



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2013 Work Plan

Date of Status Update Report: June 20, 2013
Date of Next Status Update Report: January 1, 2014
Date of Work Plan Approval: June 25, 2013
Project Completion Date: June 30, 2015 **Is this an amendment request?** N

PROJECT TITLE: Restoration Evaluations

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Location: Statewide

Total ENRTF Project Budget:	ENRTF Appropriation:	\$200,000
	Amount Spent:	\$0
	Balance:	\$200,000

Legal Citation: M.L. 2013, Chp. 52, Sec. 2, Subd. 04I

Appropriation Language:

\$200,000 From Laws 2008, Chapter 143, section 2, subdivision 8, paragraph (b). Legislative-Citizen Commission on Minnesota Resources, as amended by Laws 2011, First Special Session, chapter 2, article 3, section 2, subdivision 18, paragraph (s), clause (8), is transferred to the Board of Regents of the University of Minnesota for evaluation of lands restored using money from the trust fund. The lands to be evaluated shall be identified and prioritized in consultation with the Legislative-Citizen Commission on Minnesota Resources.

I. PROJECT TITLE: Restoration Evaluation

II. PROJECT STATEMENT:

Monitoring and evaluation of ecological restorations are essential for knowing whether projects are achieving their goals, which, in general, is to aid in the recovery of native ecosystems that have been degraded or lost. Unfortunately, very few projects in Minnesota or elsewhere worldwide are evaluated past the initial implementation phase. Consequently, there is no way to know the extent to which funds spent on restoration are a strategic conservation investment.

While evaluations are important for gauging the value of past projects, the primary reason to monitor restorations is to learn what works, what doesn't, and in doing so, advance restoration practice and increase the likelihood of success of future projects. This project will: 1) develop restoration evaluation procedures specific to different types of ecosystems and project goals, 2) identify the most common causes (environmental and social) of ecological restoration project failure, 3) estimate the levels of success for different types of ENRTF projects based on plans, case histories, and field evaluations.

ENRTF restoration projects funded between 1990-2010 will be categorized into one of 16 groups according to:

- Ecosystem type: 1) prairies & savannas, 2) wetlands, 3) lakeshores & riparian habitats, 4) forests
- Age : 1) 3-10 years, 2) 10+ years
- Continued management: 1) none-sporadic, 2) periodic-frequent

The adequacy of plans will be evaluated for at least five sites from each of these 16 groups. The evaluations of these 80 plans will focus on the adequacy of goals to guide decisions, the extent to which methods conformed to best practices or required standards at the time of project initiation, and the extent to which the plan addressed the most likely risks of failure.

From these, 32-48 restorations will be selected for a more in-depth investigation into the actual outcome of the restoration and factors hindering project success. To determine the most common causes for project failure, detailed case histories will be compiled for each restoration project. These case studies will chronicle the actual implementation of the plan, including changes to the plan, and who implemented the original plan, follow-up actions, and who implemented follow-up actions. Each restoration will be surveyed in the field to compare the actual vegetation and landform compared to what had been envisioned in the restoration plan. Analysis of evaluation data will explore the likelihood of failure as a function of both ecological factors (e.g., prevalence of invasive species and native species in the surrounding landscape) and social/organizational factors (e.g., continuity of project leadership, size and expertise of staff). This information will be used to suggest protocols for future evaluation of both plans and completed projects.

III. PROJECT STATUS UPDATES:

Project Status as of January 1, 2014:

Project Status as of July 1, 2014:

Project Status as of January 1, 2015:

Project Status as of July 1, 2015:

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Develop tools for evaluating plans and completed projects for ecological restoration and compile basic information on completed projects in order to select sites for evaluation.

Description:

Evaluation procedures are needed for both planned and completed projects, and both need to be specific to the types of ecosystems being restored, level of degradation, and nature of goals. The risks of restoration failure differ greatly among different types of ecosystems. In part this stems from inherent differences in the types of degradation that must be addressed to accomplish restoration, but it also reflects the standards of practice at the time of implementation. Moreover, projects vary in the extent to which they've received ongoing, corrective actions, which may indicate continued attention to key vulnerabilities and therefore be predictive of the likelihood of project success.

