

## BWSR report assesses quality of restored wetlands

A recently published Minnesota Board of Water and Soil Resources (BWSR) study and report suggests that conservation practices commonly used to restore wetlands — such as installing native plants and adopting management plans to limit invasive species establishment — result in wetlands of similar quality to naturally occurring wetlands.

["Assessing Wetland Quality of Depressional Wetlands to Refine Restoration Requirements"](#) evaluates the vegetative quality of restored wetlands compared to naturally occurring wetlands. The study assesses the efficacy of vegetative restoration efforts in wetlands seven to 16 years after restoration, reviewing depressional wetlands primarily in the southern part of the state.

"Wetland restorations completed for regulatory purposes have fairly detailed plans for implementation along with a requirement of annual monitoring for three to five years," said Tim Smith, BWSR wetland mitigation supervisor. "Revisiting these sites after that initial monitoring period (seven to 16 years after construction) provides us with additional data that we can use to assess the resilience of the restored sites and the effectiveness of the restoration methods and techniques that were used."

Completed in 2020, the final report was based on data collected for three years starting in 2017.

BWSR staff developed the study and report in consultation with the Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Natural Resources (DNR), the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency (EPA). The primary funding source



A recently published BWSR study and report compares the quality of restored wetlands — such as the Hennepin County wetland pictured **above** — with naturally occurring wetlands, such as the Pope County wetland pictured **below**. **Photo Credits:** BWSR



was a \$290,474 Wetland Program Development grant, which the EPA awarded to BWSR in 2016. BWSR provided a 25% match.

Wetlands are a valuable natural

resource because they provide water quality benefits, habitat for fish and wildlife, flood storage and shoreline erosion control. BWSR oversees wetland restorations for both voluntary and regulatory conservation

programs. The state's Wetland Banking Program, which has helped to restore more than 30,000 acres of wetlands, is an example of a regulatory program. These mitigation wetlands provide compensation for impacts to aquatic resources permitted under federal and state laws, with the goal of providing no-net-loss in quantity and quality of wetlands.

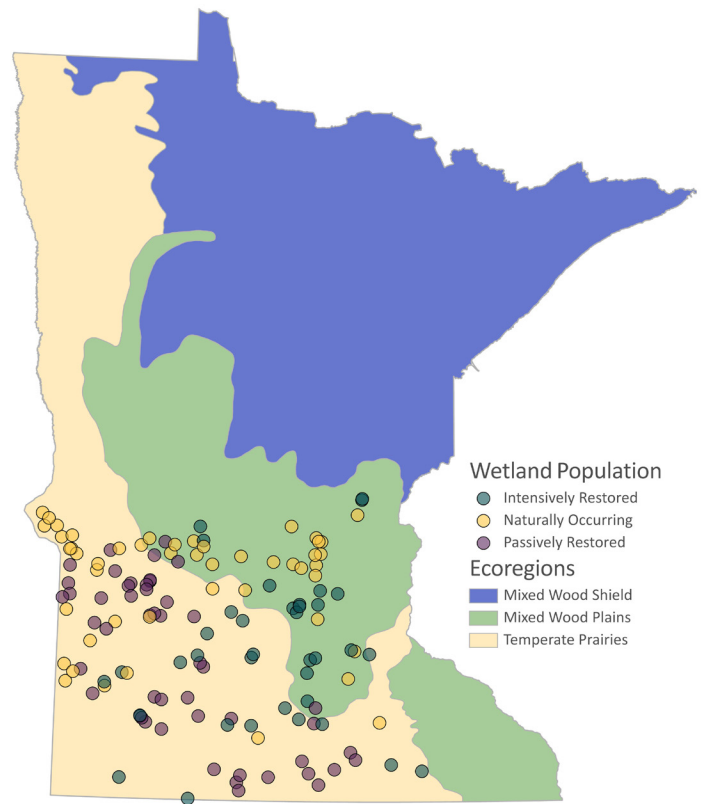
Wetland restoration is the process of returning drained and altered wetland ecosystems to a close approximation of their pre-disturbance condition. Successful wetland restorations require careful planning, design and implementation.

Three types of wetlands were assessed: intensively restored wetlands (mitigation wetlands, where a wetland seed mix was installed to restore vegetation, and hydrology was restored through construction), passively restored wetlands (natural regeneration of plants to restore vegetation, and

hydrology was restored through construction) and naturally occurring wetlands.

The study indicates that wetland restoration practices used by BWSR and its local government partners are effective at maintaining a quality of wetlands similar to naturally occurring wetlands. Wetlands restored through natural regeneration (without planting native vegetation) had poorer overall quality than mitigation wetlands and naturally occurring wetlands.

According to study author and BWSR monitoring coordinator Carol Strojny, long-term monitoring and assessment of wetlands is key to evaluating the effectiveness of restoration practices, so BWSR can continue to provide quality wetland mitigation throughout the state. An additional \$233,898 Wetland Program Development grant, awarded by the EPA in 2019, will expand the



*The EPA-supported study evaluated wetlands found mostly in southern and western Minnesota. Naturally occurring, intensively restored and passively restored wetlands were included in the analysis.*

**Map credit:** BWSR

assessment statewide.

“The results of this study have already started discussions about the development of new seed mixes and vegetation

management techniques that we hope will improve the quality of the vegetative communities at future replacement sites,” Smith said.