

Insects in the City



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Texas Leaf Cutting Ant



Texas leafcutting ant bringing plant material back to nest for the colony's fungal garden. With permission from Seth Patterson, Wildsnap Photography.

The Texas leaf cutting ant, *Atta texana* (Buckley), has several common names including the town ant, cut ant, parasol ant, fungus ant and night ant. *Atta texana* can be extremely destructive to landscape plants, gardens and some agricultural crops in Texas.

Leaf cutting ants live in large colonies of up to two million. The name comes from their habit of cutting leaves and other plant parts from a variety of plants. In Texas, these ants damage weeds, grasses, plum and peach trees, blackberry bushes and many other fruit, nut and ornamental plants as well as several cereal and forage crops. The ants do not eat the leaf fragments they collect, but take them into their underground nest where they use the material to raise a fungus garden. As the fungus grows, certain parts of it are eaten by the ants and fed to the larvae. This fungus is their only known source of food.

Leaf cutting ants attack pine trees, but ordinarily do little damage when other green plants are available. During the winter when green plant material is scarce, seedling pines are frequently damaged in parts of east Texas and west central Louisiana. Where ants are abundant, it is almost impossible to establish natural pine reproduction. In such sites, young pine seedlings often are destroyed within a few days unless the ants are controlled before planting.

Because leaf cutting ants only eat the fungus they cultivate, they do not respond well to most conventional ant baits, including sugar- or oil-based baits.

Description

Texas leaf cutting ants are rust to dark-brown in color, and workers from the same colony vary greatly in size, from 1/16 to 1/2-inch long. The queen is about 3/4 inch long. Leaf cutter workers can be distinguished from other ants by the three pairs of prominent spines on their back (thorax) and one pair of spines on the back of the head. Another species of leaf cutting ant found in Texas, *Acromyrmex versicolor*, may be found in the far west, drier parts of the state. *Acromyrmex* is a true desert ant, and can be distinguished from the Texas leaf cutting ant by having more than three pairs of (short) spines on the thorax and by the bumpy upper surface of the abdomen (gaster).



Leaf cutting ant colonies comprise many mounds. Image by Josh Blanek.

The Texas leaf cutting ant queen rules the colony from her underground chambers. Colonies may have as many as four or five fertile queens, each of which continually produce eggs. Eggs develop into cream-colored larvae that become 1/4 to 1/2-inch long when fully developed. Most larvae develop into sterile female workers ants; however, in the spring, some of the larvae develop into winged males and females. These reproductive ants can number into the thousands. They are distinct from worker ants, being several times larger, that they are often not recognized as the same species. They are dark, rusty brown with have long, smoky brown-black wings. Females can be distinguished from males by their larger heads.

Life History and Habits

Mating flights of Texas leaf cutting ant reproductives take place on clear, moonless nights during April, May and June. In areas of higher rainfall, swarms can occur at any time during the spring; however, to more arid areas swarms invariably occur after a heavy rainfall. Prior to her nuptial flight the virgin queen stores a small portion of the fungus garden in a small cavity inside her mouth. After mating the winged males die, while mated queens drop to the ground, lose their wings and attempt to establish small nests beneath the soil.

After digging a small gallery in the soil, the queen takes the fungus wad from her mouth and begins to culture it as food for her first eggs. Initially the fungus is nourished by fecal material. Approximately 90 percent of this first brood will be eaten by the queen. The first worker ants will be quite small because of their limited food intake; however these first workers bring back leaf fragments to enlarge the fungus garden, thus providing more food for later broods. As the colony grows, worker ant size increases and becomes more variable. In mature colonies worker ants vary in size from 1/16 to 1/2 inch-long, with the larger ants serving as soldiers for nest defense.

Individual colonies can exist for years. Where adequate food is available, colonies may expand to contain over 2 million ants. Leaf cutting ant colonies are frequently seen along roadsides, in open fields, in brush land or forestland where soils are deep, well drained sand or loam. They can be quite large, 50 to 80 feet across. Colony size depends on its age and the availability of food. In heavily-infested areas it is difficult to distinguish where one colony ends and another begins.

