



# **Development and Implementation of a Habitat Restoration Evaluation Program for Legacy Projects**

**FINAL PROJECT REPORT  
November, 2011**

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## CONTENTS

Executive Summary	Page 4
Program Administration	Page 6
Project Selection	Page 11
Project Evaluation	Page 15
Report on Findings	Page 22
Appendix I: Restoration Evaluations Process Overview	Page 23
Appendix II: Evaluation Methodology Flowchart	Page 25
Appendix III: Restoration Evaluation Form for Habitat Restoration Projects	Page 26
Appendix IV: Sample Field Testing (Restoration Evaluation Form)	Page 28
Appendix V: Habitat Restoration Evaluation Guidelines Reference	

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## **Laws of Minnesota 2011, First Special Session, Chapter 6**

The statutory requirements, as amended in M.L. 2011, First Special Session, Ch. 6, for conducting restoration evaluations on habitat restoration projects completed with Legacy funds are included in this report for reference.

Parks and Trails Fund: M.S. 85.53, Subd. 5. Restoration evaluations. The commissioner of natural resources may convene a technical evaluation panel comprised of five members, including one technical representative from the Board of Water and Soil Resources, one technical representative from the Department of Natural Resources, one technical expert from the University of Minnesota or the Minnesota State Colleges and Universities, and two other representatives with expertise related to the project being evaluated. The commissioner may add a technical representative from a unit of federal or local government. The members of the technical evaluation panel may not be associated with the restoration, may vary depending upon the projects being reviewed, and shall avoid any potential conflicts of interest. Each year, the commissioner may assign a coordinator to identify a sample of up to ten habitat restoration projects completed with parks and trails funding. The coordinator shall secure the restoration plans for the projects specified and direct the technical evaluation panel to evaluate the restorations relative to the law, current science, and the stated goals and standards in the restoration plan and, when applicable, to the Board of Water and Soil Resources' native vegetation establishment and enhancement guidelines. The coordinator shall summarize the findings of the panel and provide a report to the chairs of the respective house of representatives and senate policy and finance committees with jurisdiction over natural resources and spending from the parks and trails fund. The report shall determine if the restorations are meeting planned goals, any problems with the implementation of restorations, and, if necessary, recommendations on improving restorations. The report shall be focused on improving future restorations. Up to one-tenth of one percent of forecasted receipts from the parks and trails fund may be used for restoration evaluations under this section.

Outdoor Heritage Fund: M.S. 97A.056, Subd. 10. Restoration evaluations. The commissioner of natural resources and the Board of Water and Soil Resources may convene a technical evaluation panel comprised of five members, including one technical representative from the Board of Water and Soil Resources, one technical representative from the Department of Natural Resources, one technical expert from the University of Minnesota or the Minnesota State Colleges and Universities, and two representatives with expertise in the project being evaluated. The board and the commissioner may add a technical representative from a unit of federal or local government. The members of the technical evaluation panel may not be associated with the restoration, may vary depending upon the projects being reviewed, and shall avoid any potential conflicts of interest. Each year, the board and the commissioner may assign a coordinator to identify a sample of up to ten habitat restoration projects completed with outdoor heritage funding. The coordinator shall secure the restoration plans for the projects specified and direct the technical evaluation panel to evaluate the restorations relative to the law, current science, and the stated goals and standards in the restoration plan and, when applicable, to the Board of Water and Soil Resources' native vegetation establishment and enhancement guidelines. The coordinator shall summarize the findings of the panel and provide a report to the chair of the Lessard-Sams Outdoor Heritage Council and the chairs of the respective house of representatives and senate policy and finance committees with jurisdiction over natural resources and spending from the outdoor heritage fund. The report shall determine if the restorations are meeting planned goals, any problems with the implementation of restorations, and, if necessary, recommendations on improving restorations. The report shall be focused on improving future restorations. Up to one-tenth of one percent of forecasted receipts from the outdoor heritage fund may be used for restoration evaluations under this section.

Clean Water Fund: M.S. 114D.50, Subd. 6. Restoration evaluations. The Board of Water and Soil Resources may convene a technical evaluation panel comprised of five members, including one technical representative from the Board of Water and Soil Resources, one technical representative from the Department of Natural Resources, one technical expert from the University of Minnesota or the Minnesota State Colleges and Universities, and two representatives with expertise related to the project being evaluated. The board may add a technical representative from a unit of federal or local government. The members of the technical evaluation panel may not be associated with the restoration, may vary depending upon the projects being reviewed, and shall avoid any potential conflicts of interest. Each year, the board may assign a coordinator to identify a sample of up to ten habitat restoration projects completed with clean water funding. The coordinator shall secure the restoration plans for the projects specified and direct the technical evaluation panel to evaluate the restorations relative to the law, current science, and the stated goals and standards in the restoration plan and, when applicable, to the Board of Water and Soil Resources' native vegetation establishment and enhancement guidelines. The coordinator shall summarize the findings of the panel and provide a report to the chairs of the respective house of representatives and senate policy and finance committees with jurisdiction over natural resources and spending from the clean water fund. The report shall determine if the restorations are meeting planned goals, any problems with the implementation of restorations, and, if necessary, recommendations on improving restorations. The report shall be focused on improving future restorations. Up to one-tenth of one percent of forecasted receipts from the clean water fund may be used for restoration evaluations under this section.

## Executive Summary

In 2008, Minnesota voters approved a proposed constitutional amendment to conserve our natural and cultural heritage. The Clean Water, Land, and Legacy amendment dedicates an increase in the state sales tax of three-eighths of one percent for the next 25 years to protect, enhance, and restore our outdoor heritage, surface and ground water resources, parks and trails, and arts and cultural heritage. Passage of the Legacy amendment reinforces the state's continuing efforts to conserve the diversity of lands, waters, and fish and wildlife that provide the foundation for Minnesota's high quality of life and also brings strong expectations for a greater level of transparency and accountability in the use of these public funds.

State law (M.L. 2011, First Special Session, Ch. 6) allows restoration evaluations be conducted on habitat restoration projects completed with funds from the Clean Water Fund (M.S. 114D.50), Outdoor Heritage Fund (M.S. 97A.056), and Parks and Trails Fund (M.S. 85.53). The new law directs the Minnesota Board of Water and Soil Resources (BWSR) and the Minnesota Department of Natural Resources (DNR) to convene for each of the three funds a restoration evaluation panel (REP) containing at least five technical experts who will evaluate a sample of up to 10 habitat restoration projects annually beginning July 1, 2011. The REP will evaluate the restorations relative to the law, current science, stated goals and standards in the restoration plans, and applicable guidelines. The agencies may assign a coordinator for the REP who is responsible for both selecting the projects to be evaluated by the panel and providing reports to the legislature and governing councils on the findings of the panel, determining whether restorations are meeting planned goals, identifying problems with implementation of restorations and, if necessary, providing recommendations on improving restorations. The new law provides for the use of up to one-tenth of one percent of forecasted receipts from each fund to support this work.

In preparation for these new requirements, BWSR and DNR leadership initiated a year-long interagency project, staffed by a project manager and an interdisciplinary team of technical and professional experts, to cooperatively develop recommendations for the formation and implementation of the program, ensuring the effective coordination between the two responsible agencies and consistency in program development. As provided by law, BWSR is the responsible agency for Clean Water Fund restoration evaluations; DNR is the responsible agency for Parks and Trails Fund restoration evaluations; and DNR and BWSR are jointly responsible for Outdoor Heritage Fund restoration evaluations.

BWSR and DNR developed the following goals and objectives for the project:

- *Effectiveness:* A process for evaluating habitat restoration projects will be recommended that provides for transparency and accountability in the use of Legacy funds and supports a collaborative, continuous learning environment that informs future habitat restorations throughout the state.
- *Consistency:* A process will be recommended that provides for consistency in program development and implementation within and across the three funds.
- *Efficiency:* A process will be recommended that allows the responsible agencies to accomplish all program requirements established in law within the budgeted allowances for the program.
- *Partnerships:* Partners will be engaged and involved in the development of the program.

The project team established recommendations for the development and implementation of a Restoration Evaluations Program, including options for administration of the program and recommendations on the process and methods for selecting and evaluating habitat restoration projects and reporting on the panel findings. After development of the recommendations, the team field tested the proposed evaluation process to assess whether the program methodology

would meet the requirements established in law. Recommendations were then made for improvements to the program framework.

This report provides recommendations on the development and administration of a Restoration Evaluations Program in Minnesota. The report provides an overview of the recommended options for administering the program, including the process for selecting and evaluating habitat restoration projects funded by the Clean Water Fund, Outdoor Heritage Fund, and Parks and Trails Fund, and reporting on the findings of the evaluations, as required by M.S. 85.53, 97A.056, and 114D.50. A high-level summary of the evaluation process is available in Appendix I. The report is organized by the following major sections, which address the statutory requirements for the program: program administration, project selection, project evaluation, and report findings.

# PROGRAM ADMINISTRATION

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Project Selection

Project Evaluation

Report on Findings

# PROGRAM ADMINISTRATION

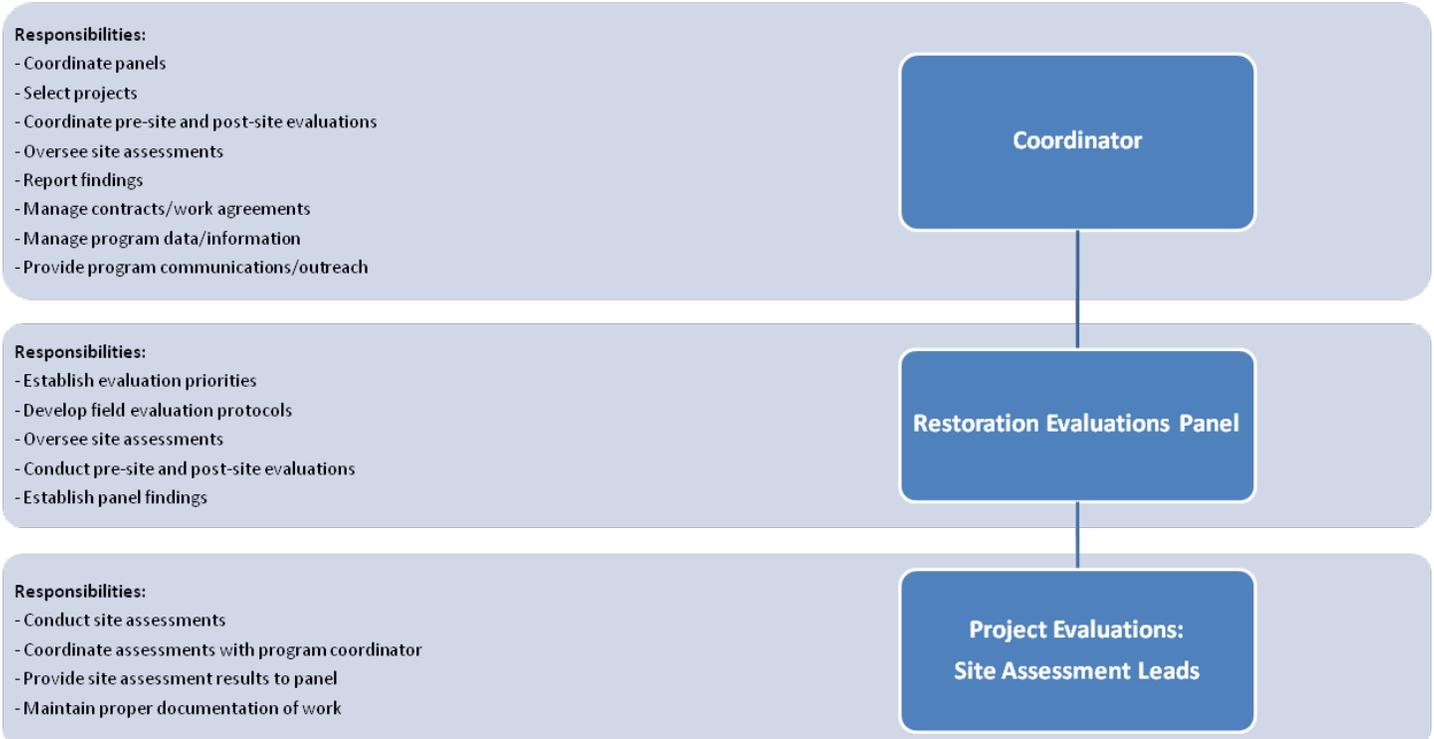
## Program Administration

The Restoration Evaluations Program will be coordinated by the Minnesota Board of Water and Soil Resources (BWSR) and the Minnesota Department of Natural Resources (DNR). BWSR and DNR will create a Memorandum of Understanding (MOU) that establishes shared agency roles and responsibilities, provides for the adequate commitment of resources to administer the program, and ensures consistency in program implementation. Although BWSR and DNR are jointly responsible for program administration, the two agencies will allow for the use of MOUs, contracts, or other administrative mechanisms to both successfully accomplish the work as required by M.S. 85.53, 97A.056, and 114D.50 and achieve the desired goals of delivering an efficient and effective program.

