MINNESOTA

LEGACY FUND
RESTORATION EVALUATION REPORT

Technical Panel Findings and Recommendations—2022

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REPORT TO THE MINNESOTA LEGISLATURE

Senate Environment and Natural Resources Finance Committee

Senate Environment and Natural Resources Policy and Legacy Finance Committee

House Environment and Natural Resources Finance and Policy Committee

House Legacy Finance Committee

Lessard-Sams Outdoor Heritage Council

Clean Water Council

Parks and Trails Legacy Advisory Committee

Submitted by the Department of Natural Resources and the Board of Water and Soil Resources

Legislative Charge

Parks and Trails Fund: M.S. 85.53, Subd. 5

Outdoor Heritage Fund: M.S. 97A.056, Subd. 10

Clean Water Fund: M.S. 114D.50, Subd. 6

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Minnesota DNR/BWSR

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EXECUTIVE SUMMARY

When Minnesotans passed the Clean Water, Land and Legacy Amendment in 2008, they did so with high expectations. As projects have moved forward throughout the state, so too have efforts to ensure that the projects are meeting those expectations.

This report summarizes annual work to evaluate Legacy Fund restorations. This effort is intended to support project partners in maximizing the impact of Minnesotan's investment. The Department of Natural Resources (DNR), Board of Water and Soil Resources (BWSR) (agencies), and the restoration evaluation panel (panel), continue to work together to improve restorations throughout the state. The panel is composed of experts from state and other resource agencies and academic institutions.

This report summarizes evaluations of 21 project sites done in 2022, and panel recommendations based on 247 evaluations conducted since 2012. Projects evaluated in 2022 are largely on track to meet stated goals and utilizing current science. However, the panel did identify areas for restoration improvement including:

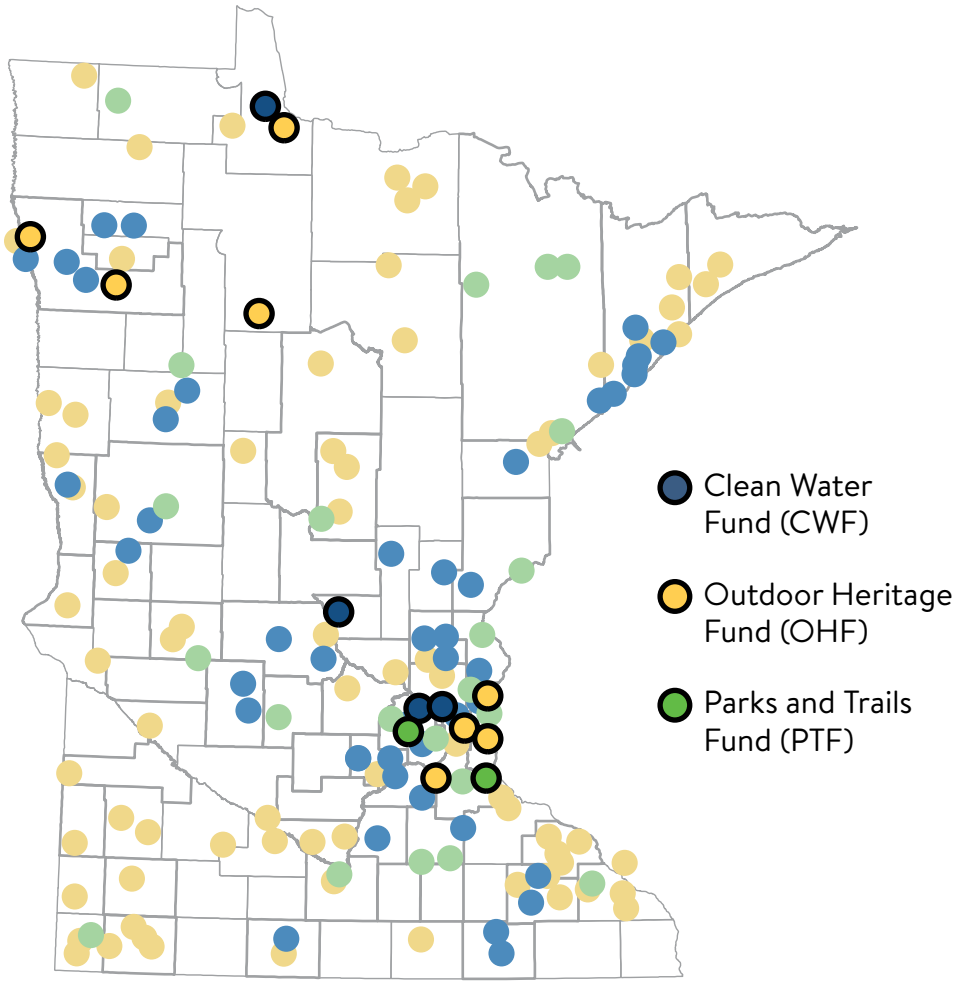
- Incorporating technical expertise in restoration planning
- Encouraging long-term phased approach in buckthorn management
- Utilizing appropriate seed mixes and proper planting guidance
- Increased planning for seeding and plant establishment due to climate change

