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A Product of the Integrated Pest Management Working Group

Eastern Carpenter Bee
Xylocopa virginica

LOW RISK

INDICATOR:
INVESTIGATE ENVIRONMENT

DIAGNOSTIC MORPHOLOGY

Adults:

- Large, black bee with shiny black abdomen, dark thorax with yellow hairs and a dark center
- Large, black bee with shiny black abdomen, pale face plate, large eyes in males
- Holes in wood surfaces around ½ inch in diameter in vertical or horizontal surfaces
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Immature Stage:

- Not often encountered because within wood
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GENERAL INFORMATION

Carpenter bees are large insect that are distributed world-wide. The common name refers to the fact that the majority of females bore into wood (i.e., dead wood, bamboo, structural timbers, decks, porches, eaves) for the purpose of nesting.
They are often confused with bumble bees due to superficial body shape, markings and coloration. Carpenter bees abdomens are basically black and shiny and sparsely hairy, whereas bumble bee abdomens are covered with black, yellow and sometimes orange or red hairs. This species of carpenter bee has a wide, black head whereas bumble bee heads are more triangular in shape when viewed from the front. The male carpenter bees has relatively large eyes and also a white to yellow faceplate to distinguish it from females of the species.

SIGNS OF INFESTATION

Smooth, slightly more than half-inch-sized holes in wood siding, decks, horizontal fence pieces, wooden objects such as totem poles. Bare and weathered wood are more susceptible compared to stained or painted surfaces. Holes are often on the underneath areas of the wood and not immediately visible. Fecal material, basically pollen and nectar, and bits of wood can be found below these openings. Flying females at these areas may be indicative. Males are slightly smaller and their behavior is that of hovering, searching for and chasing females plus aggressively chasing away intruders including inquisitive people. The males are harmless; females have to be picked up and bothered to actually get them to sting.

FOOD SOURCES

Certain flower species are pollen and nectar sources and the bees enter in the front opening but females are known to chew into the flower base and rob nectar, thus circumventing the pollinating process.
The bees do not consume any wood which is analogous to carpenter ant behavior. The bees simply chew and carve out the wood when producing tunnels. Years of additional tunneling by females will finally weaken the structural integrity of the wood structure; non-structural members may also reduce the density of the wood structure and require removal and replacement.

LIFE CYCLE

Females make nests in wood by tunneling by chewing. They often vibrate their bodies as they use their mandibles to chew through the wood. One or more tunnels are produced at right angles to the main tunnel producing a L-shaped tunnel. Typically solitary, but often gregarious, these bees may form small social groups where females live next to daughters and sisters. When females cohabit, there is sometimes a division of labor where one female stands guard motionless at the entrance to the nest and another female forages. Tunneling produces bits of wood that are discarded, but also used in making bulkhead separators in the tunnels. The females chew the wood and construct the walls and use their heads to press them, so the external wall faces are depressed. Males cells are typically produced first at the far end, so newly emerged adult males have to chew their way out from their cells through the adjoining walls. Females provision the cells with pollen and nectar and form the provisions into an elongated sculpted mass with several projections to keep the bulk of its surface from coming into contact with the cell walls. The egg is actually very large compared to the size of the female bee.

CONTROL & TREATMENT

Certain control procedures involve replacement of the wooden piece if it has been badly damaged due to years of reuse by females.
Introduction of insecticidal dusts or dessicants can be lightly applied and the bees will track the material deeper into the tunnels.

Photo credit: Adult on lower left - Jim Baker, North Carolina State University, Bugwood.org

Photo credit: Adult on upper right- The National Folk Museum of Korea - Jinsook OH