



**MA Department of Conservation and Recreation
Office of Stewardship and Resource Protection
Best Management Practices**

Pollinator Habitats and Gardens

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Monarch butterflies on New England Aster

Native pollinators are struggling due to habitat loss, increases in non-natives, pesticides, pollutants, and climate change. DCR-managed lands statewide allow the agency to target areas that are suitable for pollinator habitat through planting native seeds or live plants and/or revising maintenance schedules for mowing. Pollinator habitats range from small areas near visitor centers to larger fields. These habitats provide opportunities to engage visitors about measures DCR is taking to improve stewardship and landscaping for wildlife and connect visitors to the importance of native pollinators and their habitats.

This BMP outlines steps to establish pollinator habitat, maintenance requirements, and signage and interpretive aids available to promote pollinator habitats.

Goal: To increase and improve habitats that support native pollinators throughout the DCR system and to provide examples of pollinator friendly stewardship and native landscaping practices for the public.

Benefits: Increased habitat values of fields and landscapes for native pollinators and wildlife, increased native biodiversity and species richness, enhanced ecosystem climate resilience, reduced carbon emissions, increased carbon sequestration, reduced staff hours in mowing and maintenance, and reduced fuel costs.

Guidelines: Contact the Pollinator Team to discuss options and set up a site visit. Team will assist with reviews of site suitability, including potential rare species, invasive plants, wetlands, public access considerations, soil, slope and light available for existing and/or desired native vegetation.

1) Site selection criteria:

- New pollinator gardens: partial or full sun and near a water source for establishing plants;
- Established fields/meadows: avoid sensitive natural or cultural resources such as certain rare species habitats or historic sites that would suffer detrimental impacts from a change in management practices; a mowed or landscaped area that is not needed for active recreation may be suitable.

2) Site preparation after review by the DCR Pollinator Team may involve: Removing existing non-native plants or lawn where needed and appropriate, establishing a final grade, and seeding or planting with an approved mix of native, pollinator friendly plant species; preparation may also simply involve identifying fields and meadows that can be left un-mown for extended periods to promote flowering and seeding of native plant species. The DCR Pollinator Team can provide management recommendations and support.

3) Seeding and/or Planting: Timing for applying seed mix and planting will vary, depending on location. Fertilizers, herbicides and dyes (such as mulch dyes) may be harmful to pollinator. Please refrain from using these in close proximity to your pollinator garden and meadows.

- Seeding: Broadcast seed mix at recommended rates of 110 sf/ounce (25 lbs./acre) by hand-held spreader. Please contact the Pollinator Team for additional information on seed availability. A native New England seed mix will be recommended for your site based on soil composition and light exposure.
- Plantings: choose *native* species that provide pollinator resources in spring, summer and fall. Plantings should be placed in sweeps (several of the same species planted on a curve). This makes it easier for the pollinators to find the plants they prefer. The Massachusetts Department of Agricultural Resources has put together a list of pollinator plans categorized by moisture and light requirements, flowering time and flower color. The list is available via: <https://www.mass.gov/doc/creating-pollinator-friendly-gardens-with-native-plants-locally-available-options/download>. Why the different colors? Some pollinators are attracted to plant colors (and shapes and smells!). For example, hummingbirds are attracted to red and pink flowering plants such as our native Cardinal flower while some of our native bees seem to prefer white flowering plants such as sweet pepperbush, blueberries, asters and fleabanes!

4) Long Term Care:

- New pollinator gardens may require mulch: Lightly cover seed with seed-free straw or thin layer of fine unstained wood mulch to retain moisture and protect seeds until vegetation establishment.
- For newly established pollinator gardens, watering and weeding may be required: Water and weed as necessary for first season and every year in summer until soil is completely covered with wildflowers/grasses (frequency will depend on the species, weather, and site).
- Fields and meadows that are being managed for pollinator habitat will not require watering or weeding. These habitats will require monitoring for invasive species and mowing, at the appropriate frequency and season to maintain preferred native plant species and to avoid impacting nesting and foraging wildlife. See Principles for Long Term Management of Fields and Meadows provided below.

