

Remnant Prairie and Savanna Restoration

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Document Purpose – This fact sheet is a companion to BWSR’s Native Vegetation Establishment and Enhancement Guidelines and provides detailed considerations for project planning and design with an emphasis on vegetation selection, installation and management.

Introduction – Remnant plant communities such as prairies and savannas are often priorities for plant community restoration. Restoration is often accomplished by removing invasive species, or restoring natural disturbance such as prescribed fire or natural hydrology conditions. Goals of remnant prairie and savanna restoration projects often include the support of at-risk plant and animal species, soil stabilization, water management, carbon sequestration, invasive species control, and the restoration of habitat corridors.



Site Selection – Intact native plant communities can degrade over time due to invasive species, lack of natural disturbance, changes in hydrology and other factors. As a result, restoration efforts may be needed to promote plant community resiliency and plant diversity. Projects are often selected based on the quality of plant communities, how rare individual communities are, rare plant and animal species that can be supported, habitat corridors that can be restored, and the threat posed by invasive species or other impacts. Local resource managers and ecologists play a key role in prioritizing restoration areas and prescribing restoration methods.

General Planning Considerations – Remnant plant communities require additional planning to protect the integrity of existing soil health, vegetation and wildlife during the restoration process. In many cases, returning natural disturbance such as prescribed burning or prescribed grazing to sites is a first step. Many sites also benefit from inter-seeding of diverse native plant species that have been lost over time. Invasive species removal is also a common need for remnant plant communities to restore plant and animal diversity.



Remnant prairie in the bluffs of Goodhue County

Structural Design Considerations – For prairie and savanna restoration projects, soil stabilization practices such as wattles or erosion control fabrics may be needed in areas of erosion such as steep slopes or ravines. Environmental engineers should be consulted in areas of significant erosion.

Plant and Seed Selection – A common goal of plant community restoration is to increase ecological function through removing invasive species and increasing the diversity and cover of native plant populations. Some efforts focus on improving wildlife habitat for rare and declining species and may involve the restoration of key plant species that are important for wildlife, such as milkweeds for monarch butterflies or lupine for Karner blue butterflies.

Diversity goals typically focus on restoring diversity to levels that are characteristic of high-quality communities. The diversity of natural communities can vary significantly and it is often helpful to use high quality natural areas as reference sites to determine the potential composition of a degraded remnant community.

The species already growing at project sites or species that may establish from the seedbank after restoration efforts are the focus for most native plant community restoration projects. It is uncommon to bring large numbers of new species to remnant plant community restoration sites unless a specific species is missing that plays a key role for a plant community's integrity or wildlife habitat, such as introducing prairie violets for Regal fritillary butterflies.

Plant Source Considerations – If seeding will be conducted as part of a restoration effort there should be a focus on collecting seed from the restoration site or intact communities nearby. In some cases, seed is obtained from the surrounding ecological subsection, particularly if species are being re-introduced to a community.

Vegetation Establishment – Inter-seeding is the most common method of introducing plant species into remnant plant communities. The Xerces Society inter-seeding guide provides detailed information for planting methods. In some cases, bare-root or containerized herbaceous or woody plants are installed for restoring projects using local sources of plant materials. Some plant vendors will grow plants from locally collected seed. Since it can be difficult to water plants in remnant plant communities, it is often best to install containerized plants, and water them in after installation in late fall when they are dormant.

Operations and Maintenance – Methods of managing native plant communities can vary depending on the community type and the natural disturbance that is part of that community. Prescribed fire is an important management tool for fire-dependent communities such as prairies, savannas and some woodlands. Removal of invasive species through a variety of methods is also a common technique to allow native vegetation to thrive. A long-term adaptive approach is needed to effectively manage native plant communities. For savanna communities a combination of practices may be used including forestry mowers, brush saws, stump herbicide treatment, goat grazing, and prescribed fire.

Information Sources

Minnesota Wetland Restoration Guide: <https://bwsr.state.mn.us/mn-wetland-restoration-guide>

Minnesota DNR Prairie Protection Webpage: <https://www.dnr.state.mn.us/prairierestoration/index.html>