

# Wisconsin Bee Identification Guide

Developed by Patrick Liesch, Christy Stewart, and Christine Wen



Photo by Christy Stewart

## Honey Bee (*Apis mellifera*)

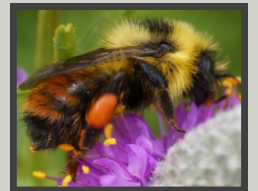
The honey bee is perhaps our best-known pollinator. Honey bees are not native to North America and were brought over with early settlers. Honey bees are mid-sized bees (~ ½ inch long) and have brownish bodies with bands of pale hairs on the abdomen. Honey bees are unique with their social behavior, living together year-round as a colony consisting of thousands of individuals. Honey bees forage on a wide variety of plants and their colonies can be useful in agricultural settings for their pollination services. Honey bees are our only bee that produces honey, which they use as a food source for the colony during the winter months. In many cases, the honey bees you encounter may be from a local beekeeper's hive. Occasionally, wild honey bee colonies can become established in cavities in hollow trees and similar settings.



*Bombus auricomus*  
Photo by Christy Stewart

## Bumble bees (*Bombus sp.*)

Bumble bees are some of our most recognizable bees. They are amongst our largest bees and can be close to 1 inch long, although many species are between ½ inch and ¾ inch long. There are ~20 species of bumble bees in Wisconsin and most have a robust, fuzzy appearance. Bumble bees tend to be very hairy and have black bodies with patches of yellow or orange depending on the species. Bumble bees are a type of social bee and live in small colonies consisting of dozens to a few hundred workers. Their nests tend to be constructed in preexisting underground cavities, such as former chipmunk or rabbit burrows. Occasionally, they will nest in hollow spaces within compost piles, hay bales, and similar above ground spots in yards. Luckily, bumble bees are typically docile and are unlikely to sting unless their nest is disturbed. Bumble bees can be active during cool periods when most other insects are inactive. Bumble bees are great at pollinating certain plants, such as tomatoes, and are often used in greenhouses for pollinating vegetables.



*Bombus rufocinctus*  
Photo by Christy Stewart



Photo by Christy Stewart

## Leafcutter bees (*Megachile sp.*)

Leafcutter bees are small- to mid-sized bees (~ ¼ - ½ inch long) and dark colored. They possess large mandibles, which are used like scissors to cut notches out of leaves. Leafcutter bees get their name from the female's behavior of cutting out round pieces of leaves, which they use to line their nests. These native bees nest in preexisting holes in wood created by other insects or in hollow plant stems. Females nest individually, although many females can nest in the same general area. Most female bees collect pollen and carry it using a patch of hairs on their back legs. Interestingly, leafcutter bees don't carry pollen with their hind legs—instead they carry it on the underside of their body.

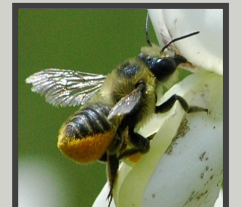


Photo by Susan Carpenter



Photo by Christy Stewart

## Small Carpenter bees (*Ceratina sp.*)

Small carpenter bees are small- to mid-sized bees (~ ¼ - ½ inch long) and have a dark metallic body. Males have a distinct white patch in the middle of their head, between the eyes. There are just a few species of small carpenter bees in Wisconsin, but these bees can be quite common. Female small carpenter bees typically nest inside of hollow twigs and plant stems. To create their nests, the females often dig out the soft, central pith to create a tunnel. These bees forage on a wide variety of flowers.



Photo by Christy Stewart

## Sweat bees (*Halictidae sp.*)

Sweat bees get their name because some species can be attracted to the sweat on your skin. Many sweat bees are small in size (~ ¼ inch long), although some species can be mid-sized (up to ½ inch long). They have dark or metallic green bodies. In some of the metallic green species, the body is entirely green, while in others the head and thorax (first two body segments) may be green while the abdomen possesses black and yellow stripes. Female sweat bees run the gamut from solitary to social, depending on the species. They often dig nests in the soil. However, some species prefer to nest inside of rotting logs. If you ever stumble upon a metallic green bee in a rotting log, it's a sweat bee! Like most bees, these insects are docile and are unlikely to sting.

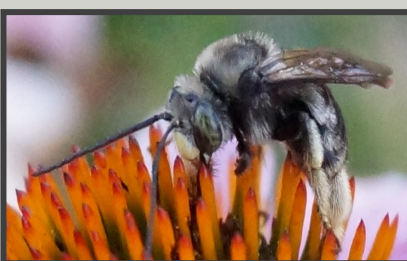


Photo by Christy Stewart

## Long Horned bees (*Melissodes sp.*)

Long horned bees get their name from the very long antennae possessed by males. These bees are small- to mid-sized (¼ - ½ inch long) with black bodies and bands of pale colored hairs. Long horned bees are solitary ground nesters and tend to be quite docile in nature. These bees are most often encountered in late summer and fall. Many of the long horned bees have specialized foraging behavior and only visit plants from the sunflower or aster family (Asteraceae).