New and ongoing recommendations from the panel are presented in the Recommendations section. These recommendations are promoted by program staff through reports, presentations, and targeted trainings.

PROJECTS EVALUATED

PROJECTS EVALUATED IN 2022

Dots may represent more than one project site. Circled dots represent projects evaluated in 2022; plain dots represent projects evaluated in previous years. Project evaluations from 2022 are available in Appendix A Program Process and Project Evaluations.



2022 EVALUATIONS SUMMARY

EVALUATED PROJECTS

Projects were completed using three Legacy Funds:

- Clean Water Fund (CWF)
- Outdoor Heritage Fund (OHF)
- Parks and Trails Fund (PTF)

	CWF	OHF	PTF	All Funds
Project sites in evaluation program pool	390	5,342	1,413	7,145
Project sites evaluated in 2022	7	10	4	21
Project sites evaluated to date	92	121	34	247

STATED GOALS

Most projects evaluated to date (80%) were on track to meet or exceed their stated goals. Ongoing monitoring and maintenance are generally required for these projects to provide habitat and other benefits into the future.

- Restoring prairies and oak savannas
- Removing buckthorn to restore hardwood forests
- Removing woody species to restore sharp-tailed grouse habitat
- Installing fencing for conservation grazing
- Removing contaminated lakebed sediment
- Restoring lakeshore habitat
- Restoring streams through bioengineering and re-meandering
- Restoring a pond through sediment removal
- Stabilizing riverbank
- Restoring a ditch and improve water quality and fish spawning habitat
- Lake drawdown and planting to manage nutrients, improve vegetation and habitat

STATUTE CHARGE

As statute directs, projects are evaluated relative to the law, current science and stated goals. Statute also directs the panel to determine any problems with the implementation and provide recommendations on improving future restorations. Detailed project evaluations are provided in Appendix A Program Process and Project Evaluations.

CURRENT SCIENCE

Most projects evaluated to date (85%) utilized best practices within the range of current science. However, the panel identified opportunities to improve the use of current science. These opportunities for improvement include:

- Incorporating a phased approach and best practices in long-term buckthorn management
- Involving the appropriate technical expertise in restoration planning
- Selecting and utilizing the appropriate herbicide to achieve goals and minimize non-target impacts

PROBLEMS WITH IMPLEMENTATION

Restoration projects take place in dynamic and complex landscapes. Most projects to date (73%) were implemented without problems. While not all problems can be predicted or prevented, the panel identified situations where problems arose that could be avoided in the future.

Problems with implementation include:

- Insufficient treatment of invasive species in woodland restoration
- Lack of plant protection for emergent vegetation in lakeshore restoration
- Insufficient watering of native plant species during establishment
- Not identifying staff and funding resources for future management actions

RESTORATION EVALUATION PANEL RECOMMENDATIONS

A critical component of restoration evaluations is identifying issues and providing guidance to project managers to improve future restorations.

