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HOUSE AND LANDSCAPE PESTS

Carpenter Bees

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Carpenter bees are so named because of their preference for nesting in pith (the soft tissue in some plant stems) and wood. Common throughout Texas, carpenter bees sometimes damage structural wood.

To control these bees, it is important to be able to identify them and to know their biology and behavior. Steps for effective control include preventing damage, locating and applying insecticides to the nesting sites, and taking remedial action to prevent further damage.

Description

Thirty-five species of carpenter bees can be found throughout the United States and Canada. Most species are rather small and nest in pithy or hollow stems of plants; others prefer rotting or decaying wood. The largest carpenter bees belong to the genus *Xylocopa* and range from 3/4 to 1 inch long.

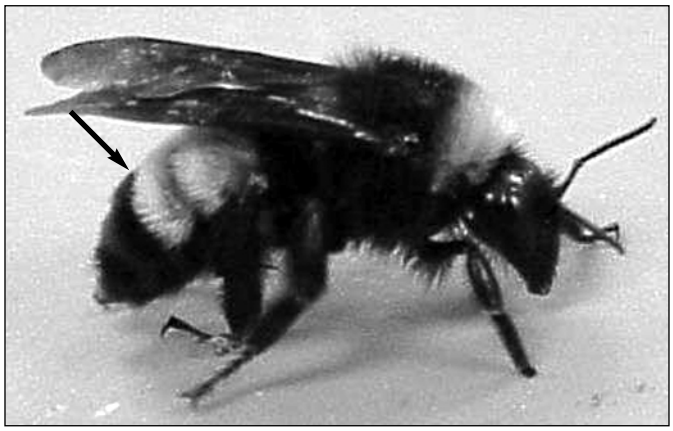
Seven species in this group nest in sound wood and can damage structures. Although softwood (such as redwood, cypress, cedar and pine) is preferred, they can attack hardwood after it has been softened by decay or exposure to the elements.

Carpenter bees are usually shiny or metallic blue-black with a greenish to purplish sheen. Some male carpenter bees have yellow areas on the face, and males of a few species may be partially to entirely buff or pale yellow.

Xylocopa carpenter bees closely resemble bumblebees in size and color. The bodies of both types of bees are mostly covered with yellow, orange or black hairs. Carpenter bees can be distinguished, however, by the lack of hairs on the top of the abdomen.

On the rear legs, female carpenter bees have a dense brush of hairs, whereas female bumblebees have large pollen baskets.

Carpenter bee: Note the absence of hairs on the top of the abdomen.



Bumble bee: Note the hair covering the top of the abdomen.

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Carpenter bee nests are easily distinguished from those of other wood-boring insects. Nest entrances are almost perfectly round and, for the common carpenter bee, about 1/2 inch in diameter. No other insect produces as large an opening with a perfectly round shape.

Biology and behavior

Carpenter bees spend the winter in nest tunnels built by previous generations. Cold weather causes many bees to die over the winter. Surviving adults usually emerge in April and May and seek nectar for food.

Within a few weeks after emergence, the adult bees mate and begin building their nests. During this time, carpenter bees are most active and noticeable. Females are often seen hovering below a nest entrance, waiting for a mate.

Male carpenter bees may fly aggressively at and around people as part of their territorial behavior. This activity is harmless, however, as males cannot sting. Females *can* inflict a painful sting, but do so only if handled or provoked.

Fertilized female bees generally prepare the nest site. They may clean out and reuse an old tunnel with no additional boring; lengthen an old gallery; create a new tunnel from an existing entrance used by several bees; or bore an entirely new gallery.

Wood damage caused by carpenter bee gallery construction.

New galleries are formed by boring into the wood at a right angle to the surface. The clean-cut entrance hole is about half an inch in diameter and extends vertically into the wood, up to an inch deep. The nest tunnel is then excavated in either direction at right angles to the entrance hole. Galleries average 4 to 6 inches long, but may be up to 12 inches long.

After a gallery has been prepared, the female prepares a special "bee-bread" to feed her offspring. To make it, she mixes collected pollen with regurgitated nectar and places it at the end of the tunnel. The female then lays her egg—one of the largest in the insect world—on this food.

Carpenter bee gallery entrance hole.

Finally, she creates a "brood cell" by sealing off the tunnel end with a disk made from chewed wood fibers.

The process is repeated until a series of six to nine cells have been formed. Each cell contains all the food needed for the developing larva.

The amount of time it takes for carpenter bees to mature depends on the temperature, species, geographical location and weather conditions. The normal development time from egg to adult ranges from 35 days to longer than 3 months.

As the adult carpenter bees emerge, they bore through the other cell partitions and crawl over less-mature siblings to escape from the nest.

After emergence, carpenter bees feed on the nectar and pollen of many types of flowers, often cutting into the flower to enter well-protected nectaries. Favored flower types include mints, honeysuckles, passion flower, bluebonnets and various other legumes.

