals completing this course will:

1. Be familiar with basic seed biology.
2. Understand role of seeds in MN ecosystems.
3. Be capable of conducting seedbank assays.
4. Be capable of formulating seed mixes.
5. Be able to design mixes for specific project goals & for specific ecosystems.
6. Understand how genetic make-up of seed sources affects short-term and long-term revegetation success.
7. Know how to store seed to maintain viability.
8. Know how to treat seed to promote germination.
9. Be capable of installing seed to maximize establishment.
10. Know if a seedbed is properly prepared.
11. Know how to encourage seeding success on problematic sites.
12. Know the limitations of seeding (i.e., When not to seed).



Developing Training Opportunities (2010-3)



Delivering Training Opportunities (2011 & Forward)

SUSAN M. GALATOWITSCH

Professor, Restoration Ecology, University of Minnesota

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Department of Horticultural Science, 1970 Folwell Avenue, St. Paul, MN 55108

EDUCATION

Ph.D. Ecology & Evolutionary Biology, Iowa State University, 1993

M.S. Botany, University of Minnesota, 1984

B.A. Environmental Biology, St. Mary's College-Minnesota, 1981

PROFESSIONAL POSITIONS

Faculty member, University of Minnesota since 1993.

Visiting Fulbright Professor, University of Cape Town, Institute for Plant Conservation (2002-3)

TEACHING

Courses Taught: Restoration Ecology, Wetland & Aquatic Plants, Woody & Herbaceous Landscape Plants, Landscape Ecology, Conservation Biology Seminar, Field Techniques for Landscape Analysis, Wetland Ecology, Plant Ecology.

EXAMPLES OF RECENT RESEARCH

Model wetland restoration at the Minnesota Landscape Arboretum (LCMR)

Assessing risks of importing aquatic plants to Minnesota (DNR)

Best management practices for minimizing reed canary grass prior to wetland restoration (DOT)

Revegetation of aquatic plants in Minnesota lakeshores (USGS, DNR)

Revegetation of oil access roads on national grasslands (USFS)

Vegetation recovery in prairie pothole wetlands over twenty years (multiple funders)

SELECTED PUBLICATIONS

Galatowitsch, S.M. and A.G. van der Valk. 1994. Restoring Prairie Wetlands: An Ecological Approach. Iowa State University Press. 246 p. (Second Printing, 1998)

Maki, K.G. and S.M. Galatowitsch. 2004. Movement of invasive aquatic plants into Minnesota (USA) through horticultural trade. *Biological Conservation* 118: 389-396.

Galatowitsch, S.M. 2008. Seedling establishment in restored ecosystems. Chapter 15: Seedling Ecology and Evolution. M. Leck and T. Parker (Ed.). Cambridge Press.

Iannone, B. and S.M. Galatowitsch. Evaluation of resource-limiting strategies intended to prevent *Phalaris arundinacea* (reed canary grass) invasions in restored sedge meadows. *Ecoscience*, In press.

Galatowitsch, S.M. 2009. Carbon offsets as ecological restoration. *Restoration Ecology*, In Press.

SELECTED AWARDS

Fesler-Lampert Chair in Urban and Regional Affairs, University of Minnesota (2007-8)

Founding Fellow, University of Minnesota Institute on the Environment (2007-2009)

Distinguished Teaching Award for Postbaccalaureate, Graduate, & Professional Studies, University of Minnesota, 2004.

PROFESSIONAL SERVICE

Editorial Boards: Restoration Ecology, Plant Ecology, Wetlands

Board of Directors, Great River Greening, 2004-6

Board of Trustees, Minnesota Nature Conservancy, 1999-2002

Commissioners Advisory Council, DNR – 1995-9, 2001-2, 2007-present.

Director of Graduate Studies, Conservation Biology- 2003-present.