Above ground, the colony is marked by numerous crater-shaped mounds, 5 to 14 inches-high and 1 to 1 1/2-feet in diameter. Each mound has a central entrance hole. Above the underground central nest cavity, several entrance holes will be marked by typical crater shaped mounds and a buildup of soil. On flat land, this buildup of soil is very apparent. With older colonies, this central area is as much as two to three feet higher than surrounding land. Below ground, the nest consists of several chambers that may reach 15 to 20 feet deep. All chambers are interconnected by narrow tunnels. Vertical tunnels extend to mound openings, and lateral foraging tunnels may lead outward 500 feet away. These lateral exits are commonly referred to as "feeder holes". The complex structure of the cavities and tunnels allow the ants to escape predators underground, and provide an efficient air circulation system. Coincidentally, the large complex nest structure makes control with insecticides difficult.

During the summer, leaf cutting ants forage almost exclusively at night. The rest of the year, foraging takes place during the day, when air temperatures range between 45 to 80 degrees F. Most mound building activities occur during the cool hours of the day. Leaf cutting ants are usually inactive on cold, wet or cloudy days.

On the soil surface leaf cutting ants have clearly defined foraging trails. Ants commonly travel 600 feet or more to reach a suitable plant. Once located, the plants are attacked in large numbers, with worker ants cutting leaves and carrying the fragments in their mouths (mandibles). Leaf fragments are carried umbrella-like, over the head—hence the common name, “parasol ant”. Hundreds of ants can be seen picking up and carrying off the piles of leaf fragments that accumulate under the trees or bushes “under attack.” At the nest entrance, ants chew the fragments into small pieces that are better suited for their underground fungus gardens.

Damage Symptoms

Defoliation by leaf cutting ants can resemble damage produced by several other leaf chewing insects, particularly sawflies and leaf cutting bees. Trees defoliated by the leaf cutting ant usually are within sight of an ant nest and the ants themselves may be seen carrying leaves. Foraging trails will be littered with pieces of leaf tissue that can be traced to a feeder hole. Considerable damage to a plant can occur in a few hours. Small- to medium-sized trees can be stripped in one night. One researcher in South America estimated that a large leaf cutting ant colony harvested approximately 13,000 pounds of leaves over a 6-year period. This same colony excavated 802 cubic feet of soil weighing over 44 tons.

Control

Control of Texas leaf cutting ants can be difficult. Although plants can be protected temporarily using dust or granular formulations of contact insecticides, like acephate (Orthene®), carbaryl (Sevin®) or permethrin (Terro™), such treatments must be reapplied frequently. Also, plant applications do little to eliminate the underground nest. The large size and complexity of leaf cutter ant nests makes it difficult to obtain good control with dust, liquid or granular insecticides. Because these ants eat only the fungus they cultivate, they do not respond to most other ant baits, such as those labeled for fire ants.

A special formulation of hydramethylnon, sold under the trade name Amdro® Ant Block, is currently the only widely available bait product labeled for control of leaf cutting ants. This product can be used on most sites such as lawns, landscaped areas, golf courses, ornamental gardens, and other non-cropland areas such as roadsides, commercial grounds, etc. Apply bait according to label directions while ants are foraging. Ant activity in the treated colony will decline over a 4 to 6 week period. However, about half the time activity will return in 4 to 6 months, requiring a second treatment. Note that this product may not be used in agricultural sites (e.g., livestock pastures, gardens, cropland) and should be applied around *all* mounds of a colony (not just feeder holes or mounds) to ensure the best control. Leaf cutting ant baits should not be stored for extended periods of time due to relatively short shelf life. Amdro® Ant Block should be available through a variety of stores, including Ace Hardware and Wal-Mart.

A fipronil insecticide-based injection treatment is available for professional forestry applications; however the label currently does not permit its use in residential or non-forestry applications.

Before using any chemical, READ THE LABEL and follow all instructions and safety precautions. Avoid chemical contact with skin. Wash exposed areas with generous amounts of soap and water. Store chemicals away from human dwellings in locked cabinets and out of reach of children and pets.

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