Missouri Bee Identification Guide

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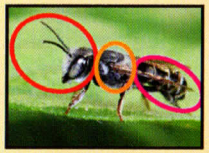
POLLINATOR PARTNERSHIP

Bees are Beneficial

Bees play an essential role in natural and agricultural systems as pollinators of flowering plants that provide food, fiber, spices, medicines and animal forage. Plants rely on pollinators to reproduce and set seed and fruit. In fact, approximately three-quarters of all flowering plants rely on pollinators to reproduce. Honey bees pollinate crops, but native bees also have a role in agriculture and are essential for pollination in natural landscapes. There are over 425 native species of ground-nesting, wood-nesting and parasitic bees found within Missouri.

This guide identifies 10 groups of bees commonly observed in Missouri. The size of each bee is given in millimeters.



How to Identify Bees

Bees, like other insects, have three body segments: a **head**, **thorax** and **abdomen**. The **head** has compound and simple eyes, segmented antennae, and mouthparts, including mandibles for chewing, and the proboscis for drinking nectar. The **thorax** bears the legs and four wings (two forewings and two hind-wings coupled by tiny hooks). The **abdomen** contains the sting in females.

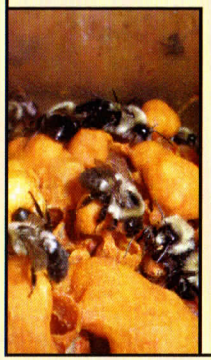
Female bees have special pollen-carrying hairs (scopa) usually on the legs, or in the case of leafcutters and masons, under the abdomen. Honey bees and bumble bees carry pollen packed tightly into a ball in pollen baskets (corbiculae), hairless, concave areas on their hind legs.

Honey bees (*Apis mellifera*)

Family: Apidae. Heart-shaped head; black to amber-brown body with pale and dark stripes on abdomen; pollen baskets on hind legs; **10-15 mm.**

- Large social colonies, 30,000 or more; live in man-made hives and natural cavities like tree hollows. Swarm to locate new nests.
- Honey bees are not native to the U.S., but were brought over by Europeans in the 17th century.

Bumble bees (*Bombus spp.*)



Family: Apidae. Robust, hairy bees; black body covered with black, yellow, brownish or orange hair bands; pollen baskets on hind legs; **10-28 mm.**

- Social colonies; nest underground, usually in old rodent burrows.
- Bumble bees can buzz pollinate flowers, like tomatoes, that require vibration to release pollen.
- Researchers are investigating why some species of native bees, including bumble bees, are dissappearing.

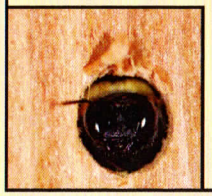
Leafcutter and Mason bees (*Megachile spp.* & *Osmia spp.*)

Family: Megachilidae. Head as broad as thorax; large mandibles; black body most with pale bands on abdomen (metallic green or blue for *Osmia*); pollen carrying hairs under abdomen; **5-20 mm.**

- Solitary, but nest in aggregations in natural or man-made holes such as beetle holes, nesting blocks, stems, or soil.
- Females cut circular pieces from leaves to line their nests. Other species (*Osmia*) collect mud, resin, or leaf hairs for nesting.

Carpenter bees (*Xylocopa virginica, Ceratina spp.)*

Family: Apidae. Large carpenter bee (*Xylocopa*); **19-23 mm**; black body with light or dark hairs, similar body shape to bumble bee but abdomen shiny with sparse hairs. Small carpenter bee (*Ceratina*); **3-10 mm**; shiny dark metallic blue-green body, sparsely haired, cylindrical abdomen. Pollen carrying hairs on hind legs.

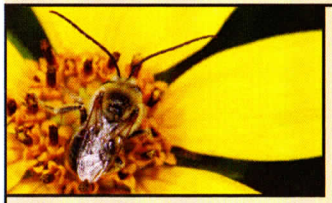


- *Xylocopa* - solitary to communal, nests are burrowed into wood. Stingless males hover, patrolling a territory for females, chasing away other bees and even humans.
- *Ceratina* - solitary, occasionally subsocial, nests in dead twigs and stems.


