



Proposed Actions for Advisory Team Native Vegetation Recommendations

Key Recommendations	Actions
<p>1) Address Ecosystem Threats: Multiple factors such as development, fragmentation, climate change, invasive species, pollutants, excess nutrients, and changes in land management practice are threatening native plant communities, creating urgency for protection and management. Funding is needed for long-term management of native plant communities as well as staffing to aid Tribal governments, SWCDs, and other local partners in protection and restoration efforts.</p>	<ul style="list-style-type: none"> • Support current state funding sources through outreach and project stories. (multiple organizations) • Form partnerships to apply for non-state funding for projects and organizational support. (multiple organizations) • Add measures of success, and define timelines and key steps. (multiple organizations) • Consider roadblocks for successful projects (timing restrictions, longer term contracts, infrastructure needs for grazing, barriers for haying). (multiple organizations) • Discuss needed policy changes and new paradigms for grants. (multiple organizations)
<p>2) Build and Maintain Biodiversity Across Landscapes – Find innovative ways of incorporating biodiversity across landscapes. This will take many partners. Fortunately, many residents of Minnesota are motivated to be part of the solutions and support large scale restoration and biodiversity efforts in the state. This enthusiasm has been demonstrated by residents installing over 10,000 pollinator plantings in recent years. Efforts are needed to establish prairies, managing forests, restore wetlands and establishing habitat in solar sites, along roadsides and in utility corridors. This work will take new partnerships, funding, and technical resources.</p>	<ul style="list-style-type: none"> • Through partnerships seek funding to increase biodiversity focused projects. (multiple organizations) • Continue expanding biodiversity efforts into new types of upland and aquatic landscapes through agency programs. (multiple agencies) • Collaborate with MnDOT county and township staff on establishing biodiversity along roadsides. Pursue funding sources. (BWSR, MnDOT) • Improve soil health to address microbial, fungal, and other components that support the rebuilding of biological communities. (multiple organizations) • Incorporate keystone species as part of projects. (multiple organizations) • Continue building guidance into the BWSR Pollinator and Biodiversity Toolbox. (BWSR) • Continue refining and developing new state seed mixes focused on biodiversity. (BWSR) • Conduct ongoing vegetation management with a focus on maintaining biodiversity. (multiple organizations)
<p>3) Make Landscape Connections: Management of intact natural habitats is needed as they are</p>	<ul style="list-style-type: none"> • Continue implementing the Minnesota Prairie Conservation Plan and promote similar plans in

<p>essential for wildlife populations, but also establish new corridors through landscapes to support plant and animal species. Large areas of habitat along with habitat corridors are seen as key strategies for buffering the effects of climate change. We also need to create a network of soil health systems by expanding conservation practice adoption across farms. Connected landscapes build resiliency and provide refugia for pollinators and other at-risk species.</p>	<p>other parts of Minnesota. (multiple organizations).</p> <ul style="list-style-type: none"> • Implementing the State Wildlife Action Plan in BWSR-approved plans and programs. (multiple organizations) • Implement BWSR’s Living Landscapes Map to build and enhance habitat corridors that have wildlife and social benefits. (BWSR and Conservation Partners)
<p>4) Restore Multiple Landscape Benefits: Projects need to rebuild ecological function and restore multiple landscape benefits including clean water, flood retention, wildlife habitat, climate adaptation and mitigation, and economic benefits. Linking restoration of ecosystems with watershed scale planning and protection will play an important role to promote landscape restorations that maximize multiple landscape benefits, and supporting local economies while also improving water quality and quantity. Employing working lands approaches will be essential by encouraging conservation haying, grazing, and other productive uses of land where compatible with restoration and protection objectives.</p>	<ul style="list-style-type: none"> • Through grants and state funding support local technical teams. (multiple organizations) • Increase training opportunities to build local expertise about rebuilding ecological systems through webinars, training, guides and mentoring. (multiple organizations) • Improve guidance in the 1W1P program guidebook on how to identify/select projects that achieve multiple landscape benefits. • Direct state funding for habitat restoration and working lands approaches through watershed-based mechanisms. (BWSR) • Provide training on the importance of restoration for improving watershed health and providing multiple landscape benefits for local governments, non-governmental organizations and other partners. (BWSR) • Increase use of DNR native plant community guides as part of restoration planning. (multiple organizations) • Continue development of a calculator for measuring water quality benefits of habitat projects. (BWSR) • Seek funding for forest and savanna restoration and management as few sources exist. (multiple organizations)
<p>5) Increase Seed and Plant Production and Collection: There is a need to identify and obtain access to areas for seed collection of species that are not available from existing nurseries or are in low supply. With an increasing focus on climate mitigation and the multiple benefits of trees and shrubs, increase seed collection and seedling production from more diverse genetic sources both within Minnesota and adjoining states is needed.</p>	<ul style="list-style-type: none"> • Continue assessing which plant species are most at risk from climate change. (multiple organizations) • Create a subcommittee focused on refining a list of plant species that need increased production and collection. (advisory team) • Conduct a yearly forum with seed producers and conservation partners on topics related to seed and plants. (multiple organizations)

