

Nature in the Neighborhood – August 2025

The Buzz about Bees

You're probably familiar with European or western honeybees (*Apis mellifera*) given that the popularity of keeping them is on the rise in suburban and even urban gardens. As the name implies, honeybees provide us with honey, that sweet viscous liquid they magically produce from the nectar of flowers. Having this off-the-hive honey readily available is likely a reason many have taken up beekeeping.

And it's safe to say you're also familiar with some of our native bumblebees (*Bombus spp.*). With their seemingly aerodynamically impossible ability to fly given their large girth and small wings, these fuzzy plump yellow and black bees are easily identified and a common sight buzzing about from flower to flower in the summer garden.

But have you heard of the sweat bee, squash bee, long-horned bee, mason bee, or, cellophane bee?

Probably not, but they are just a handful of the roughly 4,000 bee species that are native to the United States according to US Department of Agriculture (USDA). World-wide, there are 20,000 species of bees ranging from the petite-sized *Perdita minima* (1/16 of an inch) to the jumbo-sized *Megachile pluto* (1.5 inches -- or 4 times the size of a honeybee).

Closer to home, there are reported to be 396 bee species living in Massachusetts, including the handful mentioned above. In Swampscott alone, in addition to honeybees, 31 bee species have been observed and reported in iNaturalist, the on-line biodiversity citizen science platform. Mostly solitary, these native bees don't live in hives with a complex social structure like honeybees and are purported to be relatively gentle in comparison (but, like most bees, will sting if threatened).

The **sweat bee** (*Halictidae* family) is so named not because it perspires, but because it likes to lick the perspiration (and salt) off us. The **pure golden green sweat bee** (*Augochlora pura*) is found in our neighborhood and can be identified by its bright metallic green color. While most sweat bees nest in holes in the ground, *Augochlora* makes her nest under the loose bark of old trees or in backyard wood piles.

If you grow squash, pumpkins or zucchini, you'll want to have **pruinose squash bees** (*Peponapis pruinose*) buzzing around the garden. As the name implies, this species only pollinates squash plants and their monotrophic diet means they play a crucial role in pollinating these plants. They nest in ground burrows - or may be found on occasion sleeping in closed squash blossoms!

It doesn't take too much imagination to figure out why the **two-spotted longhorn bee** (*Melissodes bimaculatus*) has its moniker. It is one of the most distinctive bees in

the northeast and active in our neighborhood from late June through early August. Males are jet-black, with two white spots on their abdomen and long antennae extending beyond their head. Females, with shorter antennae, are solitary ground nesters and sleep in their burrows while the males are known to group together at night hanging suspended from branches and grasses.

Mason bees (*Osmia* spp.) get their name, not from their appearance, but because they use mud, dirt, and clay to fill the walls of small gaps in wood or stone to build their nests. Because they are efficient pollinators, they are often kept on large farms. Man-made mason bee houses (basically a box filled with narrow tubes or tunnels) are sold on-line and in stores or can be easily crafted at home. Mimicking their natural nesting habitat, these houses provide independent nesting chambers for individual females. To promote bee health, prevent diseases from spreading, and ensure successful nesting, Mason bee houses should be cleaned regularly.

First to emerge in the spring in our neighborhood (as early as April 1 in some years) are the **unequal cellophane bees** (*Colletes inaequalis*). They are so named because the females line their independent underground nests with a waterproof cellophane-like substance. Interestingly, this material has been studied to see whether the creation of a similar natural compostable plastic substance is possible.

Why are Native Bees Important?

While some native bees make small amounts of a honey-like substance, they do not produce the amount or type of honey that honeybees do. This is probably one reason they don't get the same publicity that honeybees do.

Honeybees were first brought to America in the early 17th century for the production of honey, beeswax, and mead (an alcoholic beverage made from fermented honey). Today, as pollinators, honeybees are important for large-scale commercial agriculture. In fact, honeybees are often transported thousands of miles a year to pollinate different crops in different regions and seasons. All this travel can, however, can stress the bees and affect not only their pollination ability but their survival.

