



TERMITES

Distribution

The species of termite occurring in New Jersey is the eastern subterranean termite, *Reticulitermes flavipes* Kollar. Subterranean termites are so-called because they must ordinarily have access to the soil to obtain moisture. The natural home of this insect is the woodland where it feeds in dead trees, stumps and fallen branches. Here it is a simple matter for the termites to pass from the wood to the soil and back again, and it is the abundance of suitable wood that determines the abundance of termites in the area. Thus it may be said that termites can be expected anywhere in New Jersey not subject to prolonged flooding.

General

Termites are soil-inhabiting insects that feed on wood, papers and similar cellulose materials. They differ in many respects from other kinds of wood-destroying insects and consequently the control methods applied to termite infestations must be designed specifically for that purpose. The kind of damage done by termites also differs from that of other insects.

Termites live in colonies that often consist of many hundreds or even thousands of insects. Well-established colonies contain several different kinds of individuals, the most important of which are the reproductive forms; the protective forms or soldiers; and the workers whose business it is to construct the tunnels and tubes and to keep the colony supplied with food in the form of cellulose. The young, the workers, the soldiers and some of the reproductive forms are white or cream-colored, blind, soft-bodied insects that cannot withstand the drying effect of exposure to the air. They never leave the protection of their tunnels in the soil and the wood or shelter of the tubes that the workers construct across the surface of materials through which they cannot tunnel. The other reproductive forms develop a hard, black skin that can withstand exposure to the air, and they are provided with two pairs of wings. Usually a colony produces a swarm of these black, winged reproductive termites in the early spring. They emerge from the colony, fly about, mate and lose their wings in the course of a few hours. They try to set up new colonies, but only a few ever succeed in doing so.

Indications of Termite Attack

The sudden appearance on a spring day of winged termites inside the house is the most common indication of a termite colony. The insects should be carefully compared with the illustration to determine whether they are ants or termites. Specimens may be sent to your county agricultural agent for identification. Winged termites soon drop their wings, but winged ants do not. Termite specimens that have dropped their wings can be distinguished from ordinary ants by the absence of a "wasp waist" and by the bead-like nature of the antennae or feelers. (See illustration.) The winged termites may be killed by spraying a household spray, but this treatment, of course, has no effect whatever on the parent colony of termites, which continues to feed unhindered in the wood.

Both ants and termites may exist in the same building, and each group may produce a swarm at various times during the year. Therefore, it is necessary to examine each swarm closely to determine if termites or just the relatively unimportant winged ants are present.



A second indication of termites is their damage to wood. The distinctive feature about the work of termites is the fact that they actually consume the wood as food, leaving no residue other than excreta spots. In sheathing and trim, the termites often remove so much wood that only a thin shell is left. This may look perfectly sound, but the damage will come to light when one tries to scrape the wood before painting or tries to drive a nail into it. It is important to determine, if possible, whether termites are still active. If the colony has died out, as sometimes happens, no control measures are needed. Of course, it may be necessary to replace damaged wood. Careful examination of the various points of termite entry enables the householder to decide whether termites are still present.

If damaged wood is found but no swarming flight of winged termites has occurred in recent years, test stakes placed in the soil around the building may be used to determine whether termites are present. These stakes can be made of lath or other inexpensive soft wood. They should be driven into the soil to a depth of one foot at intervals no greater than five feet. The stakes should surround the building. A test period of one year should be allowed. If there is a question regarding the cause of damage to the stakes or other wood pieces, they may be sent to your county agricultural agent for examination.

Another indication of termite infestation is the presence of mud in the wood. The termites use mud to seal openings in the wood caused by cracks in weakened timbers. They also build mud-like shelter tubes on foundation walls and piers. Destroying such tubes does not necessarily prevent termites from entering the building. The tubes are usually built in an effort to find a "short cut" to the soil after infestation is established.

Control of Established Infestations

Termites, being soil-inhabiting insects, commonly attack the wood parts of a building closest to the soil. In conventional construction, the sills, joists, and girders, as well as flooring and sheathing, may be extensively damaged. The seriousness of termite damage is usually in direct proportion to the importance of the member as load-bearing parts in the framing of the building.

As a first step in the control of an established infestation, the building should be carefully examined to locate all construction factors making the building susceptible to attack. Each factor should be studied to determine whether it might be structurally modified to reduce susceptibility to termites. An example of such structural modification might be the providing of ventilation in enclosed cellar areas or other areas not provided with full cellar excavation. Window wells around casement windows serving to lower the soil level around cellar window frames also reduce termite susceptibility and aid in control.