## Administrative Structure

The project team recommends an administrative structure be established that ensures the effective coordination of restoration evaluations between the three funds while minimizing operational costs. The team considered three alternative models for program administration, recommending an administrative model that could best achieve the goals for program efficiency and effectiveness and provide for consistency and transparency in program implementation.

## Administrative Model.



Recommended Administrative Model. The administrative model recommended by the project team establishes one restoration evaluation panel (REP) for all three funds, staffed by one coordinator for the panel and supported by a pool

of technical experts that would perform the site evaluations. The panel would be responsible for establishing priorities for project evaluations, reviewing the selection of projects, providing direction on the site evaluations, conducting post-site evaluations, and making determinations on the habitat restoration projects. The site assessment leads, drawn from the pool of technical experts, would be responsible for conducting the site evaluations and providing the results of the assessments to the panels for evaluation. The site assessment leads would work closely with the coordinator in conducting the pre-site evaluation, take direction from the panel on the site evaluations, and participate in the post-site evaluation to ensure panel queries are adequately addressed. This administrative model minimizes administrative costs by supporting just one coordinator and one panel to oversee the site evaluations for all three funds.

## **Roles and Responsibilities**

The project team recommends the following responsibilities be established for the program coordinator, restoration evaluations panel, and site assessment leads.

### Program Coordinator

The program coordinator would be responsible for coordinating the work of the restoration evaluation panel for the Clean Water Fund, Outdoor Heritage Fund, and Parks and Trails Fund. By law, the coordinator is responsible for the following:

- Identifying a sample of up to ten habitat restoration projects completed with funding from the Parks and Trails Fund, Outdoor Heritage Fund, and Clean Water Fund;
- Securing the restoration plans for the projects selected;
- Summarizing the findings of the restoration evaluation panel or panels; and
- Providing reports to the legislature on panel findings.

According to statute, the commissioner, the board, or both are responsible for assigning a coordinator each year, with DNR responsible for assigning a coordinator for Parks and Trails Fund habitat restoration evaluations, BWSR responsible for assigning a coordinator for Clean Water Fund evaluations, and DNR and BWSR jointly responsible for assigning an Outdoor Heritage Fund coordinator. However, the project team recommends that one coordinator be jointly appointed by the two agencies to manage the Restoration Evaluations Program for all three funds in order to ensure consistency in program implementation. Funding for the position would be supported proportionally by the three funds and a MOU would be utilized to allow for cooperative support for this position.

The team also recommends this position be created as a permanent position. Although the coordinator is not responsible for conducting site evaluations, it is recommended the coordinator attend all or a subset of the site assessments in order to validate the site evaluation process and respond to panel queries in development of the panel findings. The coordinator should therefore possess sufficient knowledge or technical skills related to habitat restorations or evaluation methodologies to contribute to program learning. The coordinator also would be responsible for program communications, data and information management, and contract management, as needed, and should possess the necessary skills and abilities to support these program functions. Given the knowledge, skills, and abilities required to adequately fulfill the job requirements of the position, the team believes the most efficient use of public funds would be support a permanent position that can provide consistency and continuity in program management and administration.

### Restoration Evaluations Panel

By the law, the restoration evaluations panel is responsible for:

- Evaluating habitat restorations relative to the law, current science, and the stated goals and standards in the restoration plans; and
- Providing findings on the evaluations, determining whether restorations are meeting planned goals, identifying problems with implementation of restorations and, if necessary, providing recommendations on improving restorations.

The project team also recommends the panel establish evaluation priorities each year, which could be based on a variety of factors such as predominant habitat type or geographic region. The REP would use these priorities to determine project selection and develop field evaluation protocols to guide the site assessments based on the types of projects selected. Panel membership would include technical experts that are responsible for directing the site assessments and evaluating the projects based on the results of the assessments. The panel also would be involved in both the pre-site evaluation, which involves review of the restoration plans and other project background information, and the post-site evaluation, which involves discussion with project managers on recommendations for improvement, if needed.

As required by state law, DNR and BWSR “may convene a technical evaluation panel” for each of the three funds. This language does not negate the option to convene the same panel for each of the three funds, which is the option recommended by the project team.

#### Site Assessment Leads

Under the administrative model recommended by the project team, the site evaluations would be conducted by site assessment leads. The site assessment leads would be responsible for conducting the site evaluations and providing the results of the assessments to the panels for evaluation. The site assessment leads must be knowledgeable and trained in applying evaluation methodologies to assess the effectiveness of habitat restorations and in the evaluation of habitat functions. The site assessment leads would work closely with the coordinator in conducting the pre-site evaluation, take direction from the panel on the site evaluations, and participate in the post-site evaluation to ensure panel queries are adequately addressed. Services provided by the site assessment leads could be negotiated through the use of contracts, MOUs, or work assignments.

#### Project Managers

Project managers are expected to actively participate in the restoration evaluation process. Project managers work with the program coordinator to provide the necessary project background information. Project managers are also expected to attend the site evaluations to identify for the site assessment leads the project work sites, to provide important project context, and answer any questions that may arise.

#### **Administrative Procedures**

Administrative procedures recommended by the project team include procedures governing panel membership and appointments, panel meetings, panel recommendations, reports and other public records, and the use of contracts and agreements in accomplishing program work. The panel may adopt additional operating procedures to fulfill its duties.

#### Program Coordination

The team recommends a program charter be developed that establishes the program’s purpose, scope, and expectations for interagency coordination of the program.

### Panel Membership

As provided by law, DNR and BWSR are responsible for convening a restoration evaluation panel, “comprised of five members, including one technical representative from the Board of Water and Soil Resources, one technical representative from the Department of Natural Resources, one technical expert from the University of Minnesota or the Minnesota State Colleges and Universities, and two representatives with expertise related to the project being evaluated.” DNR and BWSR may also “add a technical representative from a unit of federal or local government” (M.S. 85.53, 97A.056, 114D.50).

The project team recommends that panel members be selected based on their expertise and availability. It is recommended that panel members appointed have specific expertise in prairie/grassland, forest, wetland, or aquatic ecosystems and habitat restoration techniques, so that at least one panel member will have proficiency related to any project being evaluated. The panel may seek the advice and assistance from others with additional expertise to help the panel in its work. Panel members are to be appointed by the two agencies and the project team recommends panel members serve multi-year terms established by the agencies or as provided by law, with vacancies staggered between members to encourage program continuity. For each panel member, an alternate should be identified that is available to serve under certain circumstances, such as when a conflict of interest arises with a panel member. Once the panel is seated, panel members should work with the coordinator to elect a chair or co-chairs and other officers, such as recording secretary, to the panel that rotates annually. The chair or co-chairs will work closely with the program coordinator to ensure the effective coordination of the panel and assist in program communications, if necessary.

As provided by law, panel members shall avoid any potential conflicts of interest and may not be associated with the restoration projects being evaluated. The team recommends panel members not participate in or vote on a decision of the panel relating to a project in which the member has a potential conflict of interest. A member may be removed from the panel by the appointing authority for cause.

### Panel Meetings

As part of the operating procedures, the panel members are expected to participate in all meetings. A meeting occurs when a quorum is present and action is taken regarding a matter within the jurisdiction of the panel. The panel should meet at least quarterly to conduct the business of the panel. However, the chair or co-chairs shall be responsible for convening meetings of the panel as often as is necessary to fulfill its duties. Except where prohibited by law, the panel shall make available to the public meeting minutes, records of decisions, and votes of the members of the panel on any action taken in a meeting.

### Project Evaluations

As part of the operating procedures, the panel shall develop a process that provides for the evaluation of project effectiveness while keeping the process as simple as possible. The evaluation process must be fair, equitable, and transparent. The panel shall develop and implement a process that ensures individual project managers are included throughout the process, including the development of the panel’s recommendations. Project managers must cooperate in providing the coordinator, panel members, and the site assessment leads with project information and access to the project site for evaluation. Site evaluations must be preceded by notice to the project manager and, where possible, should be attended by the project manager.

The panel will develop a set of criteria that would exempt a project from undergoing a site evaluation and the panel shall make no findings or recommendations without a site evaluation or a determination based on these criteria that a site evaluation is not required.

#### Panel Findings

The panel shall present findings in a report to the legislature as consistent with state law. In developing findings, the panel shall determine whether restorations are meeting planned goals, identify problems with implementation of restorations and, if necessary, provide recommendations on improving restorations. Panel findings and recommendations must be documented and endorsed by a majority of the panel members.

#### Reports and Other Public Records

The coordinator is responsible for providing reports to the legislature and legislative councils on the findings of the panel. Copies of the report also must be made available to the public. The coordinator shall make and preserve all records of the program's official activities as provided by M.S. 15.17. Materials classified by law as other than public as defined in M.S. 13 or relating to closed meetings in accordance with M.S. 13D.03 are not required to be provided to the public.

