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The Texas Leaf-Cutting Ant

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The Texas leaf-cutting ant or town ant (*Atta texana* Buckley) is a serious pest of pine seedlings in east Texas and west-central Louisiana. It is not known to occur in other forested areas of the South. The colonies or towns, which are usually confined to well-drained, deep sandy soils, are made up of conspicuous surface mounds and extensive underground passageways.

The ants remove needles, buds, and sometimes bark from natural and planted pine seedlings of all species. Where these ants are abundant they make it impossible to establish natural reproduction. When infested areas are planted, the young seedlings are often destroyed within a few days, unless the colonies are eradicated before planting is done.

The ants are also well known as defoliators of orchard trees and cereal and forage crops. They use the foliage from a wide variety of plants but tend to concentrate on pines during the winter, when other green material is scarce. They do not eat the foliage but cut it into small fragments that they carry into their underground chambers. There this material serves as a medium upon which they culture a fungus that is their only known food.

Description

Leaf-cutting ants are rusty red in color, and live in colonies made up of a variety of individuals (fig. 1). The queen, approximately ¾ inch long, is the reproductive center of the colony and lives in a

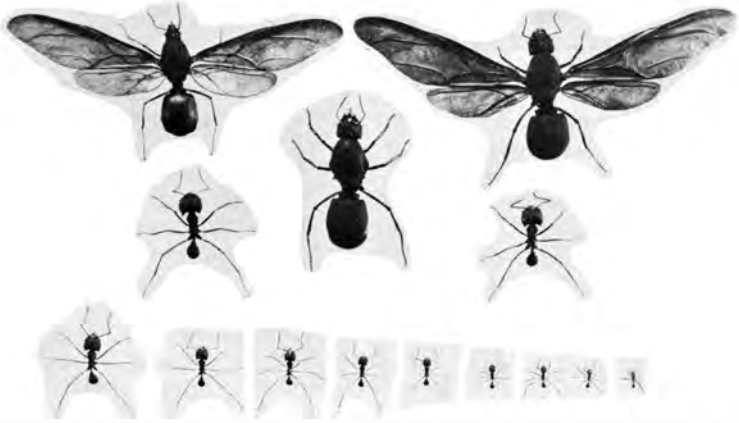

Figure 1.—The various castes and sizes found in a nest of *Atta texana*. A mated queen, taken during the winter, is at the center, a virgin queen at upper right, and a male at upper left. The workers are shown without attempt to differentiate the castes.

chamber below ground. She lays pearly-white eggs, about half the size of a pinhead, which develop into cream-colored larvae and pupae, ¼ to ½ inch long. Most of the pupae transform into worker ants, sterile females that vary in form and range from ¼ to ½ inch in length. The workers care for the young, tend the fungus gardens, cut and transport leaf fragments, and defend the colony.

Life History and Habits

In May and June, winged males and females develop, fly from the colony, and mate. After mating, the females lose their wings, establish nests beneath the soil, and become the queens of new colonies. Individual colonies may exist for years and continue to increase in size.

The nest area is usually marked by innumerable crescent-shaped mounds, about 5 to 14 inches in height and approximately a foot in diameter. Each mound surrounds an entrance hole (fig. 2). The mounds may be confined to an area of less than 100 square feet, or may occur over an acre or more, depending upon the age of the colony. In heavily infested areas it is sometimes difficult to determine where one colony ends and another begins.

Nests may extend 10 to 20 feet below ground. They consist of many hemispherical cavities having an average capacity of about one gallon (fig. 3). These cavities are connected by narrow tunnels and are occupied by ants and stored materials. Vertical tunnels extend to the mound openings and lateral foraging tunnels lead outwards, sometimes a hundred yards or more, to enlarged openings or "feeder holes" at the surface.

The activity of the ants above ground depends largely on the temperature. In hot summer weather they remain quiescent during the day but begin to forage with the approach of dusk and lower temperatures, and continue through the night. During the cooler months they forage during the day and are especially active on sunny days at temperatures of 50° to 80° F. Most of their mound building is also done during cool parts of the year. They are inactive on cold, wet, or cloudy days, especially in the morning.

Above ground the ants clear sharply defined foraging trails that resemble miniature highways and sometimes extend hundreds of feet to the plants under attack. They move in procession and carry fragments of needles or other plant material to the nest. Each fragment is several times the size of the ant carrying it and is borne upright over the head like a parasol. At the entrance to the feeder hole, the fragments are chewed into smaller pieces of sizes suited to the fungus gardens. Specialized workers carefully tend the fungus garden and permit only one kind of fungus to develop upon the macerated leaves.

Control

Natural.—Almost nothing is known of the natural control of the Texas leaf-cutting ant.

Artificial.—Considerable relief from leaf-cutting ant damage can be obtained through direct control measures. In order for these measures to be most effective, however, it is highly important that all of the ant colonies in a given vicinity be located and treated; otherwise, untreated colonies will remain as a source of reinfestation of treated areas, and of future loss. Colonies can be located most easily during late fall or early winter, when the ants are most active and their mounds and trails are not so well hidden as in spring and summer.

Pelleted mirex bait is the most effective control so far devised

for this ant. The bait is easy to apply, as it need simply be scattered over the central area of the nest (the place where the excavation mounds are concentrated), plus a 20-foot peripheral zone. Foraging worker ants rapidly search out the pellets (fig. 4) and carry them underground. For a medium-sized nest of about 150 mounds, about 1 pound of bait is recommended. For smaller or larger nests, proportionate amounts from ¼ pound to 6 pounds should be adequate. The bait can be bought in seed stores, under the name Mirex Pelleted Bait "450." [1]

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Figure 2.—*Top:* Nest areas are marked by innumerable crescent-shaped mounds. *Bottom:* Closeup of mounds.

Mirex can be applied at all seasons, but applications should not be made during periods of rain or prolonged freezing weather. Pellets can be spread either by hand or with a machine—if by hand, the worker must wear rubber gloves.

First signs of control will be a great reduction in excavation and foraging activities. This occurs in about 5 to 14 days. These activities gradually stop completely, and the colony is dead in 5 to 6 weeks.

The bait should be stored so that it will not become contaminated by volatile materials such as oil, insecticides, or herbicides.

Caution: Mirex is harmful if swallowed. Avoid skin contact and wash with soap and water after using and before eating or smoking. Do not contaminate feed or foodstuffs. Keep out of reach of children and domestic animals. Wear rubber gloves when handling. Safely dispose of empty containers.

References

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[1] The use of trade names is solely for information and does not imply a warranty by the U.S. Department of Agriculture.

Figure 3.—A cut through the center of a nest of the Texas leaf-cutting ant. The nest at this point is 8 feet deep.

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Figure 4.—Pellets attract foraging workers.

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