



Welcoming The Pollinators



Produced through a grant from the generosity of the Mass State Grange Roots Initiative

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Everyone likes to sit near their garden watching all the activity of the bees and butterflies as they visit the beautiful flowers and vegetables. We have taken it for granted that these insects will always be there drinking nectar and transferring pollen, but it is becoming obvious that there is more danger to these insects than just a hungry bird. Habitat loss, disease, parasites, and contaminants are all being studied as reasons for the decline in numbers of honeybees, native bees, butterflies and bats.



Figure 1 Honeybee

Plants need to be pollinated since when there is no pollination, fruits and vegetables do not form. The plants will produce many green leaves, but no fruits or vegetables. There will be no food. More than one-third of our food is from plants pollinated by bees, so we all must help the pollinators by improving their habitats. All pollinators are in danger! As more land is developed for homes and industry, habitats are lost. Large areas that previously provided forage for native pollinators are now gone forever.

One of the purposes of a flower is to attract pollinators to transfer pollen and eventually aid in fertilization. In order for a flower to create seeds, pollen grains need to move from the male to the female parts of the flower. Pollen may be transferred by insects, wind, animals, even humans. Butterflies and moths are good pollinators. Moths fly at night, so are attracted to white flowers and those with intense fragrance. A wide variety of bees are very active pollinators. Bumblebees and honeybees work throughout the day to collect pollen and nectar for their hives. Bumblebees can pollinate some crops even better than honeybees. Bumblebees come out early in the season and will work in wet weather when honeybees stay in the hive. Experiments have proven that honeybees work harder and pollinate better in the presence of native pollinators. Some insects are specialists and only go to a particular plant, others are generalists and go to a variety of plants. Honeybees do not pollinate tomatoes, but bumblebees do. Some bees actually take advantage of their favorite plants like the squash bee who stays in the squash blossom when it closes up in the evening and then is right where it needs to be to collect more nectar in the morning.

Gardeners and farmers depend on pollinators to produce fruits and vegetables. Honeybees, originally imported from other countries, are among the most important of pollinators. When a honeybee flies through the air, a positive charge is created on the bee hairs. Pollen has a negative charge so it is attracted to the honeybee and almost jumps onto the bee, like when you rub a balloon on your hair and then are able to attract small pieces of paper to the balloon by static electricity. This phenomenon is good since it enables more pollen to be transferred by the honeybee. Honeybees have “pollen baskets” which are not really baskets but a groove on their legs to store collected pollen and carry it back to the hive. It is amazing that honeybees are able to fly when loaded with pollen.

Professional beekeepers can easily bring their working honeybees in and out of fields and orchards. Their hives can be transported among fields to pollinate 30-90% of our fruit crops. Native bees also pollinate some of these

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same crops, but to a lesser degree. Native pollinators are especially important for pollinating native plants. Native pollinators have adapted to the local climate, and may have some resistance to local diseases and parasites. It is very important to maintain the health of ALL pollinators, both commercial and native to ensure the yield of local crops. Professional and hobby beekeepers spend numerous hours of quality time monitoring the health of their hives and bees. Beekeepers remove any excess honey to process and sell, leaving some in the hive as food for the bees. Once honey has been harvested, the hive can be treated for parasitic mites that bring a fatal disease into the hive. Beekeepers need to monitor the percentage of mites in a hive since mites can never be eradicated, just controlled.

In the fall, many honeybees naturally die off as the colony prepares to winter over with a much smaller number of essential bees to keep the queen warm and safe. Beekeepers must protect the hives from robbers and extreme temperatures through the fall and winter, checking for bee health throughout the season. In the early spring, they feed the bees sugar water for carbohydrates and pollen for protein to sustain the bees until there are enough flowers in bloom to provide nectar.

When planting for pollinators, it is important to remember that each plant may attract a pollinator for different reasons. Some pollinators are attracted to specific colors of plants. Others are guided by smell or the availability of a landing platform. The insect needs to be able to reach the nectaries with their tongue and not all insects can reach every plant's nectar source so selecting plants with a variety of flower shapes is important. Flower numbers are also very important. Honeybees need to visit two million flowers to produce a pound of honey. When that number of flowers is concentrated in a smaller area, more bees can be productive workers.

Use plants that attract beneficial insects for pest control. Create sections of the garden that are pesticide free and pollinator friendly while planting a wide variety of flowers to entice all pollinators to the garden. The ideal is to attract native pollinators as well as honeybees. Flowers should be planted in masses rather than small clumps, to create open meadow conditions in a portion of the yard. Plant clumps of the same species close together. Attracting a variety of pollinators may take a bit of habitat management.