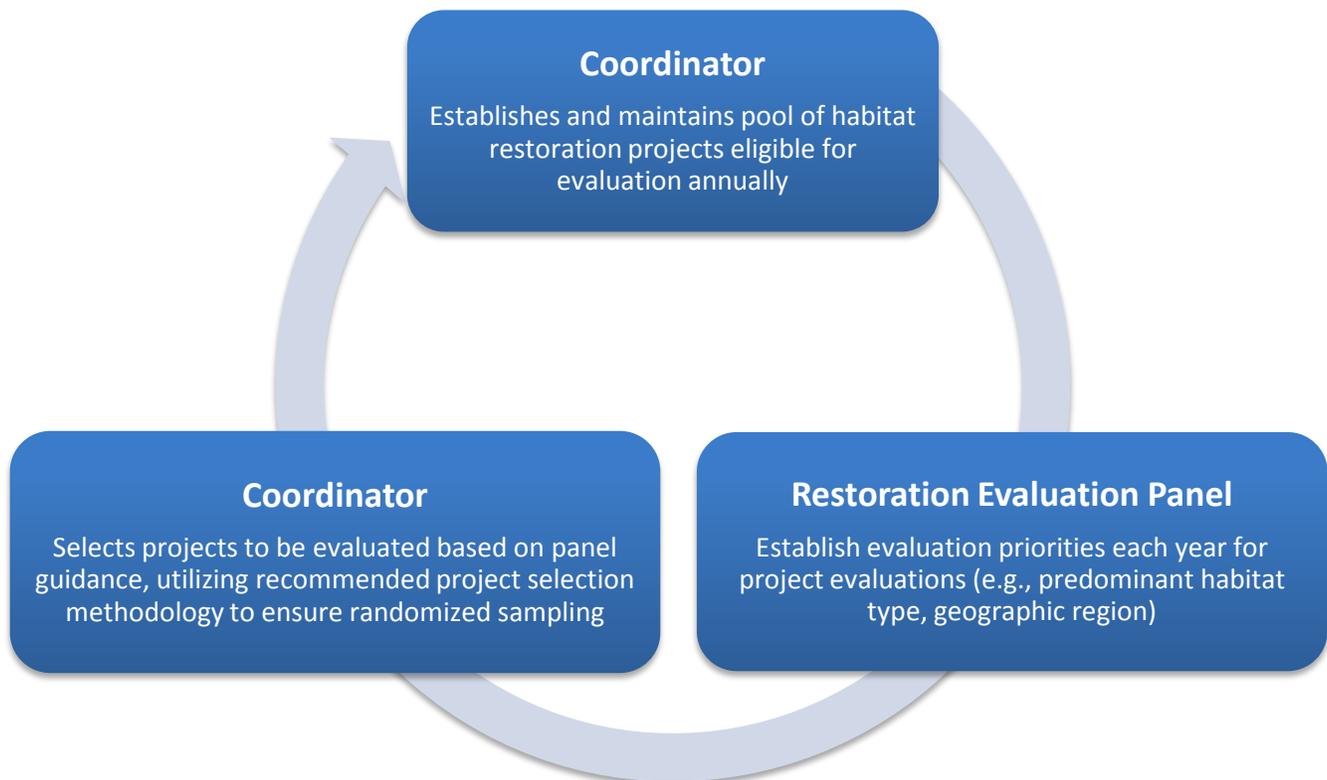
#### Professional and Technical Services

The panel may seek the advice and assistance from others with additional expertise to help the panel in its work. The panel may enter into a written agreement with a federal or state agency in accordance with M.S. 15.51 through 15.57. The panel also may acquire professional and technical services by requests for bids, proposals, or other methods as provided by law. Determinations shall be based on best value, which includes an evaluation of price and other considerations including quality and vendor performance as provided by M.S. 16C.03. A best value determination must be based on the evaluation criteria detailed in the solicitation document. Contract procedures for professional and technical services will be done in accordance with M.S. 16C.08.

# Project Selection: *Overview*

The project selection process is a critical part of the Restoration Evaluations Program and requires coordination beyond selecting the projects to be evaluated. There are three essential steps to the project selection process, which include:

- **Determination of eligible projects.** The coordinator will need to establish the pool of habitat restoration projects from each funding source eligible to be evaluated under the Restoration Evaluations Program. The coordinator will need to work closely with various external parties to determine which legacy-funded projects are to be classified as habitat restoration projects. The goal is to establish a fair and equitable process that allows for the consistent application of standards to assist in determining both what constitutes a restoration project and when a project should be considered a habitat project.
- **Establishment of evaluation priorities.** The project team recommends the restoration evaluations panel be provided the option to establish annual evaluation priorities. Given limited program funding and a potentially large pool of habitat restoration projects eligible for evaluation, setting annual priorities that focus the work of the site assessments may improve program efficiency, reduce costs, and allow for the selection of less dominant restoration project types.
- **Project selection.** By law, the coordinator is responsible for identifying a sample of up to ten habitat restoration projects for each of the three funds – the Parks and Trails Fund, Outdoor Heritage Fund, and Clean Water Fund. The project team recommends a stratified random sampling of projects with suggested criteria for stratifying the projects.

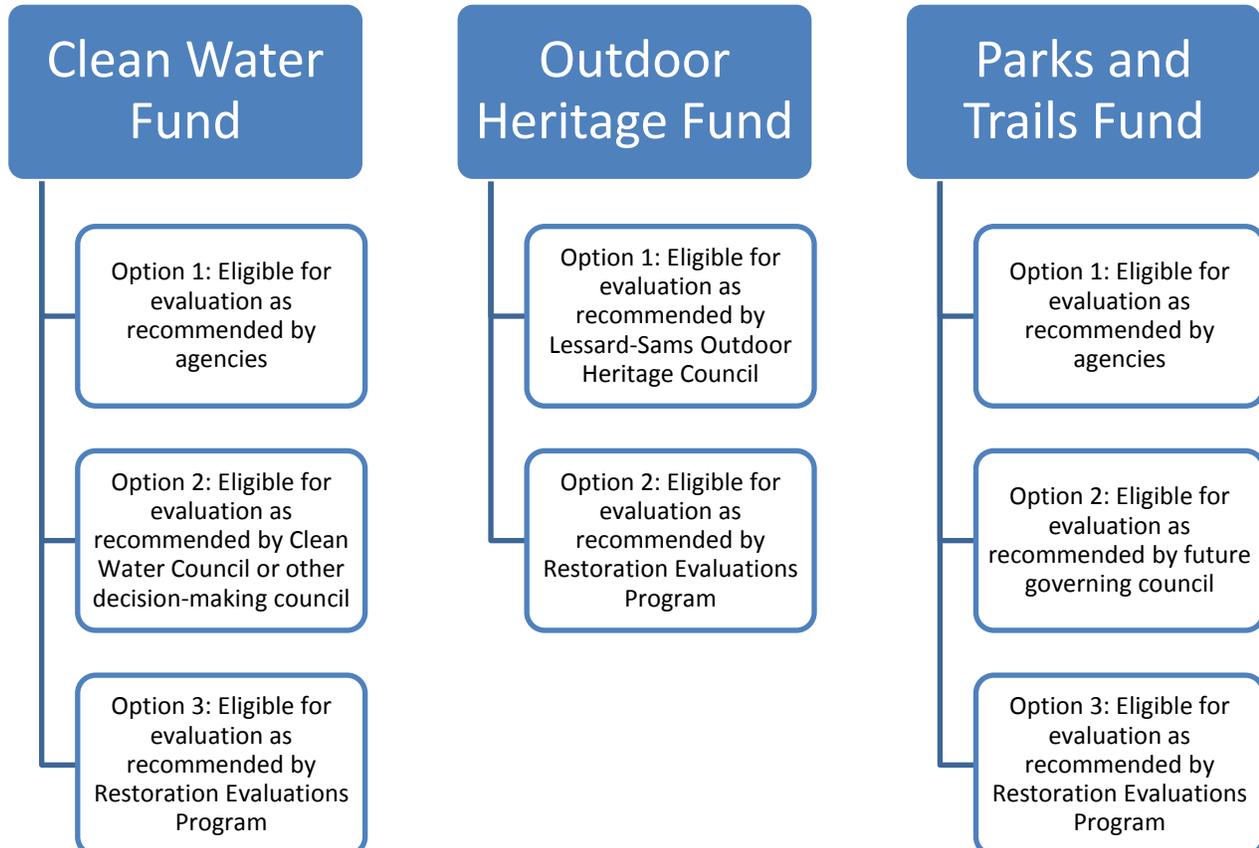


# Project Selection: *Project Eligibility*

## Project Eligibility

Coordinator establishes and maintains pool of habitat restoration projects eligible for evaluation annually

The coordinator is responsible for establishing the pool of habitat restoration projects eligible to be evaluated under the Restoration Evaluations Program. The goal is to ensure the consistent application of standards to assist in determining both what constitutes a restoration project and when a project should be considered a habitat project. For example, there may be instances, particularly in regards to Clean Water Fund projects, where habitat restoration is not a primary goal of a project, but may be a secondary goal, or where restoration actions result in the direct improvement of habitat. The coordinator will need to work with both the panel and external parties to determine the conditions under which restoration projects can be designated as habitat restoration projects. This determination will need to occur before projects may be selected for evaluation. The project team proposes several different alternative options for determining project eligibility. Additional options not proposed by the project team may be available and should be considered by the coordinator.



# Project Selection: *Evaluation Priorities*

## Evaluation Priorities

Restoration Evaluation Panel establishes evaluation priorities each year for project evaluations (e.g., predominant habitat type, geographic region)

The project team recommends the restoration evaluations panel be provided the option to establish annual evaluation priorities. Given limited program funding and a potentially large pool of habitat restoration projects eligible for evaluation, setting annual priorities that focus the work of the site assessments may improve program efficiency, reduce costs, and allow for the selection of less dominant restoration project types.

Once the panel is seated, the project team recommends that the first meeting of the panel include the establishment of annual evaluation priorities. Evaluation priorities could be based on a number of factors of interest to the panel. The panel may choose to establish evaluation priorities based on, for instance, predominant habitat type, allowing the panel to focus on a particular habitat type each year. The coordinator could then apply the project selection methodology to randomly select projects within that habitat type. Alternatively, the panel could establish priorities based on geographic region, such as the prairie pothole region or the metropolitan area. The panel could also establish priorities around types of restoration activities, such as prescribed burning, in order to allow for a comparative evaluation of restoration actions within a given year.

# Project Selection: *Random Sampling*

## Random Sampling

Coordinator selects projects to be evaluated based on panel chair guidance, utilizing project selection methodology to ensure randomized sampling

The project team recommends a stratified random sampling method to select projects for evaluation. A stratified sampling will allow for a diversity of projects to be evaluated by the panels, while a randomized selection will ensure an impartial and equitable selection process.

### **Project Selection Methodology**

The coordinator will use a stratified random sampling framework for selecting up to 10 projects from each of the three funds that will be evaluated by the restoration evaluation panel (REP) each year. Projects will be divided into sampling populations based on predetermined criteria developed by the REP. A random sample from each stratum will be selected, in a number proportional to the number of projects within each stratum. However, the coordinator may choose to use weighting in order to ensure some of the less dominant project types are also evaluated.

The strata, at a minimum, will be based on the following criteria:

- *Project type*: major habitat types will be equally represented within the selected pool, or the coordinator and REP chairs may establish priorities for evaluating specific major habitat types on a rotating basis.
- *Project stage*: a variety of projects, in different stages of implementation (establishment/treatment or post-establishment/post-treatment), will be assessed and the status of the project will be taken into consideration by evaluators and appropriate evaluation methodologies will be applied. Only projects where restoration work has been initiated will be evaluated.
- *Project complexity*: the complexity of projects, from simple to complex, will be represented.
- *Expected project durability*: a selection of projects that address symptoms of larger ecological system drivers will be included in the sample to provide performance information on how long the treatment is sustained following project implementation.
- *Project location*: projects assessed will be geographically distributed throughout the state, unless the coordinator and REP chairs choose to annually establish geographic focal areas for evaluations.
- *Project proposer*: a representative selection of projects based on proposer – governmental, non-governmental – will be included.