The following are the initial steps of the evaluation process, which will develop the procedures for the evaluation and compile site information needed for site selection (numbers correspond to outcomes listed below):

1. Tools for evaluating restoration plans (planning tool) and completed projects (monitoring tool) will be developed based on the published research literature and professional experience. Tools will be tied to goals articulated in the plans, as well as to the ecology of ecosystems typical for the sites (e.g., DNR Potential Natural Vegetation) and stressors associated with different types of land use (e.g., prevalence of invasive species).
2. A preliminary test of these evaluation tools will be conducted using expert practitioner panels; each panel will be asked to provide feedback on the tools, based on their evaluation of a selection of ENRTF restoration plans. The planning tool will be refined and used as part of project evaluations (see Activity 2). The monitoring tool will be used for the field evaluations described in Activity 3. Both the planning and monitoring tools will be refined based on the analysis of restoration evaluations (see Activity 3).
3. Basic information on all ENRTF restoration projects completed between 1990-2010 will be compiled from LCCMR files. Managers of all projects will be surveyed to ascertain the extent to which each site has been managed or monitored following the initial implementation phase (i.e., grant period) and to determine who is currently responsible for the site.
4. Restoration projects will be categorized into one of 16 groups according to:
 - Ecosystem type: 1) prairies & savannas, 2) wetlands, 3) lakeshores & riparian habitats, 4) forests,
 - Age : 1) 3-10 years, 2) 10+ years
 - Continued management: 1) none-sporadic, 2) periodic-frequent.
 Five projects will be selected from each group for further evaluation. LCCMR staff will provide input on this selection.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 37,100
Amount Spent: \$ 0
Balance: \$ 37,100

Activity Completion Date:

Outcome	Completion Date	Budget
1. Draft planning tool and monitoring protocols for four main types of ecosystems based on published literature and professional experience.	Nov. 1, 2014	\$ 6,000
2. Complete expert panel review of planning tools. Finalize working version of planning and monitoring tool based on expert panel feedback.	Jan. 1, 2014	\$ 6,000

3. Compile basic information on all completed projects. Complete surveys of managers of all ENRTF restorations completed from 1990-2010 to determine extent of continued management.	Jan. 1, 2014	\$ 24,100
4. Categorize projects according to ecosystem, age, and management. Select 80 sites for planning evaluation.	Feb. 1, 2014	\$ 1,000

Activity Status as of January 1, 2014:

Activity Status as of July 1, 2014:

Activity Status as of January 1, 2015:

Final Report Summary:

ACTIVITY 2: Evaluate restoration plans and select sites for detailed evaluations.

Description:

1. The adequacy of plans will be evaluated for at least five sites from each of the 16 groups. The evaluations of these 80 plans will focus on the adequacy of goals to guide decisions, the extent to which methods conformed to best practices or required standards at the time of project initiation, and the extent to which the plan addressed the most likely risks of failure. The plans will be categorized as likely to have achieved goals or unlikely to have achieved goals.

2. Two-three sites will be selected for in-depth review from each of the 16 groups. Of these, at least one will be chosen from each planning category (i.e., likely or unlikely to achieve goals). LCCMR staff input will be part of the selection process.

Summary Budget Information for Activity 2:

ENRTF Budget: \$ 10,832
Amount Spent: \$ 0
Balance: \$ 10,832

Activity Completion Date:

Outcome	Completion Date	Budget
1. Complete planning evaluation of 5 sites for each of 16 groups based on ecosystem type, project age, extent of follow-up management.	April 1, 2014	\$ 9,000
2. Select 32-48 sites for detailed evaluations of project outcomes, with LCCMR staff input.	May 1, 2014	\$ 1,832

Activity Status as of January 1, 2014:

Activity Status as of July 1, 2014:

Activity Status as of January 1, 2015:

Final Report Summary:

ACTIVITY 3: In-depth monitoring and investigation of factors affecting project success.

