Contract Language

DNR grant agreements and contract work to accomplish habitat restoration or enhancement on DNR lands or prairie restorations using state funds are also subject to the best management practices and guidelines in this document. **The following standard language should be included in grants and contracts for all habitat enhancements or restoration work**:

Specific Pollinator Best Management Practices for Grants and Contracts

Habitat Restoration Guidelines:

- Place pollinator habitat enhancement plantings on soil free of persistent pesticides harmful to pollinators.
- Pay attention to past and present insecticide use on and adjacent to the site so that appropriate mitigation can be applied.
- Emphasize pollinator planting efforts away from adjoining lands where there is potential for pesticide drift harmful to pollinators.
- Avoid clearing or burning fallen or dead trees when consistent with other objectives, as they contain potential nesting sites.
- Species selection should be guided by knowledge of the expected native plant communities on the site and any natural resource surveys (plants, invertebrates, soils, hydrology) that might inform the restoration effort.
- Refer to the pollinator tables for specific host species.
- Include a diverse mix of native flowers to attract a broad range of pollinators. Strive for at least three different pollinator supporting species within each of the three blooming periods (early, mid or late season).
- Plant some native bunch grasses (such as little bluestem).
- Plant selection should include plant species that support endangered, threatened, special concern or rare-pollinating species.
- Avoid plant materials with seed, plant or soil sources that have been treated with neonicotinoid insecticides.

Stream Bank and Shoreline Guidelines:

- Plants attractive to pollinators can be used along waterways, but the planting should not interfere with the hydraulic function of the waterway and the primary objective of stabilizing the bank against erosion.

- To enhance habitat for native bee communities, increase the diversity and number of flowering plants growing on a site and add nesting habitat. Consider pollinator needs when choosing trees for riparian forest buffers. For example, willow, dogwood and goldenrod benefit pollinators.
- Seed mixes can include legumes or other forbs that provide pollen and nectar for native bees. These sites may be able to support flowering forbs with higher water requirements and provide bloom later in the summer. Consult the native plant community pollinator tables for specific species.
- Maximizing plant diversity along riparian corridors will result in more pollinators and other terrestrial insects that act as forage for fish.

Prescribed Disturbance- Fire/Mowing/Haying:

- Ensure that all known locations of rare insects are not disturbed in the same year.
- Avoid impacting more than half to two-thirds of a habitat type in the same year.
- Allow 3 to 10 years rest between disturbances to provide recovery time for pollinator populations.
- Vary the season when disturbances are conducted to prevent repeated impacts to the same species in the same location.
- When selecting refugia for pollinators, consider:
    - If there are plant species that are known overwintering or egg-laying sites, include areas with these species within the refugia.
    - Within a management unit, ensure that refugia occur within the unit's variety of "habitat types." When managing remnant habitats, ensure that at least a third remains unburned for two consecutive years at all time.
    - When management units include both remnant and restored habitats, ensure that refugia are created in both.
- If disturbance to the entire area is necessary to meet other management goals, subdivide the unit into at least two units and burn or mow or hay the areas several weeks apart so the whole unit isn't affected at once.
- When controlling invasive species or encroachment of woody species, target undesirable patches, leaving the rest of the habitat intact.
- Mowing should occur as high as possible to still meet the management goals in order to make the most of nesting or overwintering habitat left on site.

Invasive species control:

- Invasive plant species should be controlled, even if they serve as a pollen or nectar source.
- Avoid neonicotinoid insecticides.
- Select spot treatments over broadcast applications.
- Choose bio-control over pesticides if available.
- Insecticides and herbicides should be selected to be the most target-specific and applied on the smallest area practical to meet management objectives.
- Ensure that crews recognize target species.
- Spray in early morning or evening when bees and other pollinators are less active.
- Avoid pesticide application if wind speeds exceed 10 mph.

- Eliminate outlying populations of invasive species first and then work towards the center of the infestation.
- Monitor pesticides for dispersal by drift, erosion or runoff.

Conservation grazing:

- Limit the duration and intensity of grazing on sites so that residual cover is left after the livestock are removed if consistent with key management objectives.
- On larger units, set up grazing paddocks or regimes to rotate grazers within the site and allow for retention of some nectar and host plants. Alter the grazing cycle so any site is not grazed during the same time each year.
- Monitor grazing to create a range of habitat structures (height of plants) to create diversity.
- Where heavier grazing of a site is called for, leave one-third to half of the important habitats ungrazed.
- Manage grazing so that the more sensitive plant species that are prairie components do not decline.
- Insecticides used for parasite control in cattle are systemic and can benefit insects as well as pests. The DNR worked with the state veterinarian, Board of Animal Health, and cattle producers to set up parasite control guidelines that are sensitive to native insects and has developed a list of acceptable products and practices that can be found on the Minnesota Pollinator Resources webpage.

Specific best management practices for forest management activities include:

- Avoid broadcast spraying of pesticides when other effective means of control are available; encourage the use of spot treatments.
- When managing for legacy elements (patches within a treatment area that retain native plant community representation), select areas to include as many plants as possible that produce pollen and nectar.
- Minimize impact to spring ephemerals.
- Maintain a variety of plant communities and conditions across the landscape.
- Retain standing dead and downed dead logs where possible to serve as nesting habitat for bees, as well as feeding habitat for beetle and hoverfly pollinators whose larvae are saproxylic.
- Design forest management activities to protect the soil (and thereby protect underground plant structures that serve to regenerate flowering plants and protect ground nesting pollinators from impact).
- When planting trees or shrubs consider floral resources for added spring and early summer blooming resources (For example, American basswood, serviceberry, and willow where ecologically appropriate).