

Carpenter Ants

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Carpenter ants get their name from their habit of building nests in wood. Unlike termites, they do not feed upon wood but merely use it as a place to nest. They will build their nests in human structures and may cause significant structural damage. Five species of carpenter ants occur in Missouri: *Camponotus pennsylvanicus*, *Camponotus castaneus*, *Camponotus ferrugineus*, *Camponotus nearcticus* and *Camponotus sayi*. Carpenter ants are recognized by their characteristic evenly rounded thorax when viewed from the side.

The black carpenter ant, *Camponotus pennsylvanicus*, is the largest and most common house-infesting carpenter ant in Missouri. Individual workers range in size from $\frac{1}{4}$ inch to $\frac{5}{8}$ inch in length. This species is generally totally black. Two other carpenter ants, *C. castaneus* and *C. ferrugineus*, are only slightly smaller but are generally red in color. These two species occur in structures only occasionally. The others, *C. nearcticus* (uniformly dark brown) and *C. sayi* (head, thorax and legs reddish, abdomen dark brown to black), are smaller and vary from $\frac{1}{8}$ inch to $\frac{3}{8}$ inch long.

Biology and habits

Mature black carpenter ant colonies contain 15,000–20,000 individuals. Colonies of the other species usually number 3,000–4,000. Carpenter ant colonies contain workers of multiple sizes. These large and small size variants are called “major” and “minor” workers (Figure 1). There are workers of intermediate size between the two extremes.

Large colonies of black carpenter ants consist of a “parent” colony in a dead log or stump, with various “satellite” colonies occupying other pieces of wood somewhere nearby. The parent colony contains the egg-laying queen, whereas the satellite colonies contain workers, larvae and pupae only. Mature colonies produce winged ants (Figure 1). Winged ants disperse away from the mature colony to start new colonies. Most winged ants develop during late summer, spend the winter in the nest, and swarm the next spring. After swarming and mating, winged females drop to the

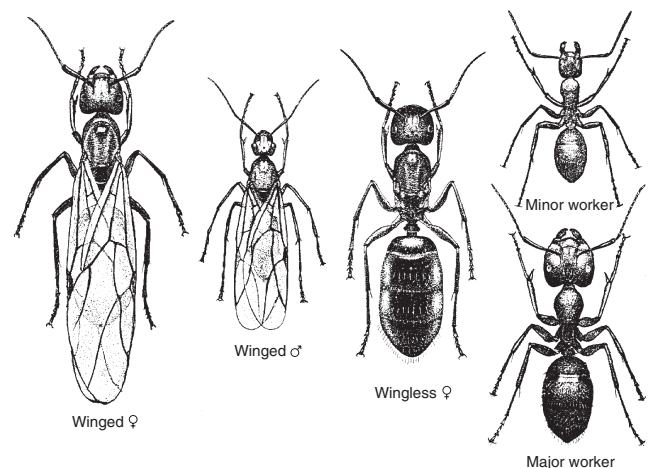


Figure 1. Adult stages in carpenter ant colonies.

ground, chew off their wings, and begin establishing new colonies. Immediately following mating, male winged carpenter ants perish and play no part in establishing a new colony.

Carpenter ants may become household pests by foraging for food indoors. The diet of carpenter ants includes living and dead insects, meat, fats and sweets of all kinds, including honeydew from aphids and nectar from plants. Foraging workers collect all the food for the colony and may travel up to 100 yards from the nest in search of food. Foraging activity is highest at night. Solitary ants seen during the day are usually scouts. Liquid food is ingested by ant workers and then regurgitated to other ants in the colony at a later time. Worker ants cannot eat solid food and must carry it back to the nest and feed it to the larvae. The larvae process the solid food and regurgitate it back to the other ants in liquid form.

