



Recommendations for Pollinator Gardens

By Pam Phillips

Friends of Bees

Watertown Citizens for Peace, Justice, and the Environment

There are many reasons to include a pollinator garden in your yard. Flowering plants require pollination in order to set seed for the next generation. Most pollination is done by insects, especially bees, but also butterflies, moths, wasps, flies, and more. If you want to grow fruits or vegetables, pollinators are essential for a good crop. The greater variety of bees you can attract, the more complete pollination you will have. In fact, pollination has a greater impact on crop yield than fertilizer. Some pollinators, such as solitary wasps and flower flies, are beneficial insects that control pest insects. Flowering plants and trees can also feed birds with the caterpillars they host, as well as seeds and fruits that result from pollination.

Sadly, bees and other pollinators are in decline worldwide. There are many causes to their loss of habitat. They need our attention to give them flowers to feed from and places where they can nest. In whatever space you dedicate to pollinators, careful choices can help you maximize its potential for sustaining a diverse population of native bees.

Gardening Practices

The overriding principle is Less is More. These practices will help native bees wherever you are.

Don't use pesticides. Even insecticides approved for organic use can be toxic to bees, especially spectrum insecticides, such as neem oil, pyrethrins, and insecticidal soap. Fortunately, a garden with a strong pollinator population will also attract beneficial insects, such as ladybugs, greatly reducing the temptation to spray pest insects. While they are not native to North America many herbs such as dill, fennel, cilantro/coriander, oregano, and thyme attract beneficial insects when allowed to flower.

Don't do any fall "cleanup." About a third of native bees nest inside stems and other cavities. Many butterflies and other beneficial insects overwinter in fallen leaves. Seed heads will also feed birds in winter.

Don't cover open space with mulch. The majority of native bees nest under ground. They generally prefer bare, sunny spots. Mulch can make it difficult for the bees to access the surface.

Do leave spent stems standing over the winter. In spring, cut standing stems to lengths of at least 1-2 feet. Stem nesting bees will use both hollow and pithy stems. Since the next generation of bees will emerge in the following years, leave the cut stems to stand or fall as they may.

Do make room. If the bees like the plants, the plants will spread. Leave plenty of room between them at first planting. By year three, you might need to divide them and join a plant swap.

Plant Selection

Most bees are generalists, meaning they will visit a wide variety of flowers. But roughly a quarter of bees are pollen specialists who only use the pollen of selected families of plants to feed their young. Often the adult bees are active only while their favored plants are flowering. More than half of pollen specialists are rare or at risk. For the greatest increase in diversity, plant for specialist bees. The generalist bees, such as bumblebees, will be happy to join them.

When selecting plants, look for the straight species, not cultivated varieties with names in quote marks. For example, flowers that have been bred into doubled forms offer no nectar or pollen to bees. Look for plants native to your region. Bees will do best with the plants they co-evolved with, particularly pollen specialist bees. For bumblebees, include spring trees and flowers that will help bumblebee queens establish strong colonies, summer flowers that will help bumblebees multiply, fall flowers that will help bumblebee queens grow fat, and native grasses that will provide shelter in winter.

The botanical name of plant families that help specialist bees are **bold**.

In spring, the plant families that help the widest variety of specialist bees are Blueberry (**Vaccinium**), Dogwood (**Cornus**), Sheep Laurel (**Kalmia**), and Willow (**Salix**). Many flowers support specialist bees that only emerge in spring. These include Bellwort (**Uvularia**), Bishop's Miter (**Mitella**), Foamflower (**Tiarella**), Golden Alexander (**Zizia**), Purple Raspberry (**Rubus**), Spring Beauty (**Claytonia**), Strawberry (**Fragaria**), Trout Lily (**Erythronium**), and Violets (**Viola**). Violets are also host plants for Fritillary butterflies.

Spring is when bumblebee queens emerge. They need nectar for themselves and pollen for their offspring. Early forage comes from woodland flowers, such as Dutchman's Breeches (*Dicentra cucullaria*), Spotted Geranium (**Geranium Maculata**), Virginia Bluebells (*Mertensia*), and Virginia Waterleaf (**Hydrophyllum**). Trees and shrubs for bumblebees include Meadowsweet (*Spiraea*), Redbud (**Cercis**), Rosebay (**Rhododendron**), and Serviceberry (*Amelanchier*).

Other trees and shrubs to consider are host plants for butterfly and moth caterpillars. Since most birds raise their young on caterpillars, this is the best food you can offer them. In Eastern Massachusetts, the trees that support the widest variety of caterpillars are (in descending order of importance): Oak (*Quercus*), Cherry (*Prunus*), Willow (**Salix**), Birch (*Betula*), Poplar (*Populus*), Crabapple (*Malus*), and Maple (*Acer*). All these trees provide pollen for bees in the spring, and most provide nectar.