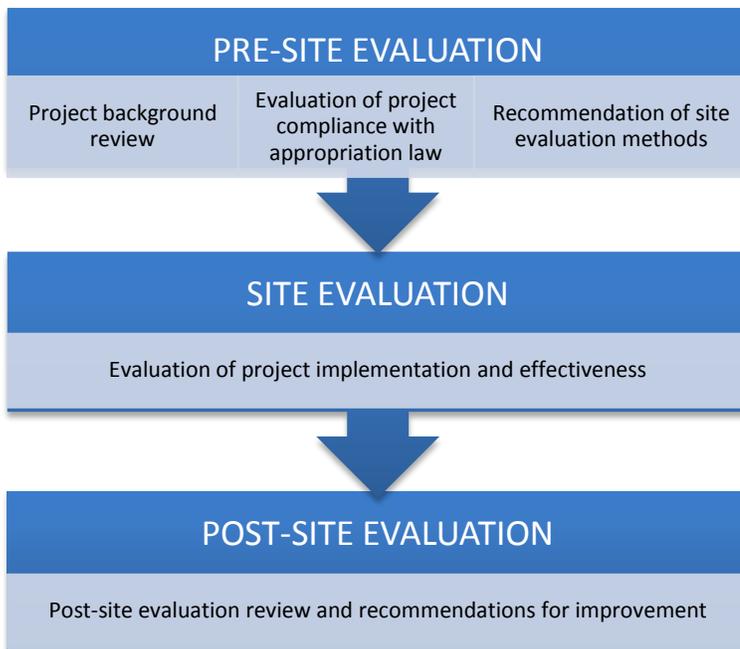
### Guiding Rules:

1. The coordinator will ensure there is no conflict of interest between members of the REP and selected projects. If a conflict of interest is determined, the coordinator and panel chair will appoint an alternate panel member to evaluate the specified project.
2. The number of projects to be evaluated will depend on the level of program funding. Evaluations will be completed within the available budget.
3. If more than five projects are contained within a stratum, the projects will be randomly selected. If less than five projects are contained within a stratum, two representative projects will be chosen by the coordinator or REP.
4. Once a project has been evaluated, it will not be returned to the pool of eligible projects to be evaluated, unless:
  - a. A project is flagged for a follow-up evaluation.
  - b. It is found beneficial to review a small number of project on an intermittent basis to encourage the continuous learning process.
  - c. It is found to be beneficial to assess projects post completion (e.g., Year 7) in order to determine if long-term maintenance needs are being met.

### Important Considerations:

Given limited program resources, it is not recommended that evaluations be conducted on projects that have not initiated on-the-ground work.

# Project Evaluation: *Overview*



The project evaluation process is divided into three primary steps.

- Pre-site evaluation: The pre-site evaluation allows for the coordinator to secure the restoration plans for projects selected for evaluation and to assess project compliance with appropriation law, as required by statute, and also allows for the panel to review selected projects and recommend evaluation methods to the site assessment leads.
- Site evaluation: The site evaluation allows the site assessment leads to conduct field visits to project sites to evaluate project implementation and assess effectiveness of the project to date.
- Post-site evaluation: The post-site evaluation provides for a review and discussion of the site evaluations and results in final panel determinations and recommendations for improvement to projects, if needed.

## Project Evaluation: Overview

The project evaluation process includes three primary components to satisfy requirements in law. Compliance monitoring or evaluation, which is part of the pre-site evaluation, answers the question, “Did the project adhere to requirements established in law?” This type of evaluation involves assessing specifically whether projects met legal and administrative requirements related to the use of legacy funds, which vary by fund. It satisfies the program requirement that the restoration evaluation panel “evaluate the restorations relative to the law” (M.S. 85.53, 97A.056, 114D.50).

The second component of this process is the implementation monitoring or evaluation, which is part of the pre-site and site evaluation, answers the question, “Did project managers do what they said they would do?” This type of evaluation involves determining whether restoration actions were implemented as proposed in the restoration plan, and if not, what factors contributed to a deviation from the plan. This requires both a review of the restoration plan (pre-site evaluation) and a field visit to verify implementation of the restoration project (site evaluation). External factors such as the weather play a critical role in determining both when restoration actions can be performed and often how successful these actions are, so project managers will be requested to participate in the site evaluation to provide this important context to the site assessment leads. Statute requires also that the panel evaluate restorations relative to current science and standards, so the implementation evaluation will also answer the question, “Did project managers use commonly accepted guidelines and best management practices in project implementation?” Again, the participation of the project managers in the site evaluation provides the necessary context for the site assessment leads to understand how the project managers actions utilized current science and best management practices to improve site conditions and adaptively managed any unforeseen issues.

Lastly, effectiveness monitoring or evaluation, which is part of the site and post-site evaluation, answers the question, “Were the restoration actions effective in meeting project goals and objectives?” The site assessment leads will record the site conditions, including any issues that threaten the continued or long-term success of the project, and make a preliminary determination of the success of the project to date based on the site assessment results. The panel will need to use best professional judgment in making a final determination, answering the question of whether the restoration was effective relative to project goals. At least initially, it is likely many of the projects evaluated will not have yet been fully completed, so a final determination of effectiveness is not possible. Panel members, instead, could make a determination based on project implementation, current project status, the identification of potential threats to the restoration, and the plan for dealing with these threats, whether a project is or is not on the correct trajectory for success.

# Project Evaluation: *Pre-Site Evaluation*

## PRE-SITE EVALUATION

Project background review

Evaluation of project compliance with appropriation law

Recommendation of site evaluation methods

The pre-site evaluation shall consist of a project background review, evaluation of project compliance, and a determination of recommended site evaluation methods.

### Pre-Site Evaluation

The pre-site evaluation satisfies the compliance evaluation, answering the question: “Did the project adhere to requirements established in law?” It also allows the panel, responsible for making final determinations on the projects, to review the projects and make recommendations on site evaluation methods to the site assessment leads.

#### Project Background Review

The program coordinator will collect project information to be used by the restoration evaluations panel and the site assessment leads in the pre-site evaluation review. This information will include the restoration plan and additional project background information, if available. The program coordinator will work with project managers of the selected projects to obtain this information.

As part of the pre-site evaluation, the coordinator is responsible for securing “the restoration plans for the projects specified,” (M.S. 85.53, 97A.056, 114D.50). Of the three legacy funds subject to this program, only projects funded by the Outdoor Heritage Fund are currently required in statute to prepare a restoration plan. It is assumed that the majority of restoration projects eligible for evaluation will have restoration plans available. However, if this is not the case, then the following is provided as guidance to project managers for recommended project documentation of restoration projects funded with legacy funds.

#### Project Documentation Standards:

- Project goals or objectives: The project should have clearly defined goals and objectives, against which project success can be measured.
- Project location and setting: A description of the project location should include, at a minimum, the county, township, range, and section where the project is located. A detailed site map with defined project boundaries or similar information (e.g., legal description, aerial photos) should also be included.
- Existing site conditions: Documentation of the existing site conditions is critical to both the development of a restoration plan and assessment of the effectiveness of restoration actions. Documentation of existing site conditions may include some or all of the following:
  - Description of site characteristics (topography, soils, hydrology, land cover, wildlife, special elements)
  - Quantitative baseline data, if available
  - Description of surrounding landscape conditions and land use
- Restoration work plan: The project should have a description of actions and an implementation schedule.
- Long-term management plan: If available, a description of the long-term management plan, including strategies for monitoring and maintenance of the restoration site, should be included.

### Project Compliance with Appropriation Law

The restoration evaluation panel is responsible for evaluating the restorations relative to the law. It is expected the coordinator, as part of the pre-site evaluation process, can gather the necessary information from project managers to ensure legal and administrative requirements were met in the use of legacy funds for habitat restoration projects. Because the requirements vary by fund, may change from year to year, and may be specific to individual appropriations, it is recommended that a quick checklist of requirements be established and maintained annually by the coordinator. For example, M.L. 2011, First Special Session, Chapter 6 provides for appropriations from the Outdoor Heritage Fund for FY 2012, the Clean Water Fund for FY 2012-13, and the Parks and Trails Fund for FY 2012-13, and provides for statutory changes both specific to each of the three funds as well as for all legacy funds.

For FY 2012 Outdoor Heritage Fund appropriations, project managers of habitat restoration projects are responsible for complying with requirements both specific to individual appropriations and applicable to all Outdoor Heritage Fund appropriations, including:

- An ecological restoration and management plan consistent with current conservation science and ecological goals for the restoration site must be prepared and retained for all restoration projects and all new lands acquired
  - Plan should consider soil, geology, topography, and other factors relevant to success of restoration project
  - Plan must include proposed timetable for implementation, including site preparation, establishment of diverse plant species, maintenance, and additional enhancement
  - Plan must identify long-term maintenance and management needs and how these will be financed
- All restoration and enhancement projects must be on land permanently protected by a conservation easement or public ownership or in public waters and open for public use, unless otherwise provided
- Consideration must be given to and timely written contact provided to Conservation Corps Minnesota for possible contracting of restoration and enhancement services. This written contact must be filed with the Lessard-Sams Outdoor Heritage Council within 15 days of execution.

There are no similar requirements established for habitat restoration projects funded by the Clean Water Fund and the Parks and Trails Fund.

The coordinator could review the applicable checklist with project managers as part of the project background and information gathering process. The panel would then review the results of the restoration requirement checklist and make a determination on project compliance as part of the evaluation process.

### Recommendations for Site Evaluation Methods

The panel is statutorily responsible for making determinations on the habitat restoration projects. However, in the administrative model recommended by the project team, the site evaluations are conducted by the site assessment leads, not the panel. In order to reduce the risk of site evaluations not being conducted to the satisfaction of the panel, it is recommended that the panel, during the pre-site evaluation, provide recommendations to the site assessment leads on potential site evaluation methods. An example flowchart of several types of evaluation methods appropriate for primary restoration activities is provided in Appendix II, however this list is considered illustrative not comprehensive. A menu of options such as these may be used by the panel to make recommendations on site-specific evaluations. The ability for the panel to provide recommendations on site evaluation methods ensures that the panel members will have a greater familiarity with the projects being evaluated and a greater understanding of the particular conditions present on a given site, improving the ability of the panels to make informed final determinations.

# Project Evaluation: *Site Evaluation*

## SITE EVALUATION

Evaluation of project implementation and effectiveness

### Site Evaluation

The site evaluation satisfies the implementation evaluation, answering the question, “Did project managers do what they said they would do?” It also provides the necessary context for the panel to make a determination of whether the restoration project was effective in meeting project goals.

After completion of the pre-site evaluation, the coordinator or site assessment leads will coordinate the site assessments for the habitat restoration projects selected for evaluation. Roles and responsibilities may vary depending on how the work of the site assessment leads is arranged – e.g., interagency agreements, contracts, etc. However, the coordinator or site assessment leads will work with project managers to arrange field visits to the project sites. It is recommended that project managers also attend the site visits to identify project work sites, provide important project context, and answer any questions that may arise. It is also recommended that the coordinator attend all or a portion of the site assessments to ensure effective communication of site assessment results.

As part of the site evaluation, the site assessment leads are responsible for producing the following primary products:

- **Evaluation Form for Habitat Restoration Projects:** An evaluation form has been developed by the project team to assist site assessment leads and the panel in answering the key evaluation requirements as required by law for the habitat restoration evaluations (Appendix III). This form, or an alternative evaluation form as recommended by the program, should be completed for every site assessment conducted for this program.
- **Photo Documentation:** Photo documentation should accompany each of the site evaluation forms.
- **Restoration Survey/Analysis:** As part of the site assessment, the site assessment leads should employ an appropriate survey methodology for the site being assessed. In some cases, this may include quantitative survey methods, while in other cases a qualitative discussion is more appropriate. The results from this analysis should be summarized by the site assessment leads and included as part of the materials to be used in the post-site evaluation by the panel.

The project team spent two field days visiting five different restoration projects to test the recommended site evaluation process. The sites visited included the following: an oak seeding project, a invasive species control (buckthorn) project, a shoreland restoration project, a prairie restoration project, and a drainage/native planting project. The project team conducted an informal pre-site evaluation, reviewing project background materials and recommending evaluation methods for the site assessments. The team also tested the evaluation form to ensure that it could adequately address the key evaluation requirements and meet the needs of the site assessment leads. An example of one of the forms filled out by the team is included in Appendix IV. Lastly, the team also conducted both quantitative and qualitative surveys of the sites.