Most pollinator plants grow best in areas of full sun and open space, but even a container of native plants can attract some native pollinators. Try to match native plants to their specific pollinators and let some native plants grow and come into full bloom. Transplants, although more expensive, will usually bloom faster than plants grown from seed.



Figure 2 Hummingbird Moth

Gardeners who wish to help reverse the decline of both honeybees and native pollinators can change some of their gardening practices. Dedicate a portion of your property to native plants and allow some native plant areas

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Figure 3 Black Swallowtail Butterfly

of the yard to grow to full flower without being trimmed. Let a wildlife area go without mowing in the summer. Wide areas of green lawns in a neighborhood are like deserts for the pollinators. Avoid the use of pesticides whenever possible but when finding it necessary to select chemicals for either weed or pest control, choose a brand with the least toxic ingredients. Systemic chemicals are absorbed by plants as they grow and are dispersed through all of its cells so these are especially dangerous to insects as the toxic chemicals can be present in the nectar and pollen and will poison the pollinators when ingested. Reduce or eliminate pesticide use in the garden as much as possible. When feasible, always choose a pesticide that targets a specific pest and then use sparingly in your gardens. Using less pesticides will be better for the pollinators, your plants, and your own environment.

To make a garden more welcoming to more pollinators, the gardener must select plants that will be attractive to both honeybees and native pollinators. Create a habitat full of a variety of plants, colors, and textures. Leave a portion of the garden or yard growing in its natural state with little mowing or disruption. Observe and record the pollinators that visit the garden and you will be rewarded with a list of many new varieties of insects who visit to pollinate the plants.

Pollinator Friendly Plants for New England

Spring Bloom	Summer Bloom
Foxglove beardtongue (<i>Penstemon digitalis</i>)	Swamp Milkweed (<i>Asclepias incarnata</i>)
Wild Columbine	Butterfly Weed (<i>Asclepias tuberosa</i>)
Bluets (<i>Houstonia caerulea</i>)	Anise Hyssop (<i>Agastache foeniculum</i>)
Coral Bells	New Jersey Tea
Goat's Beard (<i>Aruncus dioicus</i>)	Hoary Mountain Mint (<i>Pycnanthemum incanum</i>)
Virginia Bluebells	Lavender*
Catmint*	Purple Coneflower
Wild Geranium	Orange Coneflower (<i>Rudbeckia fulgida</i>)
Moss Phlox (<i>Phlox subulata</i>)	Coreopsis sp. (especially Lance-leaved)
Canada Anemone (<i>Anemone canadensis</i>)	Blazing Star sp. (<i>Liatris</i>)
Rue Anemone (<i>Thalictrum thalictroides</i>)	Wild Bergamot, Bee Balm (<i>Monarda fistulosa</i>)
Wild Lupine	Cardinal Flower
Lowbush blueberry	Coral Honeysuckle (<i>Lonicera sempervirens</i>)
Bearberry	Salvias sp.*
Winterberry	Wild Indigo (<i>Baptisia tinctoria</i>)
Holly	Virginia Rose

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<p>Late Summer & Fall Bloom</p> <p>Sedums Sweet Pepperbush Asters (<i>New England, etc.</i>) Woodland Sunflower (<i>Helianthus divaricatus</i>) Turtlehead sp. (<i>Chelone</i>) Great Blue Lobelia (<i>Lobelia siphilitica</i>) Obedient Plant Tall Coneflower (<i>Rudbeckia laciniata</i>) Joe Pye Weed</p>	<p>Butterfly Larval Host Plants</p> <p>Milkweed sp. (<i>A. syriaca, incarnata, verticillata, exaltata</i>) Cherry/Plum Oak (<i>young oaks & Bear Oaks</i>) Willow Elm Grasses & Sedges (<i>especially Little Bluestem</i>) Blueberry Nettle Sassafras Parsley family (<i>Yarrow, Dill, etc.</i>) Violets</p>

Source: Mass Audubon Society

More extensive lists of pollinator plants can be found in these resources:

The Xerces Society for Invertebrate Conservation – Protecting Native Pollinators

The Bee-Friendly Garden, Kate Frey and Gretchen LeBuhn

Pollinator Friendly Gardening, Ronda Fleming Hayes

https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/nypmctn11164.pdf

<https://www.massaudubon.org/learn/nature-wildlife/help-pollinators-thrive/plant-a-pollinator-garden>

https://extension.unh.edu/resources/files/Resource005973_Rep8387.pdf

<https://www.nativeplanttrust.org/>

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