Description:

Evaluations of restoration projects need to be based on ecosystem responses to actions as observed during field monitoring. Because many restorations are not implemented exactly as planned and projects vary in their investment in ongoing or corrective actions, it is crucial to have detailed information on implementation to interpret monitoring results. Projects will be evaluated based on the extent to which they achieved stated goals and the extent to which methods used achieved the desired results.

The following activities will be undertaken to achieve the outcomes listed below (with corresponding numbers):

1. Detailed case histories will be developed for the 32-48 selected projects (see Activity 2). These cases will compile information on details of implementation since project initiation, changes in staffing and project management, and monitoring results. Information will be obtained from ENRTF files, files of project managers, reports distributed by project managers, and interviews with project managers and staff.
2. Field surveys will be conducted for each of the 32-48 selected projects, using the monitoring and evaluation tool (See Activity 1). Monitoring will focus on changes to landform and vegetation, since these are the most common direct targets of restoration actions. The field evaluation will determine the extent to which desired conditions outlined in the plan have been achieved and the extent to which the ecosystem is typical of natural vegetation expected for the locale.
3. Analysis of evaluation data will explore the likelihood of failure as a function of the general factors used to group sites: ecosystem type, age, ongoing management, adequacy of planning, in addition to other specific, ecological factors (e.g., prevalence of invasive species in the surrounding landscape) and social/organizational factors (e.g., continuity of project leadership). Evaluation data will also be analyzed to ascertain the relative importance of the adequacy of initial planning, implementation, and unforeseeable circumstances to restoration outcomes.
4. The results of the detailed evaluations will be compared to the *a priori* predictions using the planning tool (Activity 2) to determine the reliability of this tool, and to refine it, as necessary. The results of the detailed evaluation will also be used to provide guidance for practitioners preparing restoration plans and for program managers ranking prospective projects for funding and evaluating outcomes of implemented projects.

Summary Budget Information for Activity 3:

ENRTF Budget: \$ 152,068
Amount Spent: \$ 0
Balance: \$ 152,068

Activity Completion Date:

Outcome	Completion Date	Budget
1. Complete case histories of 32-48 sites, including changes to planned implementation, changes to staffing, restoration work completed after grant period.	July 1, 2014	\$ 50,000
2. Complete field-based monitoring of the same 32-48 sites, focusing on the extent to which desired changes to vegetation and landform outlined in the plan have been achieved and the extent to which the ecosystem is typical of natural vegetation expected for the locale.	Oct. 1, 2014	\$ 77,068
3. Complete analysis of restoration evaluation data to ascertain the factors that commonly limit restoration success.	March 1, 2015	\$ 20,000
4. Use conclusions from analysis to refine evaluation tools for planning and completed projects and to provide recommendations for the	July 1, 2015	\$ 5,000

Activity Status as of January 1, 2014:

Activity Status as of July 1, 2014:

Activity Status as of January 1, 2015:

Final Report Summary:

V. DISSEMINATION:

Description:

The results of this project will be disseminated in five ways : 1) posting summary reports (i.e., fact sheets) on the Ecological Restoration Practitioners network and website (www.restoringminnesota.umn.edu), 2) presenting webinars, 3) updating content in the monitoring course of the online Ecological Restoration Training course, 3) making presentations at professional meetings, and 4) publishing peer-reviewed scientific papers. We expect that this project will yield at least 4 peer-reviewed publications.

Status as of (January 1, 2014):

Status as of July 1, 2014):

Status as of (January 1, 2015):

Final Report Summary (July 1, 2015):

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget:

Budget Category	\$ Amount	Explanation
Personnel:	\$ 162,500	1 research fellow to complete most tasks of this project; 1 research fellow to add capacity needed for field monitoring
Professional/Technical/Service Contracts:	\$ 3,600	Honoraria for expert panelists
Equipment/Tools/Supplies:	\$ 3,000	For panel review meeting and field supplies for monitoring
Travel Expenses in MN:	\$ 28,000	Transportation, food and lodging for field monitoring
Other: IT costs for 2 webinars	\$ 2,900	2 webinars to communicate guidance –1 for planning, 1 for completed projects
TOTAL ENRTF BUDGET:	\$ 200,000	