A considerable amount of flexibility will be needed in dealing with the diversity of habitat restoration projects that are likely to be selected for evaluation through this program. Because of this, the project team chose not to either develop or recommend a specific evaluation methodology to be used in the site assessments, but instead devised a menu of acceptable methods for evaluating habitat restoration projects (Appendix II, as previously discussed) and provide habitat-specific restoration evaluation guidelines (Appendix V) as a reference for the key questions that should be considered, parameters that should be evaluated, and standards that should be referenced when conducting the site assessments. Again, like Appendix II, these evaluation guidelines are not meant to be comprehensive, but are illustrative of the types of considerations that will need to be given during restoration evaluations.

It is expected that both the site evaluation process and the supporting tools developed by the project team will continue to evolve as the program is implemented and developed over the years to meet both changing program needs and expectations of the public, practitioners, and the legislature.

# Project Evaluation: *Post-Site Evaluation*

## POST-SITE EVALUATION

Post-site evaluation review and recommendations for improvement

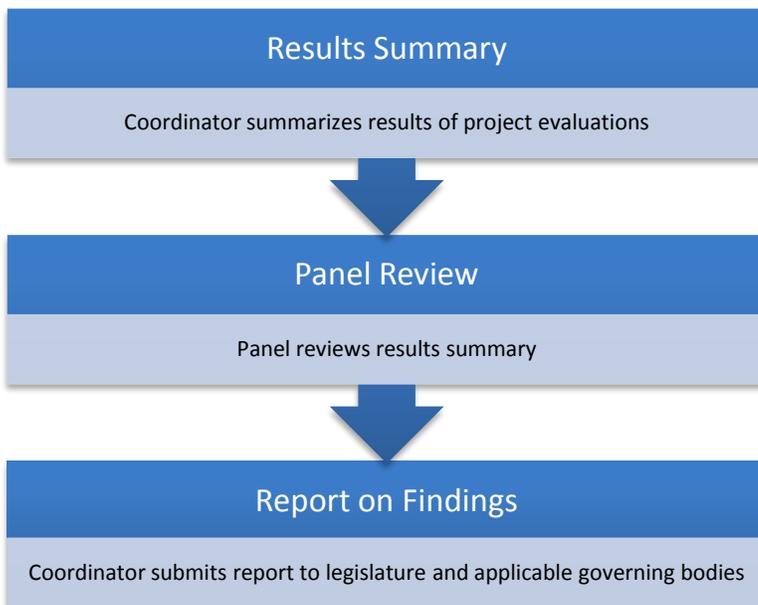
The post-site evaluation provides for a review and discussion of the site evaluations, recommendations for improvement to projects, and final panel determinations.

### **Post-Site Evaluation**

The purpose of the post-site evaluation is to provide the panel with the ability to make a final determination on whether the restoration project was effective in meeting project goals and objectives. Ideally, the post-site evaluation would involve the coordinator, panel, site assessment leads, and project managers in a review and discussion of the site assessment results. This format would contribute to the type of participatory decision-making that most likely would provide for continuous learning within the community of restoration practitioners. However, it may be unlikely given the limited program budget that this type of post-site evaluation format is feasible.

Regardless, the coordinator will be responsible for working closely with the site assessment leads to ensure all project information is compiled and ready for review by the panel prior to the post-site evaluation. The site assessment leads will be responsible for producing the site assessment reports for the panel and being available to answer any follow-up questions the panel may have regarding the site assessments during the post-site evaluation. The panel will be responsible for reviewing the results from the pre-site and site evaluations and making a determination on the projects under evaluation. It is recommended that, if project managers are not actively engaged in this discussion, that they have the opportunity to respond to the findings of the panel prior to a final determination by the panel on the projects. Once a final determination on the projects has been made by the panel, the coordinator will summarize the results and provide a report on the findings of the panel.

# Report on Findings: *Overview*



## **Results Summary and Panel Review**

After completion of the post-site evaluation, the coordinator will summarize the results of the project evaluations and provide a draft report to the panel for review. The panel will review the draft report and, if it approved by a majority of the members, return to the coordinator for submission to the legislature and applicable governing bodies. The project team recommends that the report complement web-based learning opportunities related to legacy-funded habitat restoration projects. The coordinator could work through a number of venues to ensure a web-based learning component is included as part of the final reporting process. Ideally, program sponsors are interested in seeing the two agencies not just comply with the law, but also contribute to a continuous learning environment for restoration practitioners and the general public.

## **Report on Findings**

As required by M.S. 85.53, 97A.056, and 114D.50, the coordinator shall summarize the findings of the panel and provide a report to both the legislature and other governing bodies, if applicable. The statutory requirements related to the report on findings neither specifies whether a separate report is required for each of the three funds, nor whether the report must be submitted on annual basis. However, given that a coordinator may be assigned “each year” to identify a sample of up to ten habitat restoration projects to be evaluated for each of the three funds (M.L. 2011, First Special Session, Ch. 6), it is assumed that the report on findings is part of an annual evaluation process. Also, given that the Outdoor Heritage Fund portion of the program funding is provided on an annual basis and the Lessard-Sams Outdoor Heritage Council requires an accomplishment plan to accompany the annual appropriations, it would be more challenging to communicate annual program outcomes without an annual report. The project team, though, recommends the findings of the panel be included in one report, with distinction made between project findings for each of the three funds. The team believes the more comprehensive the report is on describing restoration outcomes for all three funds, the greater the opportunity for learning among the broader community.

## **APPENDIX I: RESTORATION EVALUATIONS PROCESS OVERVIEW**

### **Step 0: Program Communication**

0.1 Program communications provide clear expectations to potential project managers

### **Step 1: Project Selection**

1.1 Coordinator determines project eligibility

1.2 Panel determines evaluation priorities

1.3 Coordinator randomly selects habitat restoration projects

### **Step 2: Project Background Review**

2.1 Coordinator initiates contact with Project Managers (PMs)

2.2 Coordinator collects and compiles background information for selected projects, including restoration plan and other documentation (e.g., photos, maps, etc.)

### **Step 3: Pre-site Evaluation – Evaluation of Project Compliance and Implementation**

3.1 Restoration Evaluation Panel (REP) reviews selected projects and background information

3.2 REP and coordinator ensure compliance with law (program requirement #1 – law) and review restoration plan implementation (program requirement #2 – current science)

3.3 REP recommends site evaluation methods for site assessment leads

### **Step 6: Site Evaluation – Evaluation of Project Effectiveness**

6.1 Coordinator works with site assessment leads and PM(s) to coordinate site assessments

6.2 Site assessment leads conduct site evaluation after initial project review to evaluate project implementation (program requirement #2 – current science) and assess whether project treatments were effective in meeting project goals (program requirement #3 – stated goals and standards)

## **Step 7: Post-site Evaluation – Site Evaluation Review with PM(s)**

7.1 REP and coordinator review results of site evaluation, with site assessment leads available for follow-up

7.2 REP and coordinator discuss with PM(s) lessons learned and recommendations for improvements, if needed

## **Step 8: Summary of Evaluation Results**

8.1 Coordinator summarizes results of REP(s) project evaluations

8.2 Coordinator submits reports to legislature and applicable governing bodies

## APPENDIX II: EVALUATION METHODOLOGY FLOWCHART

### EXAMPLE EVALUATION MEASURES AND METHODOLOGIES TO EVALUATE HABITAT RESTORATION PROJECTS

RESTORATION ACTIVITY (EXAMPLES)	EVALUATION MEASURES (EXAMPLES)	SURVEY METHODOLOGY (EXAMPLES)
<b>ESTABLISHING VEGETATION (RECONSTRUCTION)</b>		
Transplanting		Density, frequency counts, transects
Seeding	Establishment assessment / establishment survey plot	Qualitative discussion
Includes: vegetation seeding, container/live plant seedling, seed bank utilization, inter-planting natives, no mow projects		
<b>ALTERING EXISTING VEGETATION</b>		
Vegetation removal: trees, shrubs, herbaceous, invasive species, forest thinning	Competition survey plot	Density, frequency counts
Chemical removal: trees, shrubs, herbaceous, invasive species	Species presence-absence survey plot	Dominance tests
Mechanical removal: grazing, shearing, haying, raking, brushing, prescribed burning	Percent area treatment survey plot	Quadrats
		GPS traverse / acres
		Qualitative discussion
<b>SITE PREPARATION</b>		
Mechanical site prep	Percent area treatment survey plot	GPS traverse / acres
Chemical site prep	Percent surface biomass removal survey plot	Density, frequency counts
Prescribed burning site prep	Forest sampling metrics	Basal area, tree height, volume calculations, releves, vegetation sampling transects, species specific measures (point counts, rare species measures)
Bioengineering	Assessment of project materials maintenance / functioning— includes erosion control materials monitoring, appropriate bioengineering techniques applied, etc.	Qualitative discussion
<b>MONITORING VEGETATION</b>		
Site or vegetation condition	Species richness assessment	Basal area, tree height, volume calculations, releves, vegetation sampling transects, species specific measures (point counts, rare species measures)
Desired vegetation protection	Site condition assessment	Qualitative discussion (e.g., native plant community condition ranking guidelines)
Desired vegetation establishment and growth	Wetland, aquatic, grassland standard sampling metrics	Coarse / fine filter habitat approaches (photoplots, case studies)
Targeted species management goals / biodiversity	Targeted species protocols	
<b>HYDROLOGY RESTORATION</b>		
Ditch block	Hydrology monitoring	Wetland delineation
Embankment	Restoration according to plan specifications	Functional assessment (MNRAM, HGM)
Tile manipulation		Monitoring wells
Excavation		Piezometers
		Staff gages

# APPENDIX III: RESTORATION EVALUATION FORM FOR HABITAT RESTORATION PROJECTS

## PROJECT BACKGROUND

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Project Name: \_\_\_\_\_ Date of Review: \_\_\_\_\_  
Project Location (County/Township): \_\_\_\_\_  
Project Manager / Affiliation: \_\_\_\_\_  
Fund: OHF \_\_\_\_\_ CWF \_\_\_\_\_ PTF \_\_\_\_\_  
Project Start Date (Fiscal Year): 20\_\_\_\_\_  
Predominant Habitat Type: Forest \_\_\_\_\_ Prairie/Savanna/Grassland \_\_\_\_\_ Wetland \_\_\_\_\_ Aquatic \_\_\_\_\_ Other \_\_\_\_\_  
Project Type: Is habitat restoration a primary or secondary outcome of the project? Primary \_\_\_\_\_ Secondary \_\_\_\_\_

## PROJECT ASSESSMENT

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1. Does the implementation plan (plan) for the project reasonably allow for achieving the proposed project outcome(s)? Yes \_\_\_ No \_\_\_ If no, explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Is the plan based on current science (best management practices, standards, and guidelines)? Yes \_\_\_ No \_\_\_ If no, explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. Is, has, or will the plan (be) implemented as intended? Yes \_\_\_ No \_\_\_ If no, explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. What is the status of the project:  
Treatment establishment phase \_\_\_\_\_  
Post-establishment phase \_\_\_\_\_
5. Where are the plans/record of project decisions/prescription worksheets located?  
\_\_\_\_\_  
\_\_\_\_\_
6. Are corrections or modifications needed to the project to better address proposed outcomes? Yes \_\_\_ No \_\_\_ If yes, explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. Broadly speaking, has anything been done or planned that would detract from habitat? Yes \_\_\_ No \_\_\_ If yes, explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. Is there any indication of a violation of existing environmental laws or rules (e.g., Wetland Conservation Act)?  
 Yes\_\_\_ No\_\_\_ If yes, explain. \_\_\_\_\_
9. Are considerations for long-term management practical and reasonable? Yes\_\_\_ No\_\_\_ If no, explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
10. Are follow-up evaluations needed? Yes\_\_\_ No\_\_\_ If yes, explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
11. Additional comments on the restoration project.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**OVERALL EVALUATION**

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The project will:

- a. Likely not meet proposed outcomes\_\_\_\_\_
- b. Minimally meet proposed outcomes\_\_\_\_\_
- c. Meet proposed outcomes\_\_\_\_\_
- d. Likely exceed proposed outcomes\_\_\_\_\_
- e. Greatly exceed proposed outcomes\_\_\_\_\_

Provide an explanation of the reason(s) for the determination, if not described above.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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**SITE ASSESSMENT LEAD**

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Site Assessment Lead(s) Conducting Site Review (Signature Required):

\_\_\_\_\_

# APPENDIX IV: SAMPLE FIELD TESTING (RESTORATION EVALUATION FORM)

## SAMPLE FIELD TESTING #1

### PROJECT BACKGROUND

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Project Name: Lost Valley Prairie Scientific and Natural Area

Date of Review: 22 June 2011

Project Location (County/Township): Washington 320 acres T27N R20W within sections 20, 21, 28, 29 (see also attached maps).