As National Wildlife Federation Naturalist David Mizejewski has pointed out, "while vital to agriculture and the economy, keeping honeybees is not wildlife conservation." It's native bees, not honeybees, that are crucial for native ecosystems. Unlike honeybees, native bees have been buzzing around North America for thousands of years. They've adapted to the local flora and their biodiversity means they can pollinate a wide range of wildflowers and other native plants.

That's not to say native bees don't contribute to the pollination of crops. They have actually been found to be more effective pollinators than honeybees for many economically important crops in Massachusetts, such as apples, blueberries, and cranberries.

Bee Decline

By now, you've probably heard in the news that bees are in trouble. Just recently Project Apis reported that between June 2024 and February 2025 commercial beekeepers were experiencing an average loss of 62% of their colonies. And entomologists at Washington State University predict that honeybee colonies in the United States will decline by up to 70 percent in 2025. This is troubling since, according to the USDA, "three-fourths of the world's flowering plants and about 35 percent of the world's food crops depend on animal pollinators to reproduce."

The sudden collapse of hives, referred to as Colony Collapse Disorder, can result from a combination of pests, diseases, and environmental stressors. But hives also gradually decline due to factors that include climate change, pesticide use and inadequate nutrition. The latter can be caused by the widespread practice of monoculture farming (cultivation of a single crop). This practice leads to a lack of nutritional diversity in the bees' diet and weakening of their immune system, thereby making them more susceptible to diseases.

But it's not just honeybees that are in trouble. Native bees are also on the decline. A recent study indicated that over one-third of the native bee species are at risk of extinction. Overall, more than 22% of native pollinators including bees, beetles, butterflies, moths, flower flies, bats, and hummingbirds are at elevated risk of extinction in North America.

Habitat loss, pesticide use, disease, climate change, light pollution, and the spread of invasive species all imperil native bee populations. Added to that, is the fact that honeybees can outcompete native bees for floral resources. This competition can have severe implications for the ecological balance of local ecosystems.

What can I do?

Plant a Pollinator Garden. If you want to help native bees, Mizejewski says that "the most important thing to do is grow a diversity of flowering native plants that bloom throughout all seasons." You can also encourage your town or city to include native wildflowers, grasses and shrubs on publicly-owned land.

Protect Nests and Egg-Laying Sites by leaving untidy areas of your garden, such as open sandy ground, brush piles, and old tree stumps. You can also supplement nesting opportunities by installing a mason bee house.

Be Pesticide Free. Exposure to insecticides is one reason that many bee populations are on the decline, so opt for natural pest control methods and organic gardening.

Support State Legislation and Local Bylaws, Ordinances, and Policies designed to protect bees and other pollinators. In 2021, Massachusetts restricted the

use of bee-killing pesticides called neonicotinoids (“neonics”) but has not yet addressed agricultural seeds coated with neonics. As the Massachusetts Public Interest Research Group (MASSPIRG) points out “using coated seeds disperses pollinator-killing chemicals throughout growing plants and into the soil and groundwater.” There is currently a bill addressing neonic coated seeds that you can urge the state legislature to adopt. For more info:
sierraclub.org/sites/default/files/2025-03/2025-03-13-pollinator-protector.pdf

Share What You See. Help document the bee species appearing in our neighborhood by adding photos of the bees you observe on the iNaturalist on-line platform. iNaturalist is a free app you can download to your smartphone that allows you – the citizen scientist -- to identify and record the plants and animals you see, share what you’ve found with others, and contribute to a global dataset of biodiversity information. Even the occasional photo you submit can be useful to scientists documenting trends in where species are found. Join iNaturalist today by simply going to iNaturalist.org.

We hope you’ll become wild about native bees and invite them into your garden. And **bee** sure to share the **buzz** with your neighbors!