	<ul style="list-style-type: none"> • Provide yearly updates on projected seed demand. (multiple agencies) • Highlight local efforts of seed collection and plant propagation on BWSR’s What’s Working webpages. (BWSR)
<p>6) Continue Discussions about Appropriate Seed and Plant Sources: Further discussion and guidance is needed about recommended source distances for seed, as well as assisted migration of plants. Local technical teams should guide decision making related to range extension, using available state and federal resources as guidance.</p>	<ul style="list-style-type: none"> • Continue having partners meet twice a year to discuss plant source and assisted migration topics. (BWSR) • Based on Advisory Team discussion BWSR will adopt a 200-mile maximum recommended range for herbaceous plant species and a 300-mile maximum recommended range for trees and shrubs, with specific exceptions for genetics and site conditions. (BWSR) • Promote research that helps inform decision making about appropriate sources of seeds and plants. (multiple organizations)
<p>7) Build Reciprocal Relationships with Tribal Communities: Tribal communities have knowledge of how their ancestors managed the land for thousands of years. The advisory team acknowledges that we need to treat this knowledge as a gift and don’t expect this to be given, a solid and respectful relationship must be built first. This can provide a deeper understanding and appreciation for traditional land-based practices that may be incorporated into contemporary land management. Climate change is affecting plants and ecosystems that the Ojibwe, Dakota and other indigenous peoples have relied on and maintained relationships with for centuries. Plants were used for subsistence (e.g., wild rice, blueberries, ostrich fern, and hazelnut), for ceremonial purposes and medicine (e.g., sweetgrass, prairie sage, and white cedar), and used for utility to make baskets and other practical materials (e.g., black ash and cattail).</p>	<ul style="list-style-type: none"> • Continue to build reciprocal relationships with Tribal partners, including providing resources for Tribes to perform activities that help bring back traditional land-based practices. • Collaborate with Tribal communities on habitat restoration projects through grant programs and agreements. (multiple organizations) • Focus on “Two-eyed seeing” that views the world through both Western and Indigenous knowledges and worldviews to incorporate traditional landscape practices into management approaches. (multiple organizations) • Seek funding sources to help protect and restore culturally important plants. (BWSR, DNR)
<p>8) Restore Key Landscape Processes: Build capacity to restore and mimic key landscape processes such as prescribed burning and conservation grazing. These activities are critical to the ecological integrity of many plant communities. This will require increased capacity to conduct prescribed burns and providing infrastructure for grazing. To do this more training</p>	<ul style="list-style-type: none"> • Collaborate with local technical teams to determine how prescribed fire and conservation grazing can be increased across landscapes. (multiple organizations) • Seek grants to allow for increased prescribed burning and conservation grazing and haying to help decrease excess nutrients in