Project Manager / Affiliation: Ellen Fuge SNA Statewide Management Coordinator

Fund: OHF  CWF  PTF

Project Start Date (Fiscal Year): 2011

Predominant Habitat Type: Forest  Prairie/Savanna/Grassland  Wetland  Aquatic  Other

Project Type: Is habitat restoration a primary or secondary outcome of the project? Primary  Secondary

### PROJECT ASSESSMENT

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1. Does the implementation plan (plan) for the project reasonably allow for achieving the proposed project outcome(s)? Yes  No  If no, explain.  
Three project outcomes (1) reconstruction of prairie in old field between high quality hill prairies=10.5 acres =unit #11 on the map. (2) Brush and tree removal on slopes of high quality hill prairie<.5 acres west of unit #11 (3) Brush removal especially of buckthorn ( *Rhamnus cathartica*) in area near unit #9.
2. Is the plan based on current science (best management practices, standards, and guidelines)? Yes  No  If no, explain.
3. Is, has, or will the plan (be) implemented as intended? Yes  No  If no, explain. 1) Reconstruction=yes 2) brush removal hill prairie yes 3) brush removal –*R. cathartica* No-not without additional resources and new approaches...
4. What is the status of the project:  
Treatment establishment phase   
Post-establishment phase
5. Where are the plans/record of project decisions/prescription worksheets located?  
SNA adaptive management database Ecological and Water Resources Division MN DNR 500 Lafayette Road St Paul MN 55155.
6. Are corrections or modifications needed to the project to better address proposed outcomes? Yes  No  If yes, explain. (1) The prairie reconstruction utilized seed from the site –this was an important element of the work plan and consistent with SNA guidelines for planting. The diversity of the reconstruction could be enhanced by additional planting of species to reach the goal of higher quality prairie. Much of the best prairie is actually hill prairie so the availability of seed for the more mesic intervening “old field” was limited. (2) Tree and brush removal along the slopes of the high quality hill prairie appears to be very successful to improve the prairie quality. (3) The buckthorn removal project is a very large task and at this point needs a new strategy to control this invasive plant.

7. Broadly speaking, has anything been done or planned that would detract from habitat? Yes\_\_\_ No\_X\_\_ If yes, explain. Rare species persist and management plans for prescribed fire are rotational such that the entire site is not burning every year- with the intent to provide habitat for species that potentially could be reduced in abundance with a complete annual burn of the entire site.
8. Is there any indication of a violation of existing environmental laws or rules (e.g., Wetland Conservation Act)? Yes\_\_\_No\_\_X\_If yes, explain.
9. Are considerations for long-term management practical and reasonable? Yes\_\_\_ No X\_ If no, explain. Long term management especially of buckthorn will require intensified control measures with more funding. Prescribed Fire management of the higher quality prairie slopes combined with selective cutting seems to be effective at sustaining the high quality prairie and related rare species that prompted the protection of the site as an SNA. More frequent and persistent management of the brushy areas would also benefit and improve the results. At the current level of management, at best, the brush is not spreading or invading further, but the area occupied by the brush is also not being reduced.
10. Are follow-up evaluations needed? Yes\_X\_\_ No\_\_\_ If yes, explain. SNA program is in a position to record management activities in the spatial adaptive management database that provides a record of success and place to record changes in management approaches as new invasive species control measures evolve.
11. Additional comments on the restoration project.

## OVERALL EVALUATION

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The project will:

- a. Likely not meet proposed outcomes\_\_\_\_\_
- b. Minimally meet proposed outcomes\_\_X\_\_
- c. Meet proposed outcomes\_\_\_\_\_
- d. Likely exceed proposed outcomes\_\_\_\_\_
- e. Greatly exceed proposed outcomes\_\_\_\_\_

Provide an explanation of the reason(s) for the determination, if not described above.

Prairie reconstruction-Used the Minnesota County Biological Survey condition ranking guidelines for Upland Prairie Systems and determined that the old field reconstruction was about a "C to CD" quality prairie and includes some problem species such as smooth brome and redtop, and rather low diversity. Tree and shrub removal: Using the same condition ranking this removal clearly improved the quality of the hill prairie-a diverse population of native prairie plants exists and the condition ranking is "AB" quality. The presence of buckthorn in especially a moist ravine seems to be a continuing problem that could further degrade this northern area of the site and will require:

1. An intensified approach and financial resources to achieve control,
2. Reduce the area occupied by buckthorn and also other trees and brush, and
3. Reclaim these areas to prairie and improve existing prairie.

## PANEL MEMBER REPRESENTATION

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Restoration Evaluation Panel Representative at Site Review (Signature Required):

John Hiebert, Carmen Converse, Rachel Hopper, Steve Merchant, Ann Pierce, Greg Larson

## SAMPLE FIELD TESTING #2

### PROJECT BACKGROUND

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Project Name: Keystone Road Buckthorn Control

Date of Review: 05/26/2011

Project Location (County/Township): Mille Lacs County 16 acres Sec. 02- T39N, R26W Site # t03926w1020027 (see also attached maps).

Project Manager / Affiliation: Jeff Wilder DNR Division of Forestry

Fund: OHF  CWF  PTF

Project Start Date (Fiscal Year): 2010

Predominant Habitat Type: Forest  Prairie/Savanna/Grassland  Wetland  Aquatic  Other

Project Type: Is habitat restoration a primary or secondary outcome of the project? Primary  Secondary

Common Buckthorn is growing in the understory of two white pine/white spruce stands and an adjacent aspen stand. The white pine stands have been thinned within the last decade and the aspen stand is 22 years old. A diverse understory is beginning to develop, but if left uncontrolled, buckthorn distribution will expand rapidly and out-compete native vegetation and will significantly impede regeneration of conifer and hardwood seedlings. The two pine stands have had a previous buckthorn control project completed in 2006.

Buckthorn is scattered across all three stands and totals roughly 150-200 stems per acre. For stems 2 inches diameter and less treat basal bark with triclopyr ester (Garlon 4) mixed with an oil diluent and dye. For stump sprouts and stems larger than 2 inches diameter cut the stem and treat the stump with the same herbicide listed above. For seedlings, broadcast spray with same herbicide listed above.

### PROJECT ASSESSMENT

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1. Does the implementation plan (plan) for the project reasonably allow for achieving the proposed project outcome(s)? Yes  No  If no, explain.  
Outcomes: Reduce presence and distribution of buckthorn (*Rhamnus cathartica*) - a terrestrial invasive species of concern.
2. Is the plan based on current science (best management practices, standards, and guidelines)? Yes  No  If no, explain.
3. Is, has, or will the plan (be) implemented as intended? Yes  No  If no, explain.
4. What is the status of the project:  
Treatment establishment phase   
Post-establishment phase
5. Where are the plans/record of project decisions/prescription worksheets located?  
DNR Forestry Onamia Field Station PO Box 82, 305 Roosevelt Road, Onamia MN. Buckthorn management locations are mapped and tracked as part of the surrounding management site in the Silviculture and Roads Module (SRM). An SRM actual has been recorded for all treatment actions. Each on-site visit is recorded and includes information such as buckthorn distribution, treatment effectiveness, and need for additional treatment.
6. Are corrections or modifications needed to the project to better address proposed outcomes? Yes  No  If yes, explain.

Project was completed as planned with no complications. This site was treated previously in 2006 with the same method and with good success. We anticipate further reduction in stems per acre with this treatment. However, assessing control effectiveness may be problematic if counting just stems per acre. Contractors may need to differentiate between control on cut/sprayed stumps and newly formed sprouts in other portions of the site.

- 7. Broadly speaking, has anything been done or planned that would detract from habitat? Yes \_\_\_ No X If yes, explain.
- 8. Is there any indication of a violation of existing environmental laws or rules (e.g., Wetland Conservation Act)? Yes \_\_\_ No X If yes, explain.
- 9. Are considerations for long-term management practical and reasonable? Yes \_\_\_ No X If no, explain.  
Long term buckthorn removal may require annual treatments.
- 10. Are follow-up evaluations needed? Yes X No \_\_\_ If yes, explain.
- 11. Additional comments on the restoration project.  
We will anticipate periodic follow-up projects consisting of hand-pulling of buckthorn seedlings and/or herbicide applications. We recommend the seedlings be foliar sprayed with a water/Garlon mix when the rest of the ground layer is dormant in the fall. There will be less collateral damage to desirable plants.

## **OVERALL EVALUATION**

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The project will:

- a. Likely not meet proposed outcomes \_\_\_\_\_
- b. Minimally meet proposed outcomes \_\_\_\_\_
- c. Meet proposed outcomes X \_\_\_\_\_
- d. Likely exceed proposed outcomes \_\_\_\_\_
- e. Greatly exceed proposed outcomes \_\_\_\_\_

Provide an explanation of the reason(s) for the determination, if not described above.

## **SITE ASSESSMENT LEAD**

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Site Assessment Lead(s) Conducting Site Review (Signature Required):

Paul Dubuque, John Hiebert, Rachel Hopper, Greg Larson, Steve Merchant, Ann Pierce, Chris Weir-Koetter

## APPENDIX V: HABITAT RESTORATION EVALUATION GUIDELINES REFERENCE

### Predominant Habitat Type: Aquatic Habitat Systems

(Team Lead: John Hiebert)

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#### Project Phase

*Question:* At what stage of the project is it being evaluated?

*Reasoning:* This will influence questions asked and type of assessment conducted. A treatment/establishment phase evaluation will assess project implementation, while a post-treatment/post-establishment phase evaluation will assess project effectiveness.

#### Treatment/Establishment:

When the project should be evaluated is dependent on the complexity of the project.

1. Simple project is defined as a shoreline site with a shallow slope, consisting primarily of existing turf grass along a shoreline and the project will reestablish native vegetation and only use limited erosion control materials.  
Recommendation - Two months post planting for seedling project, 3 to 4 months post planting for a seeded project.
2. Moderate Project is defined as a shoreline site consisting of turf grass and other non-native vegetation on a shallow to moderate slope with slight to moderate erosion occurring, where the project will reestablish native vegetation and use erosion control or bioengineering techniques. Recommendation – Should be checked at one month and three months post planting to assess the establishment of plants and the condition of erosion control materials.
3. Complex Project is defined as a shoreline site consisting of turf grass and other non-native vegetation on a moderate to steep slope with moderate to severe erosion occurring, where the project will reestablish native vegetation and use a variety of erosion control or bioengineering techniques. Recommendation – Should be checked at monthly post planting to assess the establishment of plants and condition of erosion control materials

#### Post-Treatment/Post-Establishment:

When the project should be evaluated is dependent on the complexity of the project.