In summer, the plants that help the widest variety of specialist bees are Sunflowers (**Helianthus**). Sunflower pollen also has medicinal effects for bees. A common ground-nesting bee, the Squash Bee, specializes in Squash (**Cucurbita**). Other plants for specialist bees include Black-eyed Susan (**Rudbeckia**), Beardtongue (**Penstemon**), Fleabane (**Erigeron**), Grass-of-Parnassus (**Parnassia**), Groundcherry (**Physalis**), native Loosestrife (**Lysimachia**), New Jersey Tea (**Ceanothus**), Pickernelweed (**Pontederia**), and Tickseed (**Coreopsis**).

Monarch butterfly caterpillars also specialists. They can only eat Milkweeds (*Asclepias*). Milkweed flowers feed bumblebees, the plants feed aphids, and the aphids feed beneficial insects. This makes Milkweed a keystone plant.

In late summer to fall, when many plants stop blooming, the plant families that help the widest variety of specialist bees are Aster (**Symphotrichum**) and Goldenrod (**Solidago**). Drawing massive numbers of bees and other pollinators, these flowers help young bumblebee queens grow fat enough to survive the winter. This is also the time when Monarch butterflies are flying south. Nectar plants for them include Blazing Star (*Liatris*), Boneset (*Eupatorium*), Ironweed (**Vernonia**), Joe-Pye Weed (*Eutrochium*), and Wild Bergamot (**Monarda fistulosa**).

In winter, native warm season clumping grasses provide stems and shelter for overwintering insects. During the growing season, some grasses are host plants for skipper butterflies. These include Big Bluestem (*Andropogon*), Indian grass (*Sorghastrum*), Little Bluestem (*Schizachrium*), and Switch grass (*Panicum*). The clumps provide shelter and seed to small birds and rodents. The nests these animals make may be used by bumblebees in following years.

Some sources of native plants:

Blue Stem Natives, Norwell, MA. bluestemnatives.com

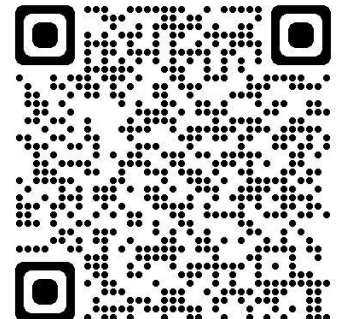
Grow Native, Waltham, MA. grownativema.org

Native Plant Trust, Framingham, MA. nativeplanttrust.org

Prairie Moon, Winona, MN. prairiemoon.com

Friends of Bees was founded in 2014 to educate about and advocate for native bees, butterflies and other pollinators. We are a working group in Watertown Citizens for Peace, Justice, and the Environment. For more information, please scan the QR code to visit our page at watertowncitizens.org, or contact us at FriendsofBees@watertowncitizens.org.

We wish you a beautiful, buzzy garden!



Pollinator Plants for full sun, average soil

*Starred plants have specialist bees associated with them

Trees and shrubs

Oaks - *Quercus*

Serviceberry – *Amelanchier laevis*

Spring flowers

*Lanceleaf coreopsis - *Coreopsis lanceolata*

*Foxglove beardstongue - *Penstemon digitalis*

Yellow wild indigo - *Baptisia tinctoria*

Summer flowers

*Sunflower – *Helianthus annuus*

False Sunflower - *Heliopsis helianthoides*

*Blackeyed Susan - *Rudbeckia Hirta*

*Squash and Pumpkins - *Cucurbita*

Coneflower - *Echinacea purpurea*

Anise Hyssop - *Agastache feoniculum*

Butterfly weed - *Asclepias tuberosa*

Fall flowers

*Showy goldenrod - *Solidago speciosa*

*Smooth blue aster - *Symphotrichum laeve*

*New England aster - *Symphotrichum novae-angliae*

Grasses:

