

Pollinators Backyard

Going Native and Providing a Haven

BY MOLLY JACOBSON;
PHOTOS BY AUTHOR

When the weather warms up, many of us notice bees visiting the dandelions on our lawns or orchard apple blossoms. Some are familiar honeybees, while others are massive, fuzzy bumblebee queens. Many are less recognizable, a flurry of blue, red, or even bright green gathering nectar and pollen with little time to lose. New York has more than 400 species of wild bees, and a great number of them could be found right in our own backyards, if we invite them.

Pollinators play a vital role in our ecosystems, transferring pollen from one flower to another, thereby helping the vast majority of our plants to reproduce. This creates an abundance of vegetation, seeds, nuts, fruits, and habitat for larger wildlife. They are also indispensable for agriculture, pollinating almost all our produce (making delicacies like coffee and chocolate possible) and much of the forage for grazing livestock.

Honey bee

Bees—Excellent Pollinators

Pollinators come in many forms, from bats in desert areas and hummingbirds in the tropics, to primarily insects here in temperate regions. Bees, wasps, flies, beetles, butterflies, and moths all contribute to pollination, but out of all of those, bees do it best. They have dense, branched hair on their bodies that allows them to collect pollen more effectively than any other insect.

When bees are mentioned as pollinators, most of us likely picture the classic honeybee meandering from flower to flower. However, honeybees (*Apis mellifera*) are relative newcomers, brought to North America by European colonists some 400 years ago. This is important because our wildflowers rely on special relationships they've forged with wild, *native* bees over millions of years. All of New York's bees—mason bees, bumblebees, digger bees, mining bees, and many others—have an ecological role to play in making our wilderness diverse and healthy. We are finding that native bees can be excellent at pollinating crops too, with some even more efficient than honeybees.

The life of a native bee is quite different than that of a honeybee. Honeybees are more of an exception than the rule, with large hives, workers and queens, and a focus on the production of honey. But only about 10 percent of native bees are social, where multiple females (usually a mother and her female offspring)

raise young bees cooperatively. Out of those, a scant few have sizable colonies, such as worker caste bumblebees. The majority of bee species—three-quarters—are solitary, where a single female builds a nest and gathers food, in the form of loaves of compacted pollen, for her young.

Most solitary bees nest in the ground, digging multi-chambered burrows in loose soil. Many species prefer sandy areas, and aggregations

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of nesting bees are common sights on hiking trails, stream banks, and along powerline rights-of-way. Other bees nest in cavities; some use pre-existing crevices, like woodpecker holes, while others chew a tunnel in the pith of dead plant stems. The remainder of bees are the strange and wonderful cuckoo bees, known as kleptoparasites. They make no nest at all, instead they sneak into the nest of another bee and lay their eggs there. The young then eat the pollen meant for the host's larvae.

Cuckoo bees are not as hairy and are often striped or brightly colored, making them easily mistaken for wasps. But they visit flowers and are important native pollinators.

Bees must collect pollen to feed their brood, and the complex, sometimes highly specialized relationships they have with native plants to get pollen seems almost magical. Most wild bees are generalists to some degree, meaning they are equipped to visit flowers of different shapes and sizes. Social bees, like bumblebees, have to be generalists to gather enough food to feed their colony.

Some bees, however, are specialists. They have coevolved with specific plants that has created a close interdependence between bee and plant. Specialists only visit certain flowers, like the aster family, or even a single flower species in the most extreme cases. In New York, there are a number of specialists that visit particular plants like willows, blueberries, and goldenrods, as well as many woodland flowers. These choosy bees can only be found when and where their host plant is in bloom, and they need native plants, making them unlikely visitors to most suburban backyards. Yet they are critical for biodiversity, and together with generalists they ensure that every flower gets pollinated.



A nomad cuckoo bee.



Future for Pollinating Bees

While wild plants rely on native bees, the reverse is also true. Without a diversity of native wildflowers to meet the needs of every bee, pollinators can start to disappear, which has negative consequences for ecosystems and agriculture. Since the arrival of European colonists, the face of North America has changed drastically—nearly half of the land area is now used for high-intensity agriculture, like corn and soybeans, and a portion of the rest has been affected by urban development. Most bees cannot survive in these environments, as they do not provide the abundance of food for generalists, nor the diversity of food for specialists.