There are two or more generations per year of carpenter bees in much of Texas. In warmer areas of south Texas, carpenter bee activity and breeding may continue throughout the year.

Economic importance and damage

Carpenter bees become pests when they:

- Weaken the structural strength of lumber;
- Cause costly leaks in wooden cisterns;
- Cause aesthetic damage to wood by boring holes and by leaving stains on wood and painted surfaces of buildings;

- Tunnel in and damage ornamental plants;
- Threaten and annoy people.

Carpenter bees attack telephone poles, wooden fences, eaves, railings, doors, windowsills, outdoor furniture, wooden siding and shingles, and other wooden items.

Succeeding generations of carpenter bees continually expand old tunnels or create new galleries in the same wood. The accumulated damage may be enough to compromise the structural strength of lumber.

Over several years and generations, average tunnel lengths may extend more than 3 yards. When several females use a single entrance hole, the wood may become completely honeycombed and seriously weakened.

Prevention

Prevention is the first step in managing carpenter bees. Problems with carpenter bees usually arise when preventive measures are not taken, or have failed because of weathering and aging.

Although carpenter bees may attack wood protected by a good coat of paint, they are particularly attracted to unprotected or exposed wood. Unfortunately for those who like the natural look of wood, stains provide inadequate protection from attack by carpenter bees. Wood sealants may deter attack temporarily, but as they deteriorate over time, the wood becomes susceptible.

Oil-based or polyurethane paints or pressure-treated wood is the most effective for discouraging carpenter bees from using structural wood for nests. If maintained periodically, latex paints usually discourage attacks.

Covering the wood with metal flashing or a wire screen may be used as a last resort where carpenter bee activity recurs.

Control

When control is necessary, find and treat all the nest entrances. Because piles of sawdust are usually located directly below active nests, look for the perfectly round, dime-sized entry holes above sawdust piles. Or, watch to see where the bees disappear into the wood.

Carpenter bees usually make their entry holes in well-lighted areas with overhead protection. However, if the entry hole is in the open, it will be on the side away from prevailing winds.

Sawdust accumulation below carpenter bee entry hole.

Remove the damaged wood as needed and replace it with pressure-treated or painted wood. Plug newly excavated nests with hardwood doweling or plastic wood to deter additional carpenter bee activity and to protect the wood from further deterioration.

For established nests, apply insecticide dusts or sprays into each entrance hole and to the wood surface for several inches around the hole. Insecticide dusts containing carbaryl (Sevin®), pyrethrins, cyfluthrin, or deltamethrin* can be blown into nest entrances with an insecticide duster or squeeze bottle.

Diatomaceous earth or silica gel* desiccants may provide temporary control. Also effective in penetrating nest cavities are aerosol insecticides containing pyrethins, resmethrin, or insecticides labeled for such use.

When nests are out of reach or too numerous to treat individually, limited control can be achieved by treating the wood around entrance holes with a residual insecticide labeled for use on or around structures.

Pyrethroid insecticides, such as bifenthrin, cyfluthrin, cypermethrin,* deltamethrin,* esfenvalerate, lambda-cyhalothrin* and permethrin, are the most effective. Pest management professionals should select wettable powder or microencapsulated formualtions for the best residual control.

After application, wait 12 to 24 hours before plugging entry holes. Waiting a short period after treating with insecticide will eliminate returning bees that were away from the nest and any oth-

* Generally available only to pest management professionals.

ers that might be attracted to the wood. Newly emerged carpenter bee adults from a completed nest will bore out if the gallery is not treated with insecticide before plugging.

Female carpenter bees can become aggressive when disturbed during nesting activities, so take precautions against being stung when treating galleries.

Bee conservation: For those who prefer to keep a few carpenter bees around, try providing an acceptable nesting site as an alternative to your home or deck. A small bundle of softwood lumber, such as cedar or redwood, placed off the ground in a sunny part of the garden can successfully attract bees.

Encourage bees to take up residence by starting a few shallow holes, using a 1/2-inch drill bit, in the end grain of the wood. Make sure the wood pieces are wide and long enough to support the nest. Pieces 4 by 4 inches wide and at least 2 to 3 feet long should provide a roomy home for your bees.

Other wood-destroying insects or their damage may be found when inspecting for carpenter bees. For information on those insects, see L-1781, *Subterranean Termites*; L-1782, *Drywood Termites*; L-1783, *Carpenter Ants*; and L-1784, *Structure-Infesting Wood-Boring Beetles*.

Insecticide labels are subject to revision, and changes may have occurred since this publication was printed. Always read the label of a pesticide before buying it.

The pesticide **USER** is always responsible for the effects of pesticides that are applied. ***Always read and carefully follow label directions before using a pesticide.***

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