The second step in control is the installation of chemical soil insecticides as barriers to the passage of termites to and from the soil adjacent to the building. Since termites cannot successfully attack a building unless they can pass from the soil to the wood and back again, sound termite control depends upon eliminating that freedom of passage. If this is done, the termites in the soil are prevented from attacking the wood of the building, while those trapped in the building will die from lack of moisture.

Caution

When handling soil insecticides in any form, remember that you are working with a poison usually just as toxic to human beings as to termites.



BEETLES

POWDERPOST BEETLES

Description, Biology and Habits

The larvae of these beetles feed in seasoned wood, leaving in their tunnels the undigested wood particles in the form of a very fine wood dust or powder, hence the name "powderpost." The adult beetles range from 1/16 to 1/4 inch in length, but as they are rarely seen, their recognition is not important. Rather, it is important to be able to recognize the damage of their larvae.

The evidence most commonly seen by the pest control operator is the emergence holes in the wood surfaces made by the emerging beetles. These holes range in size, depending upon the powderpost beetle species, from 1/16 to 1/4 inch in diameter. If only a single generation of larvae has fed within the wood, it is usually still structurally sound, but the feeding of generation after generation can reduce the interior of the wood to chiefly a mass of powder. It is this latter citation, often stressed in encyclopedias, which creates panic in the public mind.

An important fact to keep in mind regarding powderpost beetles is simply that before the female will attach her eggs to a piece of wood, she first actually tastes the wood to be sure it contains enough starch and sugar to nourish her offspring. If she is prevented from doing this by a wood coating of **any** kind (paint, varnish, whitewash, etc.), she will not deposit her eggs and thus the wood, if protected on all surfaces, is not attacked by powderpost beetles.

THE OLD HOUSE BORER

Description, Biology, and Habits

The common name of this insect can be completely misleading in the inference that attack on *old* houses is characteristic of it. It is by no means so restricted, being as likely to attack suitable timber in recently constructed homes. The old house borer requires the seasoned, wide-grain wood of such softwoods as pine, spruce and fir, available in a wood surface to which no paint or other permanent finish has been applied.

The adult beetles range in size from 1/2 to 1 inch in length, but like the powderpost beetles, are rarely seen. Like the powderpost beetles, the larvae of this beetle excrete into their tunnels the wood particles or frass from which they have extracted the starch and sugar. Extensive excavation along the grain results, leaving only a very thin "shell" of the original wood surface held in place by a few solid remnants of the wood interior. Sometimes the frass is so densely packed that it forms a cake. The emergence holes of the adult beetles are often surprisingly few in number, considering the extent of damage, and are slightly oval and 1/4 inch or less in diameter.

An old house borer infestation often continues over several decades or more. A single individual may average from three to ten years in development to the adult beetle. Thus, the conspicuous damage is most likely to occur in attics and other areas only infrequently examined.

Control

Where a continuous, "ongoing" infestation is found to exist, control is also usually a long-range project. If the affected timbers still have the structural strength to carry the load imposed, the application of permanent, non-toxic surfacing materials, plus the closing of the emergence holes with plugs of injectable caulking material will prevent reinfestation. Annual inspection to close any new holes is necessary.



INVERTEBRATE PESTS: HOUSEHOLD

COCKROACHES

General

Cockroaches are insects which are familiar to many people. Some are particularly suited to hiding in cracks and crevices of man-made structures and are capable of surviving quite well on scraps of food associated with the presence of man. Of the 4000 kinds of cockroaches known throughout the world, only 4 species are of importance to people in New Jersey: the American Cockroach, the Oriental Cockroach, the German Cockroach and the Brown-Banded Cockroach.

The chief importance of cockroaches concerns the large quantities of foodstuffs they contaminate. Cockroaches normally occur and thrive in unsanitary conditions but, because they readily spread through adjoining buildings, even "spotless" establishments may become infested.

Because of their particular "fondness" for filthy places, cockroaches are quite capable of indirectly transmitting a number of diseases. They may crawl over or feed upon filth, excrement, garbage and sewage and then visit man's food or food areas. As a result, cockroaches may spread the disease organisms which cause diarrhea, food poisoning, dysentery and typhoid.

