

**Table 2. Best practices for habitat reconstruction or restoration (new plantings)**

<b>CATEGORY</b>	<b>RESTORATION PRACTICE</b>	<b>ADDITIONAL INFORMATION</b>
<i>COMPLIANCE</i>	Before undertaking management or restoration activities, determine whether rare insects are likely present in or near the activity area.	DNR project managers and contractors are required to ensure compliance with state and federal threatened and endangered species protections. The project manager completes a <a href="#">Natural Heritage screen</a> to start this process. If the activity meets criteria for further review, the manager coordinates with regional or district DNR staff to determine next steps. Plan all further activities in compliance with state and federal protected species requirements.
<i>RESTORATION: PLANNING</i>	Assess past practices on the site. Consider how the restoration will contribute to habitat connectivity.	Use knowledge of the historic plant communities and management activities at the site to guide restoration planning. Also consider how future conditions may change due to climate and surrounding land use changes. Restorations as part of larger complexes or corridors can be especially beneficial for wildlife, including pollinators.
<i>RESTORATION: PLANNING</i>	Avoid pesticide carryover into new plantings. Record past pesticide use on the site. Allow a rest period in areas treated with pesticides.	Allowing time for remaining herbicide and insecticide residues to degrade is expected to lessen negative impacts on new plantings and pollinators. A temporary cover crop may be planted during the rest period. Refer to <a href="#">herbicide rotation restrictions for forage and cover cropping systems</a> for recommended wait times prior to planting. Although this document was developed for agricultural plantings, it can also be used to infer wait times for native plantings.
<i>RESTORATION: SITE PREP</i>	Retain fallen or dead trees during forest and woodland restoration, when appropriate.	Dead wood provides nesting sites and food for larvae.
<i>RESTORATION: SEED MIX DESIGN</i>	Prioritize forbs when calculating seeding rates.	Flying pollinators are attracted to areas with high flower densities. Use an overall seeding rate of at least 40 seeds per sq ft, with at least 40% of the rate made up of native perennial forbs. Big bluestem and Indian grass should account for no more than 2% of the mix each. Diversifying grasses and sedges is important to achieve structural heterogeneity good for nesting and foraging pollinators.

Source document: *Pollinator Best Management Practices and Habitat Restoration Guidelines* (“Pollinator BMPs”), revised May 2026  
Available at [mndnr.gov/pollinators](http://mndnr.gov/pollinators)

CATEGORY	RESTORATION PRACTICE	ADDITIONAL INFORMATION
<i>RESTORATION: CHOOSING PLANTS</i>	Choose a seed or plant mix that is appropriate for the site conditions and has appropriate native plant diversity. Choose native forbs that bloom at different periods during the growing season: spring, summer, and fall.	Diverse native plant communities support diverse pollinator communities. Ideal seed mixes include multiple species from each of these categories: warm-season grasses, cool-season grasses, sedges/rushes, legume forbs, non-legume forbs, and woody plants (if appropriate for the site). Include at least five spring blooming species, five blooming in summer, and five that bloom into the fall. More than one seed mix may be needed, depending on soil and drainage characteristics. Supplement purchased seed mixes with native harvests to increase species diversity. Test mechanically harvested seed mixes to know the species composition before sowing. DNR’s <a href="#">Pollinator Resource Tables</a> and BWSR’s <a href="#">state seed mixes</a> may be used as guidance for choosing plants.
<i>RESTORATION: CHOOSING PLANTS</i>	Include native plants that support specialist pollinators.	Specialist species are more vulnerable to change than generalists because they rely on a narrower set of resources. The <a href="#">Minnesota Pollination Guide</a> identifies plants that provide resources for specialist bees, moths, and butterflies.
<i>RESTORATION: CHOOSING PLANTS</i>	In areas where woody species are appropriate, consider selecting native shrubs or trees that provide resources for pollinators.	Native trees and shrubs in the following genera are host plants or food sources for pollinators: <i>Acer</i> , <i>Alnus</i> , <i>Amelanchier</i> , <i>Arctostaphylos</i> , <i>Aronia</i> , <i>Betula</i> , <i>Cornus</i> , <i>Corylus</i> , <i>Crataegus</i> , <i>Dasiphora</i> , <i>Fraxinus</i> , <i>Physocarpus</i> , <i>Picea</i> , <i>Pinus</i> , <i>Populus</i> , <i>Prunus</i> , <i>Quercus</i> , <i>Rosa</i> , <i>Rubus</i> , <i>Salix</i> , <i>Sambucus</i> , <i>Sorbus</i> , <i>Spiraea</i> , <i>Tilia</i> , <i>Ulmus</i> , <i>Vaccinium</i> .
<i>RESTORATION: CHOOSING PLANTS</i>	Use seed mixes or live plants that have not been treated with insecticides.	<a href="#">Systemic insecticides used in nurseries</a> can affect beneficial insects, including pollinators, long after application. Ask <a href="#">native plant suppliers</a> to identify any pesticides used in plant and seed production. Follow Integrated Pest Management (IPM) principles that include prioritizing non-chemical, targeted treatments for identified pest problems ( <a href="#">Operational Order 59</a> ).
<i>RESTORATION: SOIL STABILIZATION</i>	Choose diverse (e.g., pollinator-friendly) native seed mixes for erosion control and bank stabilization projects.	The Minnesota Board of Water and Soil Resources (BWSR) maintains a <a href="#">list of seed mixes</a> that includes cover crops for temporary soil stabilization as well as native seed mixes for a variety of habitats.

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CATEGORY	RESTORATION PRACTICE	ADDITIONAL INFORMATION
<i>RESTORATION: HERBICIDE USE</i>	Avoid broadcast herbicide applications after new plantings when other means of weed control are available.	Following new plantings, weedy annual plants are a normal component of early succession and will often reduce in abundance over time without broadcast herbicide use. Weedy plants often provide shelter and forage for pollinators during this time. If herbicide use is warranted to allow target plant species to establish, use selective rather than broad spectrum formulations, and choose spot rather than broadcast treatments. Refer to <a href="#">Operational Order 113</a> , DNR’s policy for invasive species prevention and management, and <a href="#">Operational Order 59</a> , DNR’s policy on pesticide use.
<i>RESTORATION: RECORD KEEPING &amp; MONITORING</i>	Record planting details and subsequent management activities at the site. Compiled records can inform future restoration and management activities.	Project managers should keep records regarding site prep, seed mix lists, seeding rates, timing, methods, site location, acreage, and subsequent management activities at the site. The <a href="#">Prairie Reconstruction Initiative</a> provides a platform to enter restoration information into a database. The information is accessible through an online portal and can be used to inform future management decisions. When paired with ongoing vegetation monitoring, DNR staff use this tool to track reconstruction establishment over time (Figure 2).