1. Simple project is defined as a shoreline site with a shallow slope, consisting primarily of existing turf grass along a shoreline and the project will reestablish native vegetation and only use limited erosion control materials.  
Recommendation – It should be evaluated one year post planting to evaluate overwinter survival of plants, one year and three months post planting to evaluate summer survival and two year post planting.
2. Moderate Project is defined as a shoreline site consisting of turf grass and other non-native vegetation on a shallow to moderate slope with slight to moderate erosion occurring, where the project will reestablish native vegetation and use erosion control or bioengineering techniques. Recommendation – It should be evaluated one year post planting to evaluate overwinter survival of plants, one year and three months post planting to evaluate summer survival and then yearly for the next three years to assess the condition of the plantings and the erosion control materials.
3. Complex Project is defined as a shoreline site consisting of turf grass and other non-native vegetation on a moderate to steep slope with moderate to severe erosion occurring, where the project will reestablish native vegetation and use a variety of erosion control or bioengineering techniques. Recommendation – It should be evaluated one year post planting to evaluate overwinter survival of plants, one year and three months post planting to evaluate summer survival and then yearly for the next three years to assess the condition of the plantings and the erosion control materials.

## **Key Questions**

*Question:* What are the primary framing questions that should be considered specific to the habitat type?

*Reasoning:* This will allow for rapid initial assessment by the Restoration Evaluations Panel and clarify project activities needing further evaluation.

1. What were the project selection criteria and does this project meet these criteria and any other applicable criteria?
2. What types of organisms will benefit from this restoration?
3. What are the environmental benefits of this restoration?
4. What are the goals and objectives for completing this project?
5. Are the goals measurable and reasonable?
6. How are they assessing the success of this project?
7. Do they have a monitoring plan?
8. Do they have a long term maintenance plan?

## **Project Complexity (Major Project Activities: simple ↔ complex)**

*Question:* How straightforward or complex are the major project activities?

*Reasoning:* This will determine the level of complexity of the evaluation and identify potential projects for follow-up evaluations.

1. Simple Projects
  - a. No mow restoration projects
  - b. Limited removal of invasive species and inter-planting of natives
  - c. Sites with no erosion
  - d. Treating turf grass and replanting seeds or seedlings on to site
2. Moderate Projects – adding the following components to a simple project
  - a. In-lake emergent vegetation
  - b. Site fencing
  - c. Shoreline erosion and erosion control materials
  - d. Limited toe protection
3. Complex Projects – adding the following to moderate projects
  - a. Steep slopes
  - b. Existing major erosion
  - c. Ice ridges
  - d. Major toe protection
  - e. High wave action or large fetch
  - f. Bioengineering
  - g. Adding in-lake woody habitat

## **Key Parameters for Evaluation**

*Question:* What are the major habitat components that should be assessed to evaluate project implementation or effectiveness?

*Reasoning:* This will focus evaluations on specific areas of importance and will indicate which evaluation methodologies would be best suited for assessment.

1. Percentage of native vegetative cover in the buffer
2. Percentage of shoreline with in-lake woody habitat
3. Percentage of shoreline with emergent vegetation

4. Density of emergent vegetation along shoreline
5. Quality of maintenance plan, log and evaluation procedures
6. No weeds present in restoration and no obvious gaps in native species
7. Plants in restoration are healthy and actively growing based on the region of the state they are in and conditions of the site (soil type/sunlight)
8. Erosion control and other project materials (mulch, fencing) are being maintained and are still functioning appropriately

### **Major Guidelines/Standards for Project Activities**

*Question:* What are commonly accepted best management practices for major project activities? What commonly accepted guidelines or references would project managers use for this type of habitat project?

*Reasoning:* If project employs commonly accepted guidelines or standards of practice, assumption is that project goals will be met and project is in compliance with requirements.

1. Restore Your Shore – interactive restoration guide
2. Lakescaping for Wildlife and Water Quality – restoration book
3. MNDNR Division of Ecological and Water Resources Shoreland Management Guide
4. Score Your Shore – interactive shoreline habitat rating system
5. MNDNR invasive species guidelines
6. MNDNR Section of Fisheries Shoreland Habitat Program Maintenance Plan – checklist
7. State of Minnesota Office of Grants Management – rules and regulations
8. Prairie and wetland seeding guidelines

### **List of Potential Evaluation Methodologies**

*Question:* What are the commonly accepted methodologies to use for evaluation of projects?

*Reasoning:* Site assessment leads will need a menu of options from which to select for field site evaluations. The methodology selected will depend on project characteristics.

1. Score Your Shore – interactive shoreline habitat rating system
2. MNDNR Section of Fisheries Shoreland Habitat Program Maintenance Plan – checklist

## **Predominant Habitat Type: Forest Habitat Systems**

(Team Leads: Paul Dubuque, Steve Merchant)

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### **Project Phase**

*Question:* At what stage of the project is it being evaluated?

*Reasoning:* This will influence questions asked and type of assessment conducted. A treatment/establishment phase evaluation will assess project implementation, while a post-treatment/post-establishment phase evaluation will assess project effectiveness.

Treatment/Establishment:

- Planting – 3 to 5 years
- TSI – 1 to 3 years
- Site prep – 1 year
- Prescribed burning – 3-5+ years

Post-Treatment/Post-Establishment:

Most projects will be evaluated after a treatment activity or establishment.

### **Key Questions**

*Question:* What are the primary framing questions that should be considered specific to the habitat type?

*Reasoning:* This will allow for rapid initial assessment by the Restoration Evaluations Panel and clarify project activities needing further evaluation.

- What are the objectives? Treatment results must be tied with identified objectives.
- Are there measurable goals? How do we define short-term versus long-term goals? (5 years versus 30 years?)
- How does treatment connect/meet other plan goals? Example – DNR Division of Forestry uses the SRM management objective codes as a way to track and monitor progress toward meeting SFRMP goals.
- Others?

### **Project Complexity (Major Project Activities: simple ↔ complex)**

*Question:* How straightforward or complex are the major project activities?

*Reasoning:* This will determine the level of complexity of the evaluation and identify potential projects for follow-up evaluations.

1. Simple Projects
  - a. Planting
2. Moderate Projects
  - a. Timber stand improvement
  - b. Site prep
3. Complex Projects
  - a. Prescribed burning – will need clear objectives and attainable goals. Almost always will involve pre and post condition class determination. Often, there is a need for repeated burning treatments to consider the project a success. Weather, fire intensity, fuel types, etc. all play a role in influencing the activity.
  - b. Landscape level restoration projects

## **Key Parameters for Evaluation**

*Question:* What are the major habitat components that should be assessed to evaluate project implementation or effectiveness?

*Reasoning:* This will focus evaluations on specific areas of importance and will indicate which evaluation methodologies would be best suited for assessment.

Planting:

1. Tree survival
2. Percent stocking and distribution of planted trees
3. Trees/acre before and after
4. I&D concerns, herbivory
5. Follow-up needs

Timber Stand Improvement (includes mechanical hand release):

1. Woody or herbaceous stems/acre before and after
2. Percent stocking
3. Percent shading or completion with desired species
4. Follow-up needs

Site Preparation (includes mechanical and/or chemical applications):

1. Acres treated
2. Percent of mineral soil exposed or woody species sheared
3. Damage or removal of target species/residual trees
4. Rutting or other site damage (see site level guidelines and ECS program acceptable operating season to minimize compaction)

Prescribed Burning:

1. Percent removal or reduction in woody or herbaceous vegetation
2. Percent reduction in slash or other fuels reduction
3. Percent mineral soil exposure/seedbed conditions-duff reduction
4. Damage-mortality to residual stand
5. Crown scorch levels
6. Second order effects, such as understory

## **Major Guidelines/Standards for Project Activities**

*Question:* What are commonly accepted best management practices for major project activities? What commonly accepted guidelines or references would project managers use for this type of habitat project?

*Reasoning:* If project employs commonly accepted guidelines or standards of practice, assumption is that project goals will be met and project is in compliance with requirements.

1. MFRC Site Level Forest Management Guidelines 2005
2. MN DNR Forestry Regeneration Standards 2006
3. MNR Ontario Silvicultural Effectiveness Monitoring Manual 2001
4. MN DNR Prescribed Burn Handbook 2004
5. MN DNR Forestry Forest Development Manual

6. MN DNR Forestry Pesticide Use Guidelines 2006
7. Contract specifications
8. Others?

### **List of Potential Evaluation Methodologies**

*Question:* What are the commonly accepted methodologies to use for evaluation of projects?

*Reasoning:* Site assessment leads will need a menu of options from which to select for field site evaluations. The methodology selected will depend on project characteristics.

1. MFRC Guideline Monitoring Instruction & Appendix 2009: More detailed evaluation of forest management activities, many measurable parameters to consider.
2. MN DNR Forestry Tree Regeneration Standards: Includes the regeneration check form, plot size, distribution, etc. Can be used to evaluate tree planting, woody or herbaceous competition, absence or presence, and I & D herbivory, damage, etc.
3. MNR Ontario Regeneration Survey Manual: Three assessment methodologies similar to above.
4. MN DNR Forestry Contract Specifications: Methods may vary depending on the project.
5. MN DNR Forestry ECS Program Case Study Manual: Additional methods for measuring vegetation, biodiversity, etc.
6. MN DNR Forestry Cooperative Assessment Manual 2001: Methods for inventory of forest stands, etc.
7. Others?

## **Predominant Habitat Type: Prairie/Savanna/Grassland Habitat Systems**

(Team Leads: Carmen Converse, Chris Weir-Koetter)

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### **Project Phase**

*Question:* At what stage of the project is it being evaluated?

*Reasoning:* This will influence questions asked and type of assessment conducted. A treatment/establishment phase evaluation will assess project implementation, while a post-treatment/post-establishment phase evaluation will assess project effectiveness.

Treatment/Establishment:

Must be defined based on the type of project and its purpose. Complex projects might have stated project goals for years 1-3, years 4-5, year 9 and could be evaluated according to activities proposed to accomplish during each phase. For example, removal of non-native Scotch Pine in a proposed savanna restoration could be accomplished in year #1 (photo documentation); enhancement of native prairie extant at site following prescribed burn (visual/photo documentation), addition of forbs from a nursery or inter-seeding by year #4 (record establishment of 4-5 key species and % cover, presence/absence of invasive species).

Post-Treatment/Post-Establishment:

More additions of species using inter-seeding or transplants to increase biodiversity; follow-up on weed control and other management needs following the principles of adaptive management in later years of project. Years 4-5 and 9 could require a simple sampling of targets (vegetation transect, soil sample, vegetation condition, ranking goal assigned, additional photo documentation).

### **Key Questions**

*Question:* What are the primary framing questions that should be considered specific to the habitat type?

*Reasoning:* This will allow for rapid initial assessment by the Restoration Evaluations Panel and clarify project activities needing further evaluation.

- Goal=concepts/issues that may take many years.
- Activities=tasks to accomplish goal (who is involved and who has lead responsibility, when action takes place, cost, geographic location).
- Stated goals and activities are required-can be simple to complex.
- Schedule of actions to accomplish goals over time that includes evaluation to determine if the schedule is being met and if adjustments are needed.

### **Project Complexity (Major Project Activities: simple ↔ complex)**

*Question:* How straightforward or complex are the major project activities?

*Reasoning:* This will determine the level of complexity of the evaluation and identify potential projects for follow-up evaluations.