Those few pollinators that we often see in our gardens are the rugged survivors; only a handful of species that can quickly adapt to human presence are able to persist. Within the past 30 years, populations of several once-common bumblebees found here in New York have declined sharply, including the yellow-banded bumblebee (*Bombus terricola*) and the yellow bumblebee (*Bombus fervidus*). In 2017, the rusty-patched bumblebee (*Bombus affinis*) was added to the federal

endangered species list, and more bee species are likely to follow suit in our lifetimes. Still, not enough information exists to know if other native bees are declining at the same rate, making it difficult to protect them effectively.

More and more, studies are showing that we need a diverse landscape to support our native bees. This means more than just lawns, fields, and meadows; other ecosystems like woodlands, marshes, bogs, shrubby thickets, and alpine tundra all have their place for pollinators. Some bees move across the landscape to find new blooms, from forests when snow still blankets the ground in early spring, to wetlands when all else has withered in mid-fall. In addition, many bees (such as sweat bees) may nest in logs on the forest floor, then forage in an adjacent meadow. Each one of these habitats will host specialists of their own, too. National Wildlife Refuges, state forests and parks, wildlife management areas, and other protected lands here in New York that preserve or restore wildlife habitat also provide critical sanctuary for wild bees by hosting the diversity of plants they need. But pollinators make a huge difference, right in their own backyards.

Helping Pollinators

Habitat loss is the biggest threat to wildlife and pollinators, worldwide. One of the easiest and most important things we can do to help our native bees is to simply choose native plants. Whether you have a hundred acres, ten, or less than one, gardening and landscaping with native plants, instead of ornamental (non-native) ones, will make your land a safe haven for pollinators. Turfgrass lawns offer little to no resources for native insects, with detrimental effects across the food web for wildlife, like birds and mammals. Replacing an infrequently used portion of your lawn with native grasses, flowers, shrubs, or trees will greatly enhance its ability to support biodiversity. Plus, it will make your yard more unique and interesting year-round!

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Sweat bee
(*Agapostemon texanus*)

In the fall, wetlands come alive with a dazzling show of color.



Perennials like milkweed, bee balm, coneflowers, and asters attract an abundance of bees. So do flowering shrubs and trees, like willows, native viburnums (e.g., arrowwood or nannyberry), dogwoods, and cherries. Choose a variety of plants that bloom at different times of the year, so bees will always have resources. In addition, native plants are hosts for larval butterflies and moths—monarch butterfly caterpillars, for

example, only eat milkweed. Native plants need little maintenance, since they are adapted to our climate and conditions, and will help you reduce or eliminate the amount of fertilizers and pesticides you may be using in your yard.

You can also provide nesting habitat for bees by leaving patches of bare, uncompacted earth, cutting dead stems in mid-spring so bees can access them, and allowing logs, rocks, and snags to remain on your property. Bee hotels, which can be handmade or

store-bought, offer another alternative if you do not have much land. Lastly, leaving some leaf litter provides overwintering habitat for many insects, including queen bumblebees.

Restoring small patches of habitat in our yards is just as important as big tracts of conservation land. The goal is to restore a diverse landscape bit by bit, with each backyard becoming connected to the larger whole and forming corridors of intact habitat for all native wildlife to live in or pass through safely. The more people embrace our native bees, the more habitat we will create together.

So spread the word—native pollinators need us, and we have the power to help.

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Small carpenter bee

NYS—Protecting Pollinators

In 2015, Governor Cuomo created a Pollinator Task Force to develop a plan to help the pollinators in New York State. In addition to the benefits to native wildlife and the overall health of the environment, pollinators are also important to agriculture. The Task Force released the New York State Pollinator Protection Plan in 2016 with recommendations of how everyone, from State agencies to businesses and individual citizens, can help pollinators survive and thrive. You can view the plan at: www.dec.ny.gov/docs/administration_pdf/nyspollinatorplan.pdf.