

# Carpenter Ants



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**C**arpenter ants are social insects that make their colonies primarily in wood. They hollow out wood to build their nests, making their galleries and chambers velvety-smooth as if a carpenter had sanded the surfaces. Their tunneling in wood and foraging for food and water lead to their “pest” status in and around homes.

The presence of carpenter ants can mean that a building has problems that need attention, such as moisture, rotting wood or other conditions conducive to ant infestation. In Texas, there are at least 14 species of carpenter ants that destroy wood. Homeowners can minimize damage to their houses by learning how to identify the ants, knowing where to look for them, and understanding ways to prevent and control them.

## Identification

Carpenter ants are among the largest ants in the United States. Adults (Fig. 1) vary in length from about ¼ inch (6 mm) for a minor worker, to ½ inch (12 mm) for a major worker, and up to ¾ inch (18 mm) for winged reproductives. Each colony has one functional, wingless queen, and queens are ¾ inch (20 mm) long.

The ants develop through several stages of metamorphosis: egg, larva, pupa and adult. All four stages can be found in a colony. The adults have six legs, three distinct body regions with a constricted waist, and prominent, elbowed antennae. They can be solid

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Figure 1. Adult carpenter ant.

black, yellowish red, or a combination of black, red and reddish orange. A carpenter ant has only one segment or node between the thorax and abdomen. It also has a circle of hairs at the tip of the

abdomen and an evenly rounded thorax when viewed from the side.

Winged carpenter ants resemble winged termites and, in Texas, it is not uncommon for both of these important wood-destroying insects to swarm at about the same time. It is vital that they be identified accurately, because control measures differ greatly for the two insect groups.

Ants have small, constricted waists. Their wings are of unequal length, with the front pair longer than the hind pair. Their antennae are bent at right angles about mid-length (Fig. 2). Termite bodies are not narrowed at the middle. Their wings are of equal length, and their antennae are rather straight with bead-like segments.

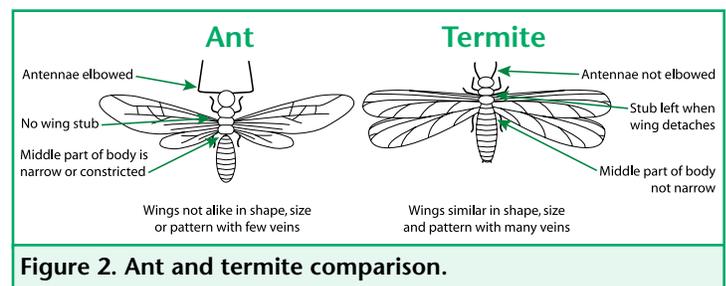


Figure 2. Ant and termite comparison.

## Biology and habits

Mature carpenter ant colonies produce male and female winged reproductives from early spring to summer. Environmental conditions cause them to emerge and swarm. They mate during these swarms or nuptial flights, which may occur over several days or weeks. After the nuptial flight, males die and females begin searching for a nesting site.

After establishing the nest, the female deposits 15 to 20 eggs. The queen cares for the initial larvae and feeds them with fluids secreted from her body. Under favorable conditions, the eggs progress through the larval and pupal stages to become worker ants in about 2 months. After becoming adults, new workers expand the nest, excavate galleries and provide food for the queen and larvae.

The first-generation worker ants are small. After foraging for food outside of the nest, worker ants return to regurgitate partially digested food to nourish developing larvae and the queen. Older larvae are fed solid food by the workers.

Carpenter ant colonies remain small during the first year, but they grow rapidly, and in 3 to 6 years will contain up to 3,000 ants. Winged reproductives are produced by older, mature colonies. Once colonies are mature, workers are produced continuously to replace those that die, while 200 to 400 winged individuals are produced each year for reproductive flights. Winged reproductives usually develop in late summer, spend winter in the nest, and swarm in spring and early summer.

## Nesting sites

Carpenter ants normally build their nests in hollow trees, logs, posts, landscaping timbers and wood used in homes and other structures. Unlike termites, ants do not feed on wood but excavate galleries in wood as places to build nests. Carpenter ants prefer to nest in moist or decayed wood, frequently entering existing cavities or void areas through cracks and crevices.

The ants usually cut galleries with the grain of the wood, following the softer parts. They leave the harder wood as walls separating the tunnels, but cut openings in these walls to connect the galleries. Access to the outside may be through natural openings, or the ants may cut openings where none exist.

Occupied galleries are kept very clean. Shredded wood fragments from the excavations are carried from the nest and placed outside. Cone-shaped piles of these fragments, often called frass piles, sometimes build up beneath the nest openings. Frass piles may also contain excretions, dead carpenter ants, and bits of wood, sand, soil or insulation. Frass is not always visible because ants may dispose of it in hollow parts of trees, in void areas in structures, or in unused galleries within the nest.