The bodies of cockroaches are flattened from top to bottom and are somewhat oval in shape. Most adult cockroaches have two pairs of wings but some have only partially developed wings or none. Many cockroaches can fly but are more commonly seen running on their long, well-developed spiny legs. Cockroaches develop through three distinct life stages: egg, nymph and adult. This type of development is called gradual metamorphosis. The egg case which sometimes protrudes from the tip of the abdomen of the female, contains a number of eggs. The small nymphs which hatch resemble the adults but are wingless. The nymphs grow by a series of molts until finally the mature adults appear at the final molt.

Where infestations are small, live cockroaches may never be seen because they are nocturnal, most active at night. However, the presence of cockroaches may be determined by other means. Cockroaches have a characteristic "musty" odor and this odor may be strong in places they often visit. Other signs of cockroach infestations may include finding full or empty egg cases, excrement and occasionally the shed skins of the nymphs. The excrement left by the small species may appear as greasy smudges while the excrement of the larger species resembles mouse droppings.

Control

Whether a spray or dust is used for extermination the treatment should be limited to baseboards, cracks and places where cockroaches hide. To find the hiding places, enter a dark room quietly, turn on the lights and watch where they run.

Pesticides are safe and effective when used as directed. If used improperly they can be injurious to man, animals and plants. The user is cautioned to read and follow all directions and precautions on the label of the pesticide formulation being used.



CARPENTER BEES

Description and Biology

Carpenter bees are closely related to bumble bees but can be separated in that the entire abdomen of the carpenter bee is shiny black while that of the bumble bee is partially covered with yellow hairs.

The mated female chews or "drills" about a 1/2 inch diameter hole in seasoned wood. This cavity is separated into several cells by secreted wax, each of which is provisioned with pollen and honey. As each cell is provisioned, the female lays an egg in the cell and seals it with wax. The wood is not used for food. The female continually repeats this process for about a month until death. The hatched larvae feed on the provided food, pupate and remain in that state over the winter. The following spring, the pupae become adult males or females and emerge from the holes made by the parent bee.

Habits and Habitats

The carpenter bee is a solitary bee which builds its nest in various types of wood ranging from trees and fence posts to rafters, siding, gutters and beams of the house. When manmade structures are involved, the carpenter bee is a pest causing damage to these structures. Heavy nesting activity in a limited area can cause structural weakening. The carpenter bee has the ability to sting but seldom does.

Control

Appropriate insecticides can be applied into the nest openings. The nest openings may be closed after insecticide application with putty, caulking compound or similar materials.

The user is cautioned to read and follow all directions and precautions on the label of the insecticide formulation used.

CARPENTER ANTS

General

The black carpenter ant is the largest of our common species of ants. Unlike most house-infesting ants, carpenter ant workers climb freely and may be observed almost anywhere in or on a house.

Carpenter ants are social insects and live in colonies. It requires three to six years for colonies to mature and produce winged forms or "swarmers." A mature colony contains two to three thousand workers.

After mating, the males die and the females attempt to establish new colonies. Outdoors, a typical nesting site would be a stump, log, fence post or similar objects. Usually the female ant prefers to establish her nest in wood that is moist or partially decayed; however, she may enter an existing cavity that is dry, such as a wall void, within veneer doors or between double roofs.

Although the nest may have started in soft, decaying or moist wood, later tunneling by the workers can be made into sound, dry lumber.



Once the nesting site is selected, the queen seals the entrance and proceeds to deposit from 15 to 20 eggs. After the first generation reaches maturity, the workers open the chamber and begin to forage the food, as well as take up the chores of enlarging the nesting area and tending the next generation. Their food consists of insects, sweets, fruits and honeydew, a sweet, sticky substance associated with aphids, scales and other insects.

Ant damage to wood is often confused with termite damage. Unlike those of termites, the galleries of carpenter ants are clean and contain no soil or fecal pellets. Carpenter ants do not use wood for food but discard the wood fragments and feed on sugary liquids of trees and plants.

Many times carpenter ant nests are difficult to locate. However, an inspection should be made of areas where high moisture exists or at one time existed. Check wood dampened by plugged drain gutters, wood shingle roofs, hollow porch posts, damaged siding areas, around door and window frames, voids in the ceilings of porches and breezeways, wood in contact with the soil and wood that has become moist due to faulty plumbing.

Control

Satisfactory carpenter ant control is obtained by the destruction of colonies in and near buildings. If a moisture problem exists, measures should be taken to eliminate the condition. Most carpenter ant problems require the services of a pest control operator or exterminator for their solution.