Simple Projects:

One or two of the following activities in an easily accessible location:

1. Prescribed burn
2. Haying
3. Invasive species control
4. Woody plant control
5. Grazing

6. Grassland/meadow reconstruction (from cropland, go-back or hayfield) using native grasses/sedges/forbs that are easily established

Complex Projects (examples):

1. Native prairie/meadow/savanna reconstruction with more diverse vegetation compositional goal; native prairie species + jack pine; black, pin, or bur oak, aspen for savanna or parkland
2. Difficult to control invasive species such as Wild Parsnip (or control of a combination of invasive species)
3. Combined management strategies e.g. patch-burn grazing, woody plant removal/fire, staged planting for diversification, rare species habitat with invasive species control
4. Mix of mesic, dry, wet prairie/savanna in project unit

More Complex Projects:

1. Landscape/watershed level project with multiple goals
2. Matrix communities with multiple goals (Blufflands, Prairie Forest Border lake region that includes fens, forests, game species, and other animal species such as prairie obligate insects, grassland birds, badgers, bison, management conflicts with rare species management, private grazing opportunities)

Considerations in simple or complex projects:

- Ease of access to targeted site
- Adjacent land use (herbicide drift, fire breaks, power lines etc.)
- Public use, development within the unit
- Weather/climate
- Breadth of partnerships for the project
- Equipment and staff availability
- Seed/propagule availability
- Scale of disturbance/ processes (hydrology, soil compaction, erosion, development, agriculture, etc.)
- Need for project manager for landscape watershed projects (staff, equipment, and monitoring and contract management)

### **Key Parameters for Evaluation**

*Question:* What are the major habitat components that should be assessed to evaluate project implementation or effectiveness?

*Reasoning:* This will focus evaluations on specific areas of importance and will indicate which evaluation methodologies would be best suited for assessment.

Maintain or construct habitat for:

- Game species (Pheasants, Prairie Chicken, Sharp-tail Grouse, Various Duck species)
  - Multiple wildlife groups
  - Animal species of greatest conservation need
  - Rare species/ aggregations (e.g. Western Prairie Fringed Orchid, Dakota Skipper, Western Hognose Snake, Chestnut-collared Longspur)
  - Native habitats as described in National Wetland Inventories, native plant communities
  - Habitats in complex landscape/ core areas and watersheds (e.g. Aspen Parkland, Buffalo River/Red River, Glacial Ridge, Prairie Coteau, Glacial Lakes, MN River Valley, Wild Rice River, Rock River, Blufflands)
- (Note: Goals could also be soil stabilization, water quality as related to prairie/grassland habitats)

## **Major Guidelines/Standards for Project Activities**

*Question:* What are commonly accepted best management practices for major project activities? What commonly accepted guidelines or references would project managers use for this type of habitat project?

*Reasoning:* If project employs commonly accepted guidelines or standards of practice, assumption is that project goals will be met and project is in compliance with requirements.

Reconstruction Guidelines:

- Minimum=*Native vegetation establishment and enhancement guidelines* MN BWSR 2009.

Examples of other resources follow:

- Field Guides to the Native Plant Communities of Minnesota (MN DNR 2005)
- MN DNR plant database for current country plant lists
- Condition ranking guidelines for native plant community quality (MN DNR)
- Element Occurrence ranking guidelines and observation database (BIOTICS NatureServe)
- Relevé data collection standards (MN DNR)
- MPCA wetland quality monitoring protocol
- MN DNR Invasive species guidelines
- Aerial survey protocol when applicable
- Remote sensing protocol for change detection
- *Going Native: A prairie restoration handbook for Minnesota landowners* (MN DNR 2000)
- *The Tallgrass Restoration Handbook: For Prairies, Savannas, and Woodlands* [Stephen Packard (Editor), Cornelia F. Mutel (Editor)]
- *Restoring Canada's Native Prairies* (John P Morgan, Douglas Collicutt, Jacqueline Thompson)
- *Measuring and Monitoring Plant Populations* (Caryl L. Elzinga, Ph.D., Daniel W Salzer, John W Willoughby; BLM Technical Reference 1730-1; July 1998)
- *Coefficients of Conservatism for the Vascular Flora of Dakotas and Adjacent Grasslands* (Northern Great Plains Floristic Quality Assessment Panel, 2001, USGS)

Management Guidelines:

- DNR Invasive Species Guidelines
- Prescribed burn plan guidelines for site prepared and followed using DNR Operational Order #47 Prescribed Burn Guidelines and the DNR Prescribed Burn Handbook
- Chemical application standards followed using DNR Operational Order #59 Pesticides and Pest Control and per manufacturer's pesticide label and MSDS to included allowed chemicals/surfactants for targeted activity/site, applicator requirements, application period/timing/effectiveness and avoidance of damage to non-targeted features
- The Nature Conservancy Weed Control Methods Handbook: Tools and Techniques for Use in Natural Areas
- Tiling, disking, planting, haying follow agency standards factors such as consider soil compaction, slope, time of year, nesting, pollination, sanitation
- Grazing plan prepared (targeted outcomes. timing, duration, type of grazer, site characteristics)
- Monitoring protocol for targets and databases available to store/link relevant data (point counts for birds using standard protocol, water samples, game harvests, specimens curation using Bell Museum standards, remote sensing/GIS data standards as applied by DNR BWSR)
- Tracking of alteration of hydrology using MPCA/DNR standards (meadows and complexes)

## **List of Potential Evaluation Methodologies**

*Question:* What are the commonly accepted methodologies to use for evaluation of projects?

*Reasoning:* Site assessment leads will need a menu of options from which to select for field site evaluations. The methodology selected will depend on project characteristics.

Project has clearly stated goals (Y/N). If no, project should not continue.

Example: Complex prairie reconstruction

- Follows applicable guidelines/standards (Y/N)

Evaluation year 2-3 (Y/N to below activities)

- # desired plants established
- Mowing conducted to control weedy plants
- Populated Adaptive Spatial Management Database
- Overall evaluation=
  1. Will likely not meet project goal
  2. Will minimally meet project goal
  3. Will meet project goal
  4. Will likely exceed project goal
  5. Will greatly exceed project goal

Evaluation year 4-5 (Y/N?)

- #desired plant established
- Mow/burn
- Control invasive plants
- Populated ASMD, re-set goals if desirable
- Overall evaluation=
  1. Will likely not meet project goal
  2. Will minimally meet project goal
  3. Will meet project goal
  4. Will likely exceed project goal
  5. Will greatly exceed project goal

Evaluation year 9

- Condition ranking guidelines rank (from A best to –D poor) goal achieved? (Y/N)
- Overall evaluation=
  1. Will likely not meet project goal
  2. Will minimally meet project goal
  3. Will meet project goal
  4. Will likely exceed project goal
  5. Will greatly exceed project goal

If overall rank= 3-5, go to maintenance phases (ASMD) or adapts plan and re-set goals or abandon project.

Example: Native prairie maintenance with rare species

- Follows applicable guidelines/standards (Y/N)

Evaluation year 2-3 (Y/N to below activities)

- Collected baseline data on targeted rare species collected and entered into database
- Mowing/prescribed burn conducted to control woody plants and invasive species in to help maintain population of targeted species
- Populated Adaptive Spatial Management Database.
- Overall evaluation=
  1. Will likely not meet project goal

2. Will minimally meet project goal
3. Will meet project goal
4. Will likely exceed project goal
5. Will greatly exceed project goal

Evaluation year 9

- Species sampled using standard protocol and data entered? (Y/N)
- Element Occurrence ranking goal for species achieved? (Y/N)
- Populated ASMD, re-set goals if desirable? (Y/N)
- Overall evaluation=
  1. Will likely not meet project goal
  2. Will minimally meet project goal
  3. Will meet project goal
  4. Will likely exceed project goal
  5. Will greatly exceed project goal

## **Predominant Habitat Type: Wetland Habitat Systems**

(Team Lead: Greg Larson)

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### **Project Phase**

*Question:* At what stage of the project is it being evaluated?

*Reasoning:* This will influence questions asked and type of assessment conducted. A treatment/establishment phase evaluation will assess project implementation, while a post-treatment/post-establishment phase evaluation will assess project effectiveness.

Treatment/Establishment:

Work on site is underway or has been completed for less than three full growing seasons.

Post-Treatment/Post-Establishment:

Work has been completed for more than three complete growing seasons. If a vegetation-related project, a post-review may be warranted, especially if issues are identified during an initial review during establishment.

### **Key Questions**

*Question:* What are the primary framing questions that should be considered specific to the habitat type?

*Reasoning:* This will allow for rapid initial assessment by the Restoration Evaluations Panel and clarify project activities needing further evaluation.

- What is project purpose? Questions should be based on intended outcomes.

### **Project Complexity (Major Project Activities: simple ↔ complex)**

*Question:* How straightforward or complex are the major project activities?

*Reasoning:* This will determine the level of complexity of the evaluation and identify potential projects for follow-up evaluations.

Simple Projects:

- Vegetation-only prescriptions

Complex Projects:

- Vegetation and structural prescriptions

### **Key Parameters for Evaluation**

*Question:* What are the major habitat components that should be assessed to evaluate project implementation or effectiveness?

*Reasoning:* This will focus evaluations on specific areas of importance and will indicate which evaluation methodologies would be best suited for assessment.

Affirmative responses to the following questions would suggest that the project will likely meet or exceed project outcomes:

1. Were commonly accepted specifications used to establish the project?
2. Does a restoration plan exist?
3. Is the site accessible to facilitate maintenance?
4. Will the project sponsor/manager likely maintain the project and perform adaptive management, as needed?

5. Is site management, such as erosion control, site prep, etc. adequate?
6. Does adjacent land use poses a threat to long-term efficacy of the project, including threats from invasive species?
7. Have exceptional weather conditions influenced outcomes?
8. Have corrections and modifications to the project, if any, been planned and considered?

### **Major Guidelines/Standards for Project Activities**

*Question:* What are commonly accepted best management practices for major project activities? What commonly accepted guidelines or references would project managers use for this type of habitat project?

*Reasoning:* If project employs commonly accepted guidelines or standards of practice, assumption is that project goals will be met and project is in compliance with requirements.

- BWSR Native Vegetative Establishment and Enhancement Guidelines, if applicable
- USDA Practice Standards and Specifications, if applicable
- BWSR Wetland Restoration Guide
- Standard operation and maintenance plans available from BWSR, DNR, NRCS, or other applicable agencies

Except for BWSR Native Vegetative Establishment and Enhancement Guidelines (as referenced in legislation), the emphasis should be that 1. A commonly accepted standard and specification was used. 2. Plans exist. 3. The project is or was properly installed. 4. A plan for the long-term maintenance was developed. 5. The project sponsor will perform adaptive management and maintenance in a timely manner.

### **List of Potential Evaluation Methodologies**

*Question:* What are the commonly accepted methodologies to use for evaluation of projects?

*Reasoning:* Site assessment leads will need a menu of options from which to select for field site evaluations. The methodology selected will depend on project characteristics.

Assessment techniques such as MNRAM could be used on “traditional” wetland restoration/rehabilitation projects, but then not until post-establishment, unless a review is done early to gain a before-and-after perspective. The initial review should consist of assessment the project broadly from the following perspective:

1. WILL LIKELY NOT MEET THE PROJECT PURPOSE AND GOAL.
2. WILL MINIMALLY MEET THE PROJECT PURPOSE AND GOAL.
3. WILL MEET THE PROJECT PURPOSE AND GOAL.
4. WILL EXCEED THE PROJECT PURPOSE AND GOAL.
5. WILL GREATLY EXCEED THE PROJECT PURPOSE AND GOAL.