



## CARPENTER BEES

*Xylocopa virginica*

People who complain about bumblebees flying about under the eaves of their homes are probably being annoyed by carpenter bees. Bumblebees are large social bees 1/2 to 1 inch long, with black and yellow or, rarely, black and orange body markings (Fig. 1). Their nests are underground and they spend most of their time traveling between the nest and the flowers from which they obtain food.

Carpenter bees resemble bumblebees in both size and appearance, but are not social insects. They construct their nests in trees or in frame buildings. Most of the top of the abdomen of carpenter bees is without hairs and is shiny black in color. By contrast, the abdomen of bumblebees is fully clothed with hairs, many of them yellow in color. If you see a number of large bees hovering near the eaves of the house or drilling in wood, you have carpenter bees. There is only one species of the large carpenter bees, *Xylocopa virginica*, which is encountered in Pennsylvania.



The male bee is unable to sting. It is the male carpenter bee, which is most often noticed. They hover in the vicinity of the nest and will dart after any other flying insect that ventures into their territory. A common behavior of the males is to approach people if they move quickly or wave a hand in the air. The males may even hover a short distance from people causing unnecessary panic. The female however, is capable of stinging but seldom does. She must be extremely provoked (i.e. handled) before she will sting.



## ECONOMIC IMPORTANCE

While the damage to wood from the drilling activities of a single bee is slight, the subsequent year's broods will expand the tunnel through branching activities and may cause considerable structural damage. Additionally, they will commonly defecate on the wall or other item directly below the opening causing stains.

Carpenter bees do not eat wood. They excavate the tunnels for shelter and as chambers in which to rear their young. They usually attack unpainted objects such as doors, windowsills, roof eaves, shingles, railings, telephone poles, and sometimes wooden lawn furniture.

A carpenter bee begins her nest by drilling a nearly perfectly round entrance hole (about 1/2 inch diameter) into the wood. This hole is usually against the grain of the wood. When the tunnel is about one inch deep, the bee turns at right angles to the initial hole and tunnels with the grain of the wood. Bees prefer to attack wood that is greater than two inches thick.

## LIFE CYCLE

Young adult male and female bees hibernate in the tunnels during the winter. They mate in the spring and set about to clean out and enlarge the old tunnels or to excavate new ones as brood chambers for their young. Each chamber is provisioned with a portion of "bee bread", a mixture of pollen and regurgitated nectar, which serves as food for the larvae. An egg is deposited on the food supply and each chamber is sealed off. There are typically 6 to 8 chambers created by the female. The larvae that hatch from the eggs complete their development and pupate. Newly developed adult carpenter bees emerge in August, feed on nectar and return to the tunnels to over-winter.

## MANAGEMENT

Locate the wood in which the bees are active and apply an insecticidal dust directly into nest openings. This is best accomplished by using a duster that will puff the dust up into the tunnel and coat the sides. To avoid possible stings, treat the area at night. Use a flashlight, over which a piece of red cellophane has been taped. The bees cannot see the red light, but you should be able to see the openings. If you must treat during the daytime, use a pyrethrum spray or wasp and hornet spray to knock down any bees flying about. It is advisable to wear protective clothing, gloves, goggles and a respirator or dust mask because the insecticidal dust will frequently become airborne and may drop down onto you as you dust the tunnel. Launder any contaminated clothing immediately (do not mix with other household laundry items) and take a shower to remove and insecticidal dust. Because of the obvious risks associated with treating carpenter bee holes in eaves or soffits, many homeowners will contract with a licensed pest control company to provide this service.

Do not plug the holes immediately! The bees should be able to pass freely through the nest entrance where they will contact the dust and distribute it inside the tunnels. Also any new matured bees will emerge through the openings and contact the dust placed there. It is a good idea to treat in the spring, when bees are first observed, again in mid-summer to kill any bees which may not have acquired a sufficient treatment when they emerged, and a third time in early fall to contact any over-wintering bees occupying the tunnels. In the fall, the holes should be filled with wood putty or wooden dowels and the entire wood surface painted or varnished. Stained wood is not usually protected from attack.

## WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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