Statute directs the panel to determine

...any problems with the implementation of restorations, and if necessary, recommendations on improving restorations.

The emphasis of reporting is also directed in statute

...the report shall be focused on improving future restorations.

NEW RECOMMENDATIONS:

- Improved Project Review by Technical Experts
- Phased Approach for Buckthorn Management
- Improved Seed Selection and Implementation
- Climate Change Contingency Planning

ONGOING PANEL RECOMMENDATIONS

Improved Project Teams—More comprehensive project teams should be used to improve ecological outcomes.

Improved Documentation—Documentation is critical for planning, tracking, and achieving successful restorations.

Improved Restoration Training—Continued development and implementation of training is essential to promote science-based practices.

Improved Design Criteria for Lakeshore Projects—Utilize minimum design criteria to mimic shoreline's natural structure and vegetation.

Improved Planning for Stream Projects—Detailed project planning and consistent implementation of will produce the best outcomes in stream restoration.

Improved Vegetation for Stream Projects—Well established vegetation is critical for the long-term success of stream projects.

Details regarding Ongoing Panel Recommendations are available here:

dnr.state.mn.us/legacy/restoration-evaluation.html

NEW PANEL RECOMMENDATIONS

IMPROVED PROJECT REVIEW BY TECHNICAL EXPERTS

The panel recommends that project managers utilize technical experts in the review and planning of complex projects. Project outcomes will benefit from this review by incorporating current science and best practices more consistently across the state.

ROLES OF PROJECT MANAGERS/ PARTNERS

- Identify projects early where technical capacity is needed for planning and implementation
- Engage state agency, local government units, and technical experts early in the planning phase

ROLES OF FUNDING ORGANIZATIONS

- Request project managers identify technical capacity needs in their request
- Identify and refer project managers to the appropriate resources and or staff to fit those needs