<p>is needed to conduct prescribed burns. Initiatives that support cultural burning by tribes can also built capacity around the state.</p> <p>Invasive species will continue to increase as they are effective at dispersal, giving them an advantage in adapting to climate change. We will need to combine practices such as prescribed burning, prescribed grazing, water level management, mowing and haying to replicate natural disturbances and promote diversity, function and resiliency.</p> <p>Adjust management practices based on monitoring efforts, research, and experience with successes and lessons learned to improve the function and resiliency of plant communities.</p>	<p>landscapes, and promote ecosystem integrity. (multiple organizations)</p> <ul style="list-style-type: none"> • Develop a list of keystone species and landscape processes (fire, grazing, etc.) to guide decision making for projects. (advisory team) • Increase training about prescribed burning. (multiple organizations) • Embrace low-tech solutions for restoration of ecosystems such as promoting beavers to restore degraded stream channels and floodplains. (multiple organizations) • Learn which invasive species to be on the lookout for and what to do if you find them by visiting the DNR invasive species page. (multiple organizations) • Strengthen weed management partnerships to prioritize species and share resources to manage invasive plants across landscapes. (multiple organizations) • Fund monitoring through grant programs. (multiple organizations) • Increase training on how to use monitoring information to guide management. (multiple agencies) • Develop a standardized yet flexible approaches to assessing sites for ecological restoration status/success that can be applied state-wide. (multiple organizations)
<p>9) Pursue Innovative Restoration and Rewilding Strategies: Innovation is needed to continue improving our restoration and management practices. Examples of innovative practices include use of temporary covers to rebuild soil health, supplemental seeding to increase plant diversity, cover mixes to suppress invasive shrubs seedlings, extended site preparation time, increased cool-season grasses to suppress weeds, enhancement of soil microorganisms, culturally focused burning, cooperative prescribed burning, use of non-herbicide site preparation methods, haying and grazing to reduce nitrogen in ecosystems, and further engagement of volunteers.</p> <p>Important technical resources will need updates to communicate innovations including BWSR’s</p>	<ul style="list-style-type: none"> • Promote innovation for conservation programs. (multiple organizations) • Encourage the collection of information about successful practices. Incorporate into BWSR’s What’s Working webpage. (BWSR) • Increase technical resources, presentations and field days on innovative practices. (multiple organizations) • Highlight case studies. (multiple organizations)

<p>Native Vegetation Establishment and Enhancement Guidelines, Pollinator and Biodiversity toolbox and What’s Working for Conservation Website,</p> <p>New information will be needed about bioengineering practices, urban development on poor soils, rewilding highly disturbed landscapes, enhancing utility corridors to complement BWSR’s Habitat Friendly Utilities Program, peatland restoration methods, managing diverse woodlands, and managing volunteers.</p>	
<p>10) Expand Outreach and Equity Efforts: Further education and outreach is needed for residents of Minnesota in rural and urban areas about the role they can play in establishing and managing resilient native plant communities by planting native gardens, restoring prairies, forests, savannas, and wetlands, and supporting conservation organizations.</p> <p>Continue discussions and collaborations with underrepresented groups in Minnesota about their priorities for protection and restoration of plants and animals. Greater public awareness is needed about state programs that allow all residents to participate in native revegetation efforts.</p> <p>Educating youth will be essential as they are the next generation who will play an important role in conserving resources.</p>	<ul style="list-style-type: none"> • Communicate with the large number of Lawns to Legumes participants to further educate about needs on conservation lands and natural areas and how residents can be involved. (BWSR) • Assist the Natural Shorelands Partnership in outreach efforts. (multiple organizations) • Explore and utilize social marketing techniques such as Community-Based Social Marketing as a means to increase conservation engagement. (multiple organizations) • Partner with the Center for Changing Landscapes and other social science researchers in targeting key audiences. (multiple organizations) • Further incorporate equity considerations into grant programs. (multiple organizations)