

## Carpenter Bees

### SCIENTIFIC NAME

Genera *Xylocopa* and *Ceratina*

### APPEARANCE



Within the United States carpenter bees are categorized in two genera – large carpenter bees (*Xylocopa*) and small carpenter bees (*Ceratina*). *Xylocopa* is the group of carpenter bees most likely to make their presence and associated damage known to property owners.

The most obvious characteristic used to separate these two genera is size – *Ceratina* are less than 8 mm long, while *Xylocopa* are anywhere from 12-25 mm long. *Xylocopa* are similar in size and appearance to bumble bees. The insects can be black, greenish black, metallic blue, or purplish blue in color. Males may feature yellow sections of the face. Both males and females have yellowish hairs on the legs, thorax, and abdomen, but these hairs aren't as vibrant or as numerous as they are on bumble bees.

Also, large carpenter bees differ from bumble bees since they lack visible hairs on the top of the abdomen, giving it a somewhat glossy look.

Small carpenter bees are dark in color and have a somewhat metallic appearance and scant body hairs. The majority of species have some kind of yellow markings on the body and face.

Both genera of carpenter bees go through complete metamorphosis – egg, larva (grub), pupa (cocoon), and adult stage. As solitary insects, carpenter bees do not organize into colonies.

### LARGE CARPENTER BEE BEHAVIOR, DIET & HABIT

Carpenter bees do not eat wood but do feed on plant pollen and nectar; however, they excavate dry, unpainted and weathered wooden objects such as doors, windowsills, roof eaves, railings, decks, untreated poles, fences and wooden lawn furniture. One of their favorite items to excavate is the rails

and posts of oak split rail fences. They prefer pine, fir, Cyprus, oak and redwood, especially if the wood is not covered with bark, is unpainted or unfinished. Large carpenter bees sometimes bore into painted wood, especially if the paint covering is old and weathered.

Gallery construction is a labor-intensive process that takes a lot of time and energy. As a result, females often prefer to inhabit existing nests instead of excavating new ones. Refurbished tunnels may increase several feet over several years. When required, females will use their strong mouthparts to chew round nest entrances in flat wood surfaces. This hole is slightly less than 1/2-inch wide, which is about the diameter of her body and looks much like a carpenter used a 1/2-inch drill to create the opening. The bore hole goes into the wood perpendicular to the wood's grain for about 1-2 inches and then takes a right angle turn continuing as an excavated gallery (tunnel) that runs about 4-8 inches. The female carpenter bee then partitions off brood cells into linear rows. When finished, she places a food ball (made from pollen and regurgitated nectar) inside a brood cell, lays an egg, and blocks the chamber off with chewed wood pulp. After laying eggs, the female dies. The eggs hatch and become larvae that feed on the food ball until they pupate.

Carpenter bees have four life stages: egg, larval, pupal, and adult states. It takes about seven weeks for a carpenter bee to reach adulthood, but developmental time may vary depending on temperate or other environmental conditions. Newly developed adults usually remain in their galleries for several weeks and leave their brood cells in April or May.

They mate, feed on pollen and nectar, return to their gallery to overwinter and then emerge the following spring. Large carpenter bees have one generation per year in the northern states, but in southern states like Florida, they may have two or more generations per year.

#### **SMALL CARPENTER BEE BEHAVIOR, DIET AND HABIT**

*Ceratina* generally excavate twigs and stems to build their nests. Females overwinter as adults in partially or completely excavated stems, and in the spring, the female bee further excavates and creates a brood nest much the same as large carpenter bees. Small carpenter bees also provision their brood cells with pollen and nectar. A particularly interesting characteristic of a few species of *Ceratina* is they can reproduce without males, a trait known as parthenogenicity.

#### **REPRODUCTION**

Carpenter bees are solitary bees, and their reproductive potential is not nearly as great as the social bees and wasps. Each generation has about 6-10 individuals.

#### **SIGNS OF A CARPENTER BEE INFESTATION**

Carpenter bee infestations are easily identified by the presence of their entrance holes in wood, the presence of sawdust on the ground under where the hole is drilled, the presence of a yellowish combination of pollen and bee excrement near the entrance hole and their bothersome flight activity, especially by the males who are protective of their territory, but do not sting.

#### **DISTRIBUTION**

Various species of large and small carpenter bees are found throughout most of the United States.

#### **MORE INFORMATION**

The male carpenter bees do not sting, but they usually make property owners mistakenly interpret protecting their territory for aggression and the possibility of stinging. Males do look to be very menacing – as they hover and dart after any other flying insects that trespass into their territory and fly near people or pets as they move nearby. However, they will back off and hover a short distance away. The female is capable of stinging but seldom does so unless she is provoked or handled.

Carpenter bees are important pollinators and are very useful in providing this beneficial service to agriculture, plant growers and fruit producers. However, they are also a nuisance and, given time, may cause structural damage resulting from their gallery and borehole excavations. Other nuisances or damage includes:

- Deposition of their excrement/pollen under the entrance hole is unsightly.
- Accumulations of sawdust from their borings and excavations
- Woodpeckers eat immature carpenter bees. Woodpeckers riddle the wood with holes searching for the immature stages of carpenter bees.

Carpenter bee prevention and treatment begins with a thorough inspection performed by your pest management professional (PMP). During the inspection, your PMP will inspect to accurately identify the offending pest and locate the carpenter bee damage. Once the inspection is complete, the pest control plan is prepared. The most effective control method is to apply an insecticide dust to the bee's drill holes and leave the holes open for a few days so returning bees will contact the insecticide. Once the bees die, the drill holes can be sealed and repainted. Sometimes it may also be useful to apply an aerosol spray to control free flying carpenter bees. While only a temporarily effective method, applying a liquid insecticide to the wood surface is a less time consuming process than applying dust to drill holes. A control technique that does not use insecticides is to paint any bare, exposed wood surfaces that are being attacked with exterior paint or a polyurethane finish. Your PMP will also inspect for weathering that will make it likely that carpenter bees will attack. Also, your PMP may recommend sealing existing bore holes to discourage carpenter bees that are searching for possible nesting sites.