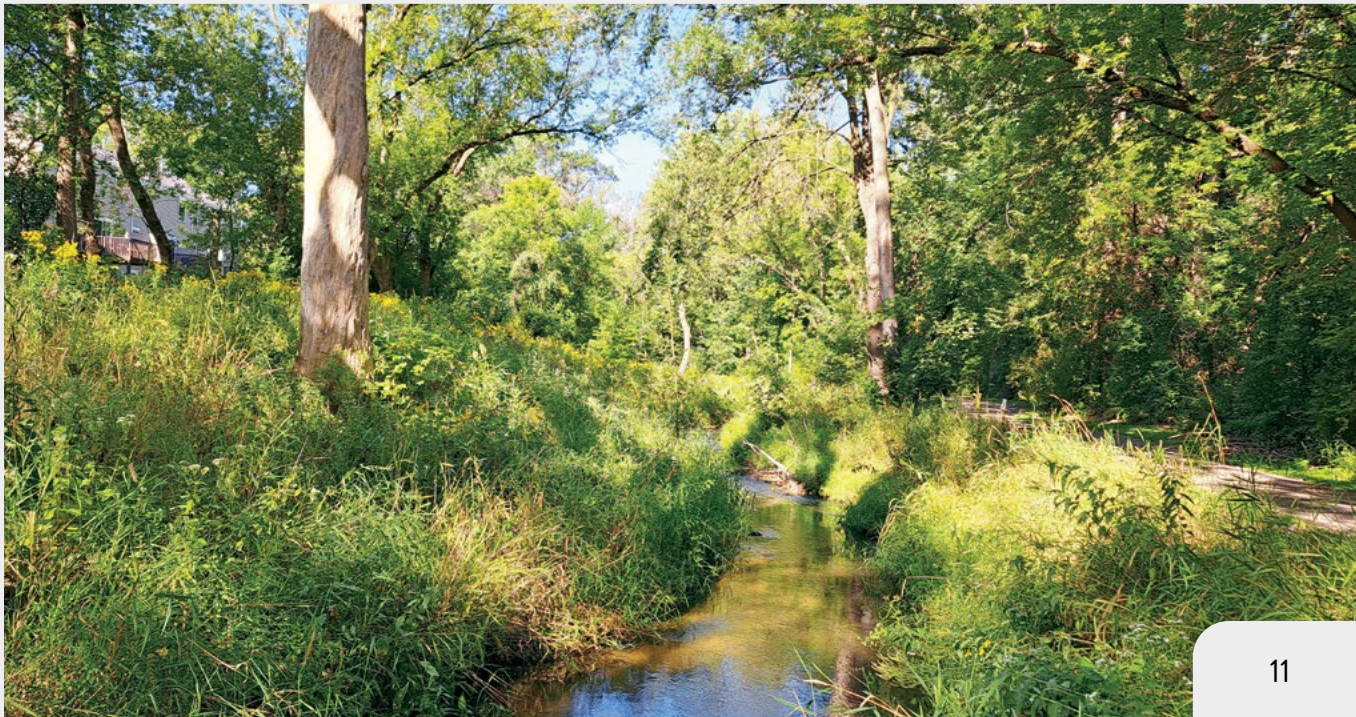
ROLE OF STATE AGENCIES

- Provide technical experts to add capacity to complex projects during planning and implementation
- Consult with project managers regarding design solutions and technical specifications
- Improve networks for technical assistance and collaboration with partners such as University of Minnesota Extension

HERE IS WHAT'S WORKING IN MINNESOTA

MIDDLE SAND CREEK—COON CREEK WATERSHED DISTRICT

The stream restoration efforts on Middle Sand Creek in Anoka County highlight the benefits of incorporating expertise and support from technical experts. Project managers identified early in the planning process the complexity of this stream project and reached out to technical experts from State agencies. The outcomes of this project were improved from guidance on design solutions, feedback on design details, and construction oversight, resulting in multiple benefits including sediment reduction, habitat improvement and flood attenuation.



PHASED APPROACH FOR BUCKTHORN MANAGEMENT

The restoration of buckthorn invaded woodlands requires a multi-year effort. The panel recommends that project managers establish a phased approach for buckthorn management incorporating the timing and sequencing of actions.

ROLES OF PROJECT MANAGERS/ PARTNERS

- Develop a long-term plan as part of a phased approach to woodland restoration
- Create plans that include timelines for sequential phases like adequate site preparation, removal methods, herbicide timing/application requirements, and site seeding/planting post removal
- If goats are used in buckthorn management, project managers should use a browsing plan that aligns with project goals and planned activities

ROLES OF FUNDING ORGANIZATIONS

- Provide project managers with resources or templates for phasing and sequencing buckthorn management plans
- Request that project managers identify their phased plan as part of funding requirements

ROLE OF STATE AGENCIES

- Provide technical resources to support project managers in utilizing best practices to improve outcomes and project longevity
- Technical resources may include:
  - › Outline of phased approaches and techniques for buckthorn removal
  - › Details for perennial seed mixes for adequate ground cover and competition for future invasions
  - › Detailed herbicide application strategies including timing of treatment and herbicide selection

TANGLEWOOD PRESERVE—SAINT CROIX WATERSHED RESEARCH STATION

The buckthorn removal project at Tanglewood Preserve in Washington County used a phased approach for management. Sequenced management actions included: forestry mulching and hand cutting, herbicide treatments, and diverse seedings to provide competition with buckthorn and fuel for prescribed fire. Buckthorn cover was significantly reduced over seven years to less than 5% from the previous near 100% cover, resulting in reduced invasive species cover, increased native vegetation cover, and improved native plant diversity.

Science Museum of Minnesota, St. Croix Watershed Research Station

Trail cam photo of project site prior to buckthorn removal, August 2016.

Project site after sequenced restoration, November 2022.

IMPROVED SEED SELECTION AND IMPLEMENTATION

The panel recognizes the need for guidance in early planning for seed mix selection and implementation to support more consistent planting success.