5) Short Term Protection: Newly established pollinator gardens may require protection from:

- Foot traffic: use fencing/barriers and/or signage.
- Wildlife eating seeds: mulch and add stakes/strings/flagging, or bird netting as necessary.
- Herbivory of young sprouts: may need protection from wildlife (temporary fencing).

All fencing and other exclusion materials should be removed when vegetation is established.

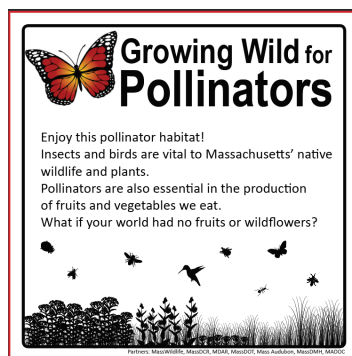
6) Additional Features: Consider adding bird or bat houses, bee houses, water features (bird baths, bowl shaped rocks), frog houses, locally sourced logs, rock piles; all provide habitat features for pollinators to eat, drink, house, or lay eggs on. Contact the ecology team for ideas and additional information.

Principles for Long-term Management of Fields and Meadows

- Mowing regime: work with the Pollinator Team to design timing and frequency of mowing, based on plant species phenology, pollinators and wildlife use (often annually or every other year).
- Mowing should always be done in low gear/at slow speeds to allow wildlife the chance to react. Consider mowing in a circular pattern, starting from the center and moving outward to avoid concentrating wildlife and reduce incidental mortality.
- Unless there is a significant amount of woody vegetation you are trying to manage, mow 7-12" above the ground to allow small plants to bloom. This also provides food and habitat for wildlife.
- Maintain a mown edge ~20' wide to suppress any invasive species that may establish in edge habitats.
- Mow one or more paths of short vegetation for public access around the area, if appropriate.
- Equipment should be washed before and after each mow to limit the spread of invasive plants.
- Leave the litter/cut vegetation.
- Inspect for invasive plants – remove small invasive plants by hand, or if large stands (refer to Terrestrial Invasive Plant BMP and consult with DCR Ecologist). Please report invasive plants to your DCR Ecology Contact.
- Naturalization – low maintenance native plants will reseed once established and will spread naturally.

Interpretive Aides:

Pollinator habitats provide an excellent forum to engage visitors through programs, signage and handouts. Standard Signage has been created as part of a statewide initiative in two designs:



Roadside Sign –Reads as follows, “Growing Wild for Pollinators.” This 10” x 36” sign is designed to be placed along parkways, highways and large areas.

Trailside Sign –Reads as follows, “**Growing Wild for Pollinators. Enjoy this pollinator habitat! Insects and birds are vital to Massachusetts’ native wildlife and plants. Pollinators are also essential in the production of fruits and vegetables we eat. What if your world had no fruits or wildflowers?”**

MDAR has created a poster that can be printed, laminated and added to informational kiosks. The poster is available at: <https://www.mass.gov/doc/massachusetts-native-plants-and-pollinators-poster/download>

Additional Resources:

- General principles for creating native gardens
 - <https://www.mass.gov/doc/massachusetts-native-plants-and-pollinators-poster/download>
 - <https://www.nativeplanttrust.org/for-your-garden/ecological-gardening/>
- Complimentary in-depth fact sheet for creating pollinator habitat
 - <https://extension.unh.edu/resource/planting-pollinators-establishing-wildflower-meadow-seed-fact-sheet>
- MDAR, Choosing Pollinator Friendly Native Plants
 - <https://www.mass.gov/service-details/choosing-pollinator-friendly-native-plants-in-home-gardening-or-landscaping>
- Native Pollinator Plants/Seed for you Region and where to buy?
 - COMING SOON!
- DCAM Tool Shed- need tools? DCAM may have some to borrow!
 - COMING SOON!
- This is a Statewide Effort, check out the Commonwealth's Leading by Example Interactive map, <https://www.mass.gov/info-details/leading-by-example-progress-overview>