Carpenter ants normally construct their nests in hollow trees, logs, posts and landscaping timbers. They prefer to nest in wood that is moist and rotting or that has been hollowed out by decay or by other wood-destroying organisms. Carpenter ants remove wood in the form of a coarse sawdust-like material, which they push from the nest. This often results in a cone-shaped



Figure 2. Carpenter ant gallery.

pile accumulating just below the nest entrance hole. This pile may include other debris from the nest, including bits of soil, dead ants, insect parts and other food remnants. They cut galleries along the grain of the wood, preferring the softer spring grain. They leave the harder summer grain, which serves as walls separating the tunnels. They cut openings in these walls to allow access between tunnels. Carpenter ants keep their galleries clean; the tunnels look smooth as if sanded (Figure 2).

The greatest concern with carpenter ants is that they will establish satellite nests in structural wood. This can cause serious damage. They will establish these nests in areas such as the roof trim, siding, rafters, joists, sheathing, decks, porches, steps, sills, subflooring, doors and window frames. They may also establish nests inside hollow areas, like hollow doors or small voids produced during construction. Most often, they establish nests in areas of the structure where the wood is moist or has been damaged by moisture. They can also move from decaying portions of the wood into sound lumber in the process of enlarging the nest.

Management

Do not neglect basic structural changes that may be required for long-term management of carpenter ant infestations. Leaking roofs, gutters, water pipes or other sources of moisture coming into contact with structural wood create conditions attractive to carpenter ants. Eliminating these conditions greatly reduces your risk. Openings in living trees and branches of living trees that touch the structure also increase your risk of carpenter ants because they use these branches as bridges to gain access to the building. Close openings in trees and keep tree branches pruned to reduce ant traffic onto the structure.

Stacks of firewood or other lumber outdoors are attractive nesting sites. Store the wood off the ground and away from the house. It is better to keep only the amount of firewood that you would use during one heating season because the longer wood is left undisturbed, the more likely it is that carpenter ants will

occupy it. Spraying firewood to protect it is not recommended.

Direct treatment of the nest with an insecticide labeled for controlling carpenter ants is the most effective method of colony elimination. Since carpenter ants have only a single queen in the colony, killing this queen will cause the colony to die. A good inspection to locate the parent colony is necessary for control to be effective. Inspect the entire structure and surrounding grounds, because the parent colony is nearly always located outdoors. Placing "sticky traps" around suspected areas may help pinpoint the location. Because worker ants move from the nest to forage for food, their movements can lead you to discover their nest. Since foraging activity is highest at night, it is often useful to find trails of workers and follow the trails back to the nest using a flashlight.

Once you have located the nesting site, look for piles of "sawdust" to locate the entrance. When you find the nest entrance, inject a powder insecticide through the entrance hole using a hand duster and tube with a tip that fits snugly in the entrance. A duster is easily made from a flexible plastic bottle equipped with a tube. Fill the bottle no more than one-third full, insert the tip in the entrance hole and inject the dust by alternately squeezing and releasing the pressure on the bottle. It may be necessary to enlarge the entrance hole to fit the tube.

If you can't find the nest, you can temporarily prevent carpenter ants from invading the structure by spraying the foundation wall, adjacent soil, and areas around doors and windows with an appropriately labeled aerosol insecticide. You can also apply insecticide liquids to outdoor areas where foraging ants are most often seen. However, these spray applications are not effective at eliminating infestations because only foraging ants are affected and the queen continues to lay eggs to replace them. This would require several applications over a long period using the services of a professional pest management company.

If you cannot find the nest and prefer not to use chemical spray treatments, carpenter ant baits have been developed and are available for use. These baits are effective in some but not all situations. This limited effectiveness has been attributed to the wide variety of food sources that carpenter ants eat and an inability to predict which kinds of baits foraging ants will consume. If you desire to use baits to control carpenter ants, you can offer a variety of bait types simultaneously along foraging trails for worker ants to choose. Repeated follow-up visits are necessary, however, to keep the bait fresh and to monitor bait acceptance. Baits should not be used alone and are most effective when used in conjunction with other management tactics.