Carpenter ants become pests when they nest or forage for food in homes and other buildings. Usually, an infestation occurs when all or part of an existing colony moves into a house from outside. Ants enter structures through several common routes: where tree branches or utility lines contact a structure, through cracks and crevices around windows and in foundation walls, through ventilation openings in the attic, and through heating or air-conditioning ducts.

Carpenter ants like to nest in wood that is very moist or has been previously damaged by water or termites. A colony develops best in wood with a moisture content of more than 12 to 15 percent. This can happen where there is a leak, condensation or continuously high, relative humidity. Typical nest locations include:

- wood affected by water seepage from plugged drain gutters, damaged flashing, wood shingle roofs, poorly fitted or damaged siding, improper pitch of porch floors, or leaking door and window frames;
- wood between the roof and ceiling of flat-deck porches;
- areas around plumbing in kitchens and bathrooms where water leaks have soaked the surrounding wood;
- wood in contact with soil, such as porch supports, siding and stair risers;
- wood in areas of poor ventilation or condensation, such as cellars, crawl spaces, attics and under porches;
- wood scraps in dirt-filled slab porches;
- voids under bathtubs or hot tubs;
- hollow wooden doors, hollow ceiling beams, hollow shower and curtain rods, and hollow porch posts and columns;
- window sill plates and floor joists;
- voids under attic insulation or under insulation in crawl spaces; and
- voids above windows and doors.

## Diet

Carpenter ants are omnivorous. They eat a great variety of both animal and plant foods, including honeydew from aphids, scale insects and other plant-sucking insects; plant juices; fresh fruits; living or dead insects; other small invertebrates; common sweets such as syrup, honey, jelly, sugar and fruit; and most kinds of meat, grease and fat. Unlike termites, they cannot digest wood cellulose.

Ants forage mostly at night. Solitary ants seen during the day are usually scouts looking for suitable food sources. Carpenter ants may follow things such as a water hose or other “markers” in the yard to make their way from a nest in a tree to indoor locations.

# Management

## Inspection

The key to successfully managing carpenter ants is to identify all locations where a colony could exist. Inspect the structure thoroughly, both inside and out. Carefully examine common infestation areas for signs of carpenter ants. Conical piles of shredded wood debris (frass piles) indicate nest sites.

Outside a structure, examine any tree stumps, roof edges, trim boards, attached fences, dead or dying shrubbery, and wooden porch floors and columns. Also check for overhanging tree limbs, vines, and power or utility lines. In living trees, openings to a nest are usually in knotholes, scars, dead areas or crotch angles. Carpenter ants may travel as far as 100 yards from their nest to a food source. It is sometimes possible to follow foraging carpenter ants to find their nest.

During the inspection, you may find other wood-infesting insects or damage caused by them. Refer to Extension publications E-368, *Subterranean Termites*; E-367, *Formosan Subterranean Termites*; E-366, *Drywood Termites*; and L-1826, *Carpenter Bees*, for more information on these insects.

## Prevention

To greatly reduce the likelihood of carpenter ant infestations:

- Replace damp or decaying wood.
- Repair plumbing or roof leaks promptly and replace damaged wood.
- Make sure there is proper clearance between soil and structural wood.
- Provide good ventilation under the house and in the attic.
- Drain water away from the structure.
- Remove stumps, logs and wood debris near the house.
- Store firewood away from the house.
- Trim back any tree or shrub limbs touching the structure.
- Remove or treat with insecticides any carpenter ant colonies within 100 feet of the house.

- Keep exposed wood in good condition, with all cracks, knot holes, checks or joints properly sealed with wood putty and all surfaces painted.

## Insecticide treatment

Treat carpenter ant nests with a residual insecticide applied either as a dust or spray. You may need to drill small holes into wall voids, window and door sills, baseboards and other areas to reach the nest or major part of the colony. Pesticide dusts are particularly effective, as ant activity tends to spread the dust throughout the colony.

Several types of insecticides are effective, including those containing active ingredients such as chlorfenapyr, fipronil, or any of the pyrethroids (permethrin, cypermethrin, cyfluthrin, deltamethrin, etc.).

Treat wooden structural members and other exposed, frequently wet wood with a wood preservative to slow decay. Products made with boron salts can be used on untreated wood surfaces to protect against wood decay and wood-destroying organisms.

Sometimes it is necessary to hire a professional pest control operator to control carpenter ants. Professionals are familiar with the biology and control of these ants and have experience in finding the nests. Carpenter ants tend to be noisy within their nest, so pest control operators may have listening devices to help pinpoint the location of the colony. Evening inspections may also be necessary since carpenter ants forage at night. Homeowners can give the pest control operator clues about the ants' movement and sightings, which can help the operator find and eliminate colonies.

Baits with active ingredients such as abamectin, fipronil and hydramethylnon are labeled for carpenter ants. The colony can be controlled successfully if foraging ants take the baits and pass the toxin to the queen and brood. Research is being conducted to find baits more acceptable to foraging ants than some currently on the market.

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