

Carpenter Bees

Indications

If you observe any of the following around your home or garden, you may have carpenter bees.

- Sawdust piles below perfectly circular holes drilled into wood surfaces around your home.
- Large, shiny, black and yellow bees aggressively buzzing and flying around your head.
- Fan-shaped, yellow or moldy stains on the sides of a structure.

Identification

Eastern Carpenter bees are large bees approximately 0.75-1 inch long. The thorax, or mid-section is covered with yellow fuzz. The abdomen, or hind-section, is shiny and black. Females have a black face and a dense brush of black hairs on their hind legs. Males have a yellow face. Carpenter bees are solitary bees. Each female builds her own nest by tunneling into wood.

Carpenter bees are often mistaken for bumble bees, which are similar in size. In contrast, the bumble bee's entire body is covered with hairs, and females have yellow patches of hair on the top of the abdomen. Bumble bees are social, living together in an underground nest.

Life Cycle

Carpenter bees do not eat wood, they eat flower nectar and pollen. The holes they bore into wood are nests for their young. In April or May, the female carpenter bee searches for good nest sites. She will reuse and expand an existing nest tunnel or bore her own.

The female chews a perfectly circular hole approximately half an inch in diameter. This entry hole extends 1-2 inches vertically into the wood, and then turns at a right angle in order to follow the grain of



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the wood. The nest, or gallery, is tunneled parallel to the grain of the wood and may extend for 6-12 inches. Many tunnels are lengthened and reused year after year by successive generations of bees. Each new occupant improves a nest by excavating wood from the end of the tunnel. At the extreme, nests have been found measuring up to 10 feet long.

Once the nest is complete, the female carpenter bee stocks the end of the tunnel with bee bread, which is a combination of flower pollen and nectar. She lays a single egg on the food mass, then seals the cavity, or brood cell, with a mixture of wood pulp and saliva. She repeats this process, filling the tunnel with a line of brood cells, each about an inch long. Each cell contains a food supply and a single egg.

During the nest construction phase, male carpenter bees patrol the site to drive away intruders and to fertilize females in the area. Although the males defend their territory aggressively and may alarm people by darting around their heads and buzzing loudly, male carpenter bees have no sting and are harmless. The



Carpenter Bee Tunnel

females do have a sting, but they are docile and sting only when handled or touched.

Over the summer, bee larvae hatch in their nest cell and feed on the stored pollen and nectar. After the larva finishes feeding, it enters the pupal stage during which it transforms into an adult. In late summer, the new adults emerge from the nest. They must chew their way out of the cells one at a time, so the oldest bee, hatched from the first laid egg, is the last one out.

Adult bees overwinter together in existing tunnels. In the spring, they reemerge and begin the cycle again. A female bee often lays her eggs in the same gallery in which she developed.

Structural Damage to Wood

When searching for new nest sites, female carpenter bees are attracted to raw or unfinished wood, or to stained, weathered wood. Well maintained, painted wood is rarely attacked. Nail holes, splinters, and cracks in the face of the wood surface are inviting because they offer the bee a head start into the wood. Shingles,



Bee droppings

siding, decks, picnic tables, doors, sills, soffits, fascia, and fence posts are all popular nest sites, particularly when located near gardens and flower beds where the bees feed.

People often notice a new nest after finding piles of coarse, yellow sawdust-like material below the hole. As the female bee excavates her nest, she pushes chewed wood out of the tunnel. She also excretes sticky yellow wastes, which may accumulate in a fan-shaped pattern on the side of the structure, adjacent to the hole. As the waste products age, they turn black with mold and will stain surfaces.

Although the nest of a single bee will not cause structural damage, multiple tunnels from numerous bees, and tunnels which are reused and expanded over several years may weaken wood. Thin shingles may be penetrated by the tunnels. In addition to the removal of interior material, the nest sites are associated with several types of secondary damage due to 1) moisture entering the wood and accelerating the rate of decay; 2) mold growth on the yellow bee excrement, and 3) woodpecker damage due to feeding on the immature bees.

Prevention and Control

Prevention is the best approach to control carpenter bees. By maintaining sound, finished wood surfaces, bees can be prevented from establishing nests around your home. Painted surfaces are unattractive to nesting bees. Nail holes and cracks should be filled with caulk or putty prior to painting. Pressure treated wood and wood preserved with metallic salts, such as copper naphthanate, are also effective deterrents. Non-wood surfaces and coatings, such as vinyl or aluminum siding will exclude carpenter bees entirely. Established nests can be eradicated by entirely removing and replacing the affected wood with a painted or otherwise unattractive surface.

If the infested wood cannot be easily replaced, there are pesticide formulations available that are effective against carpenter bees. Treatment should be made either in the spring, just as the bees become active, or in the late summer as the new adults emerge.

Any pesticide labeled for use against flying insects will kill carpenter bees. Aerosols should be sprayed directly into the tunnel entrance. Pesticide applied to the surrounding area will have no effect on the bees and may damage the surfaces. Carbaryl dust is also effective

when small amounts are puffed into the tunnel. Chemicals are often repellent to the bees in large quantities so the objective is to lightly treat the inside of the tunnel entrances. In a properly treated tunnel the returning bee spreads the compound throughout the tunnel and receives a lethal dose in the process. If pesticides are over used to the point of repellency the bees may avoid all contact with the tunnel and start over again in a nearby location.

If you choose to apply pesticide while the bees are active, wait until the female leaves the nest before application. Although the bees will not sting in defense of their nests, they often tumble out of the tunnel in response to the chemical. Because carpenter bee nests are frequently situated in overhead, awkward-to-reach places, treatment is likely to involve the use of a ladder or step stool. Many people have fallen after being startled by a bee bolting from its tunnel.

As with all pesticides, always read and follow the directions and safety precautions included with the product. Because of the overhead location of carpenter bee nests, extra caution should be taken to prevent skin or respiratory exposure to the pesticides.



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A week after treating the tunnels, they may be caulked and repainted. Tunnels must be pre-treated with pesticide before caulking or the bees will chew through the plugs and reemerge. If the wood surface as a whole is not improved, bees may reinfest the same area.

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