ROLES OF PROJECT MANAGERS/ PARTNERS

- Conduct adequate site assessments to inform appropriate seed selection
- Reference State Seed Mixes and fact sheets in early project planning and seed selection

ROLES OF FUNDING ORGANIZATIONS

- Direct project managers and partners to appropriate resources for seed selection/implementation
- Encourage project managers to follow seed source recommendations that are consistent with current science

ROLE OF STATE AGENCIES

- Update State Seed Mixes and provide guidance to project managers and partners
- Provide detailed technical resources to project managers to improve outcomes in restoration seeding and planting

Additional links:

bwsr.state.mn.us/seed-mixes

bwsr.state.mn.us/mn-wetland-restoration-guide

files.dnr.state.mn.us/assistance/backyard/prairierestoration/prairie-handbook.pdf

nature.org/en-us/about-us/where-we-work/united-states/minnesota/stories-in-minnesota/prairie-restoration-guides/

CLIMATE CHANGE CONTINGENCY PLANNING

The panel identifies that climate change is adding complexity to restoration planning and implementation. Variability in precipitation, flooding and drought necessitates that project managers build contingency plans, especially concerning native vegetation establishment.

ROLES OF PROJECT MANAGERS/ PARTNERS

- Create contingency plans such as increased irrigation measures during plant establishment
- Consider diverse species selection that will tolerate extreme precipitation and drought events
- For wetland and stream restorations consider a phased approach for vegetation establishment to account for loss of seed or installed plants
- Plan for increased pressure of invasive species range expansion

ROLE OF STATE AGENCIES

Provide continued and updated guidance such as BWSR's Climate Change Considerations for Plant Selection

Additional links:

bwsr.state.mn.us/node/8806

bwsr.state.mn.us/sites/default/files/2022-11/New%20format%20Section%202.pdf


seco

IMPROVING FUTURE RESTORATIONS

Maximizing the benefits of Legacy Funded restorations requires evaluating projects to learn what's working, engaging experts to promote current science, and communicating recommendations so they can be implemented.

EVALUATING PROJECTS

In 2022, we visited 21 project sites. In addition to visiting several forest and stream restoration projects, we visited projects in new counties completed by a variety of project partners. Combining these evaluations with previously completed site visits provides a broader view of the implementation of Legacy Funds, the benefits they are providing, and opportunities to maximize the benefits of the funds for Minnesotans.

ENGAGING EXPERTS

A goal of the Legacy Fund Restoration Evaluation Program is to facilitate the technical exchange between restoration experts and practitioners. This begins in the field with state or contracted site assessors and project managers discussing implemented restoration practices and shared experience on the ground. Program staff and site assessors then draft site evaluation reports. These reports are presented to the panel annually by site assessors and program staff to discuss challenges and successes across Legacy Funded restoration projects. This technical exchange forms the recommendations for the Annual Report and future communications to stakeholders.

PROGRAM ACTIVITIES

2012-2022

247

PROJECTS EVALUATED
(ALL HABITAT TYPES)

263

EXPERTS
ENGAGED

COMMUNICATING WITH STAKEHOLDERS

For panel recommendations to make a difference, they need to be communicated to the stakeholders engaged in planning, funding, and implementing restorations in the state.

One way our program meets this goal is by helping coordinate training opportunities for practitioners to engage with experts. In 2022 program staff conducted a training session at the BWSR Academy focusing on lakeshore restoration projects. Restoration experts shared the process of planning and implementing high quality shoreline projects.

MORE THAN
5,000
STAKEHOLDERS
REACHED

ADDITIONAL RESOURCES

RESTORATION EVALUATION PROGRAM WEBSITE

dnr.state.mn.us/legacy/restoration-evaluation.html

APPENDIX A PROGRAM PROCESS AND PROJECT EVALUATIONS

lrl.mn.gov/edocs/edocs?oclcnumber=823766285

CLEAN WATER LAND & LEGACY AMENDMENT

MINNESOTA

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