Digger/Mining bees (*Andrena spp.*)

Family: Andrenidae. Black or dull metallic body often with brown or reddish hairs; pollen carrying hairs on upper parts of hind legs and side of thorax appearing to carry pollen in its "armpit"; **6-15 mm.**

- Solitary or communal ground nesters.
- Andrenids are very abundant in the spring as they are one of the first bees to emerge each season.




Long-horned bees (*Melissodes, Svastra spp.*)

Family: Apidae. Stout robust body; hairy; dark body often with pale hair bands on abdomen; dense pollen carrying hairs on hind legs; males have very long antennae, as long as body; **7-20 mm**.

- Solitary to communal ground nesters.
- Some species are especially attracted to asters, sunflowers, daisies and relatives.

Squash bees (*Peponapis pruinosa*)

Family: Apidae. Honey bee-sized, brownish bees with light spot on face; males with long antennae. Long face appears to have a protruding "nose." Coarse dense pollen collecting hair on hind legs; **14-18 mm.**

- Solitary; ground-nesting often in or near pumpkin and squash fields.
- Only collect pollen from squash/pumpkins.


Cuckoo bees (*Nomada, Triepeolus spp.*)

Family: Apidae. Slender and wasp-like; relatively thick antennae, no pollen carrying hairs; red, black, or yellow body, banded abdomens; *Triepeolus* is black and white with red legs; **5-18 mm.**

- Females feed on nectar but do not collect pollen.
- Females are cleptoparasites, they lay their eggs in another bee's nest thereby stealing the nests and food.


Sweat bees (*Agapostemon, Halictus, Lasioglossum spp.*)

Family Halictidae. Diverse group including small brown or black bees with light abdominal bands to bright metallic green, dull metallic blue, copper or green. Pollen-carrying hairs on hind legs; **3-12 mm.**

- Solitary to highly social ground nesters; a few species nest in dead or rotten wood.
- Some are attracted to salt in your sweat.


Masked bees (*Hylaeus spp.*) & Polyester Bees (*Colletes spp.*)

Family: Colletidae. Heart-shaped heads, secrete a cellophane-like material to line nests. *Hylaeus* - slender; hairless black bees with bright face mask; no pollen carrying hairs; **5-7 mm.** *Colletes* - hairy, gray to brown, with pale abdominal bands, pollen carried on hind legs and thorax; **7-15 mm.**

- Hylaeus - Solitary; nest in twigs or beetle holes.
- Colletes - Solitary or aggregative soil nesters.

A Bee or Not a Bee?

There are two kinds of insect pollinators that are often confused with bees - flies and wasps. In fact, many flower-visiting flies are bee and wasp mimics. By mimicking bees and wasps in appearance, they gain protection from predators. So, how do you tell these pollinators apart?

Fly Identification: Flies have only one pair of wings, while bees have four wings. Flies have short and stubby or feathery antennae and sucking or sponging mouthparts. Many flies have huge eyes that almost meet at the top of their heads.

Wasp Identification: Wasps have four wings, chewing mouthparts, a sting in females and long antennae. While bees usually have hair on their body and legs most wasps are smooth and almost hairless. Wasps have a typical slender "wasp waist" and do not have pollen carrying hairs. Wasps are important predators of many insect pests including cutworms, hornworms, aphids and grasshoppers. Certain wasps make paper nests that hang from a tree or building, bees do not.

Now that you know how to tell the difference between bees, wasps and flies, try identifying the insects in the photos below. Answers are below.

Photographs of Missouri Bees by Ed Spevak.
www.stlzoo.org/conservation/wildcareinstitute/center-for-native-pollinator-conservation

1.Hover Fly 2.Cuckoo Leafcutter Bee 3.Wasp 4.Paper Wasp 5.Wool Carder Bee 6.Drone Fly