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Photo by Ilona Loser

## Mining bees (*Andrena* sp.)

Mining bees get their name from their behavior of tunneling into the ground to create their nests. These are small- to mid-sized bees ( $\frac{1}{4}$  –  $\frac{1}{2}$  inch long) and have dark bodies covered with pale, whitish hairs. Mining bees are some of our earliest bees of the spring. These bees can often be spotted in areas with sandy soil, which is easier to dig into and nest in. These ground nests resemble anthills in appearance. Although many nests may be located in the same patch of soil, female mining bees nest separately. These bees are quite gentle and non-aggressive.



Photo by Christy Stewart

## Squash bee (*Peponapis pruinosa*)

Squash bees are roughly the same size and color as honey bees ( $\frac{1}{2}$  inch long), but have a very hairy thorax (region behind the head). As their name implies, these bees love to visit the flowers of squash plants. It turns out that squash bees are highly specialized in their behavior and only visit the flowers of squash and related plants, such as pumpkins and melons. Female squash bees nest individually in the ground by digging tunnels roughly 12 – 18 inches in the soil. These nests are typically located in or near squash and pumpkin fields where their food plants will be nearby. After collecting pollen and nectar, the female stocks her nest in the ground with food for her young. Males can often be found sleeping inside of closed squash flowers during the day!



Photo by Ilona Loser

## Mason bees (*Osmia* sp.)

Mason bees are small - to large-sized bees ( $\frac{1}{4}$  -  $\frac{3}{4}$  inch long), with dark or metallic green or blue bodies. Just like leafcutter bees, mason bees nest individually in preexisting tunnels in wood or in hollow plant stems and carry pollen on the underside of their body. Unlike leafcutter bees, female mason bees collect mud instead of leaves to partition their nests. If you ever see a metallic green or blue bee with lots of pollen on its underside, it's a mason bee!

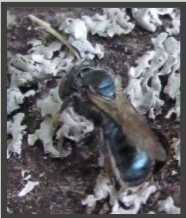


Photo by Christy Stewart



Photo by Christy Stewart

## Cellophane bees (*Colletes* sp.)

The cellophane bees make up a large group of bees and, depending on the species, can range in size from small ( $\sim \frac{1}{4}$  inch long) to large ( $\sim \frac{3}{4}$  inch long). These bees have dark bodies with pale hairs and pale bands on their abdomen. Like many other native bees, female cellophane bees tunnel into the soil to create their nests. These bees line their nests with a glue-like substance which creates a thin, cellophane-like membrane---*hence the name “cellophane” bees*. Many cellophane bees are specialists and only visit certain types of flowers. While certain species of cellophane bees are active in the spring, other species aren't active until late summer and fall.



Photo by Ilona Loser

## Masked bees (*Hylaeus* sp.)

Masked bees are small bees ( $\sim \frac{1}{4}$  inch long) and are amongst the most distinctive bees. Their bodies are almost entirely black except for pale patches on their head and legs. In addition, these bees are sparsely covered in hairs, giving them a wasp-like appearance. While almost all female bees collect and carry pollen in a specialized patch of hairs on their bodies, masked bees instead ingest the pollen that they collect. Masked bees have weak mandibles and are unable to excavate their own nests. As a result, these bees nest in preexisting tunnels, often in wood, hollow plant stems, the ground, or even natural holes in rocks.



Photo by Christy Stewart

## Carder bees (*Anthidium* sp.)

The carder bees are typically mid-sized bees ( $\sim \frac{1}{2}$  inch long). The distinct black and yellow striped abdomen give these bees wasp-like coloration. The carder bees (or “wool carder bees”) get their name from the female's behavior of shaving off fine hair-like material (trichomes) from plant leaves, which they use to line their nests. These bees tend to nest in pre-existing tunnels, which may include hollow plant stems and insect tunnels in wood. Interestingly, the males are larger than the females and can be quite territorial. While completely harmless, the males can guard their favorite plant while waiting for a female to approach and will attempt to chase off even the largest of intruders!

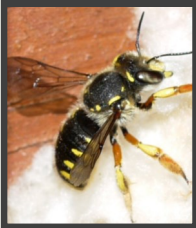


Photo by Ilona Loser



Photo by Ilona Loser

## Cuckoo Bees (*Nomadinae* sp.)

Not all bees focus their attention on collecting pollen and nectar. One diverse group of bees, known as the “cuckoo bees”, are sneaky invaders of other bees' nests. Female cuckoo bees sneak into the nests of other bees when the host is out foraging. Once inside, cuckoo bees lay their eggs near the food supply stored inside. The eggs of the cuckoo bee hatch and the young cuckoo bees live off of the food supplied by the host bee species. There are many types of different cuckoo bees from a variety of bee families. Because these bees don't focus on collecting pollen, they often have few hairs covering their body and can have a rather wasp-like appearance. This is a diverse group and the various cuckoo bee species can range in size from small to large ( $\sim \frac{1}{4}$  -  $\frac{3}{4}$  inch long).

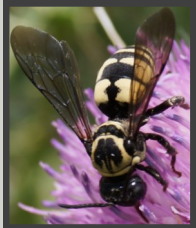


Photo by Christy Stewart