Little Bluestem - *Schizachyrium scoparium*

Prairie Dropseed - *Sporobolus heterolepis*

Side-oats grama - *Bouteloua curtipendula*

Pollinator Plants for full sun, wet soil

*Starred plants have specialist bees associated with them

Trees

*Willows - *Salix*

Spring flowering

*Highbush Blueberry - *Vaccinium corymbosum*

*Lowbush Blueberry - *Vaccinium angustifolium*

Canada anemone - *Anemone canadensis*

March marigold - *Caltha palustris*

Summer flowering

*New York Ironweed - *Vernonia noveboracensis*

Spotted Joe-Pye Weed - *Eutrochium maculatum*

Sweet Joe-Pye Weed - *Eutrochium purpurea*

Common boneset - *Eupatorium perfoliatum*

Culver's Root - *Veronicastrum virginicum*

Swamp Milkweed - *Asclepias incarnata*

Cardinal Flower - *Lobelia cardinalis*

Great Blue Lobelia - *Lobelia siphilitica*

*Pickerelweed – *Pontederia cordata*

Blue Vervain - *Verbena hastata*

Virginia Mountain Mint - *Pycnanthemum virginianum*

Clustered Mountain Mint - *Pycnanthemum muticum*

White turtlehead - *Chelone glabra*

Canada Tick Trefoil - *Desmodium canadense*

Great St. John's Wort - *Hypericum pyramidatum*

Obedient Plant - *Physostegia virginiana*

Bottle Gentian - *Gentiana andrewsii*

Pollinator Plants for part shade, moist to dry soil

*Starred plants have specialist bees associated with them

B- Shade plants valuable for bumblebee queens and other pollinators

Trees

*Dogwood – *Cornus florida*

Eastern Redbud – *Cercis canadensis*

Early spring flowers that do well under trees

B*Wild geranium - *Geranium maculata*

B*Virginia Waterleaf - *Hydrophyllum virginianum*

B*Downy Yellow Violet - *Viola pubescens*

B- Bishop's Cap - *Mitella diphylla*

Bloodroot - *Sanguinaria canadensis*

Plants that are flowering when bumblebee queens emerge

B-*Foamflower – *Tiarella cordifolia*

Rosebay Rhodendron - *Rhodendron maximum*

B-Dutchman's Breeches - *Dicentra cucullaria*

Jacob's Ladder - *Polemonium reptans*

Spring flowers

*Large-flowered Bellwort - *Uvularia grandiflora*

*Golden Alexander - *Zizia aurea*

Sharp-lobed Hepatica - *Anemone acutiloba*

False Solomon's Seal - *Maianthemum racemosum*

Long-styled Sweet Cicely - *Osmorhiza longistylis*

Rue Anemone - *Thalictrum thalictroides*

B-Columbine - *Aquilegia canadensis*

B-Smooth Solomon's Seal - *Polygonatum biflorum*

Yarrow, Milfoil - *Achillea millefolium*

Summer flowering

*Cutleaf Coneflower - *Rudbeckia laciniata*

*Wild bergamot - *Monarda fistulosa*

Virginia Spiderwort - *Tradescantia virginiana*

Wild lupine - *Lupinus perennis*

Fall Flowering

*Zig-zag goldenrod - *Solidago flexicaulis*

*Heart-leaf Aster - *Symphyotricum cordifolia*

*Large Leafed Aster - *Eurybia macrophylla*

Grasses

River Oats - *Chasmanthium latifolium*

Resources

Plants for Pollinators at Risk

Plant lists for regions in Massachusetts to support endangered bumblebees and butterflies. Based on research conducted by Dr. Robert Gegear.

<https://gegearlab.weebly.com/plant-list.html>

Plant A Bumblebee-Friendly Garden

Also links to an article by Dr. Gegear about bumblebees.

<https://www.mass.gov/news/plant-a-bumblebee-friendly-garden>

Landscape Design and Management to Support Pollinator Species at Risk in Eastern Massachusetts

Plant lists and sample designs for various growing conditions. Draws on Dr. Gegear's research.

https://lincolnconservation.org/wp-content/uploads/2020/04/Landscape-Interactions_BirchesToolkit_web.pdf

Pollen Specialist Bees of the Eastern United States

Tables of associations between native pollen specialist bees and native host plants. Includes recommendations for the importance of specialist bees. Based on research conducted and assembled by Jarrod Fowler.

https://jarrodflower.com/specialist_bees.html

Native Plant Finder

Search by zip code to find plants that host the highest numbers of butterflies and moths to feed birds and other wildlife where you live. Based on research conducted by Doug Tallamy.

<https://www.nwf.org/NativePlantFinder/>

Tufts Pollinator Initiative

Guides to plants and pollinators. Based on research conducted in Medford and Somerville at Tufts University.

<https://sites.tufts.edu/pollinators/guides/>

Bees and their Habitats

Overview of the habitat requirements of the roughly 400 species of bees native to the New England states of Maine, Massachusetts, New Hampshire, and Vermont. Based on research collected and assembled by University of Maine.

<https://umaine.edu/mafes/resource/bees-habitats-four-new-england-states/>

Nurseries and Seed Sources

<https://grownativemass.org/Great-Resources/nurseries-seed>

Where to find plants from Dr. Gegear's list

<https://www.svtweb.org/our-work/metrowest-conservation-alliance/priority-issues/native-pollinators/garden-toolkit/where>