Explanation of Use of Classified Staff: N/A

Explanation of Capital Expenditures Greater Than \$3,500: N/A

Number of Full-time Equivalent (FTE) funded with this ENRTF appropriation: 1.25

Number of Full-time Equivalent (FTE) estimated to be funded through contracts with this ENRTF appropriation:

B. Other Funds:

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
University of Minnesota			
5% salary and fringe (Galatowitsch)	\$20,640	\$	Project manager's time for administration of project, and participation in all other aspects of project, especially statistical analysis.
Unallowable fringe (52%)	104,000	\$	
TOTAL OTHER FUNDS:	\$124,640	\$	

VII. PROJECT STRATEGY:

A. Project Partners: None

B. Project Impact and Long-term Strategy:

Over the past twenty years, the scale and complexity of ecological restoration projects have increased as practice has advanced. Despite these advances, projects vary in their outcomes, with many failing to achieve their intended goals. Because few restorations are adequately monitored, we do not know the rate of restoration failure or the most common causes of failure. The intent of this LCCMR project is to develop a demonstration monitoring program for LCCMR restoration projects, whereby planned and completed projects can be evaluated to determine critical corrections needed to achieve goals. This demonstration project will look for deficiencies (and strengths) in 80 project plans and about 40 completed projects to provide a 'first look' at the effectiveness of LCCMR restorations. This project will develop tools and procedures that can be efficiently used on a group of selected restoration projects each year, so LCCMR can estimate the overall effectiveness of restoration efforts for different types of goals and ecosystems, and identify specific projects that are deficient.

C. Spending History: N/A

Funding Source	M.L. 2007 or FY08	M.L. 2008 or FY09	M.L. 2009 or FY10	M.L. 2010 or FY11	M.L. 2011 or FY12-13

VIII. ACQUISITION/RESTORATION LIST: N/A

IX. MAP(S):N/A

X. RESEARCH ADDENDUM:N/A

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted not later than January 1, 2014, July 1, 2014, and January 1, 2015. A final report and associated products will be submitted between June 30 and August 15, 2015 as requested by the LCCMR.

Attachment A: Budget Detail for M.L. 2013 Environment and Natural Resources Trust Fund Projects											
Project Title: <i>Restoration Evaluations</i>											
Legal Citation: <i>M.L. 2013, Chp. 52, Sec. 2, Subd. 04I</i>											
Project Manager: <i>Susan Galatowitsch</i>											
M.L. 2013 ENRTF Appropriation: \$ 200,000											
Project Length and Completion Date: 24 months, July 1, 2015											
Date of Update: <i>July 1, 2013</i>											
ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Balance	Activity 2 Budget	Amount Spent	Balance	Activity 3 Budget	Amount Spent	Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	<i>Develop tools & compile basic project information</i>			<i>Evaluate restoration plans</i>			<i>In-depth monitoring</i>				
Personnel (Wages and Benefits)											
Research Fellow-(100%, 2 yrs, 75.6% salary, 25.1% fringe)	32,500	0	32,500	10,832	0	10,832	86,668	0	86,668	130,000	130,000
Research Fellow-(100%, 6 months, 75.6% salary, 25.1% fringe)							32,500	0	32,500	32,500	32,500
Professional/Technical/Service Contracts Honorarium-expert panel reviewers-12 x \$300	3,600	0	3,600							3,600	
Travel expenses in Minnesota: (2 people, 9 weeks, 1000 mi/week pp@.56/mi, \$100 day/pp lodging, \$50 day/pp food)							28,000	0	28,000	28,000	28,000
Other - Supplies and other costs associated with expert panel review	1,000	0	1,000							1,000	1,000
Field supplies including waterproof boots, plant collection materials, field guides, waterproof camera.							2,000	0	2,000	2,000	
2 webinars to communicate guidance for planning and evaluation-IT and facilities rental costs (\$1450 each)							2,900	0	2,900	2,900	2,900
COLUMN TOTAL	\$37,100	\$0	\$37,100	\$10,832	\$0	\$10,832	\$152,068	\$0	\$152,068	\$200,000	\$200,000

