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## G91-1062 Termites (Revised March 2002)

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# Termites

**This NebGuide provides information on biology and control of subterranean termites.**

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Termites feed on wood and serve an important function in nature by converting dead trees into organic matter. Unfortunately, the wood in buildings is equally appetizing to termites and they cause serious damage to residential and commercial buildings. Two species of subterranean termites are found in Nebraska and both species have similar habitats.

## **Biology**

Subterranean termites are ground-inhabiting, social insects that live in colonies. A colony or nest of subterranean termites may be up to 18-20 feet below the soil surface to protect it from extreme weather conditions. These termites travel through mud tubes to reach food sources above the soil surface. The mature termite colony has three castes: a) reproductives (king and queen), b) soldiers, and c) workers. The colony reaches its maximum size in approximately 4 to 5 years and may include 60,000 to 200,000 workers. New colonies are formed when winged males and females from a parent colony emerge in flight or swarm.

The winged reproductives are dark brown to brownish black and have two pairs of equal size wings that extend well beyond the body. Swarms are common in spring and fall, especially after a rain. After a flight, the winged males and females return to the ground and shed their wings. The wingless males and females pair off and search for sources of wood and moisture in soil. The royal couple digs a chamber in the soil near wood, enters the chamber and seals the opening. After mating, the queen starts laying eggs.

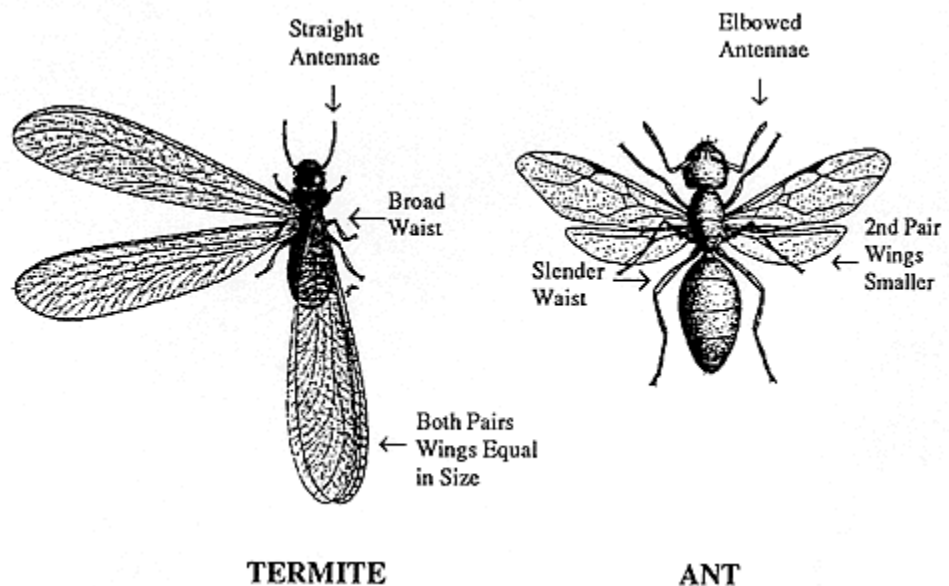
The queen may live up to 25 years and lay more than 60,000 eggs in her lifetime. The eggs are yellowish white and hatch after an incubation of 50 to 60 days.

Full-grown workers are soft-bodied, wingless, blind and creamy white. In early stages, they are fed predigested food by the king and queen. Once workers are able to digest wood, they provide food for the entire colony. The workers perform all the labor in the colony such as obtaining food, feeding other caste members and immatures, excavating wood, and constructing tunnels. Workers mature within a year and live from three to five years.

Soldiers are creamy white, soft-bodied, wingless and blind. The head of the soldier is enormously elongated, brownish, hard and equipped with two jaws. Soldiers must be fed by workers because they cannot feed themselves. They are less numerous in the colony than workers and their only function is to defend the colony against invaders. Soldiers mature within a year and live up to five years.

### **Difference Between Termites and Ants**

Flying ants and swarming termites are often difficult to tell apart. Termites have relatively straight, beadlike antennae while ants have elbowed antennae. Termites have two pair of wings (front and back) that are of almost equal length. Ants also have two pair of wings but the fore wings are much larger than the hind wings. The abdomen of the termite is broadly joined to the thorax while the abdomen and thorax of the ant are joined by a narrow waist called a petiole.



### **Feeding Habits**

Subterranean termites feed exclusively on wood and wood products containing cellulose. Termites have protozoa (microorganisms) in their intestines that provide enzymes to digest cellulose. Although termites are soft-bodied insects, their hard, saw-toothed jaws work like shears and are able to bite off extremely small fragments of wood, a piece at a time. Termites often infest buildings and damage lumber, wood panels, flooring, sheetrock, wallpaper, plastics, paper products and fabric made of plant fibers. The most serious damage is the loss of structural strength. Other costly losses include attacks on flooring, carpeting, art work, books, clothing, furniture and valuable papers. Subterranean termites do not attack live trees.

### **Communication in the Colony**

Termites communicate primarily by secreting chemicals called pheromones. Each colony develops its

own characteristic odor. An intruder is instantly recognized and an alarm pheromone is secreted that triggers the soldiers to attack. If a worker finds a new source of food, it lays a chemical trail for others to follow. The proportion of termites in each caste within the colony is also regulated chemically. Nymphs or immatures can develop into workers, soldiers or reproductive adults depending on colony needs.

Sound is another means of communication. Soldiers and workers may bang their heads against the tunnels creating vibrations perceived by others in the colony and serving to mobilize the colony to defend itself. Mutual exchange of foods enhances recognition of colony members.

### **Evidence of Termite Infestations**

- Wood damaged by termites always has remains of mud tubes attached to wood galleries or tunnels in an irregular pattern. The tunnels may contain broken mud particles with fecal materials. In the case of an active colony, white termites may be found in infested wood.
- The presence of flying winged males, females or their shed wings inside the building indicates an infestation.
- The presence of mud or shelter tubes extending from the ground to woodwork or on foundation walls also may indicate infestation. Workers travel periodically via shelter tubes to their nest to regain moisture and perform feeding duties. Each mud tube is approximately the diameter of a lead pencil.

### **How Old is the Damage?**

Based on normal feeding activity, it takes three to eight years to cause appreciable damage. There have been some predictions that, under ideal conditions, a termite colony of 60,000 workers may consume a one-foot length of 2" x 4" pine in 118 to 157 days. In Nebraska, the extent of damage may be different because of reduced feeding activity during the cold season.

### **Inspection for Subterranean Termites**

Termite damage may be located by probing wood with a screwdriver, ice pick or knife. Start inspection in the basement and use a bright flashlight. Look for mud tubes and the activity of swarmers. If necessary, get help from a professional pest control operator or advice from an experienced entomologist. A qualified professional inspector should inspect the exterior and interior surfaces of the foundation, particularly construction where wood is on or near the soil. Mud tubes are solid evidence of termite activity.

Other sites requiring inspection are:

- wood construction in basement and crawl space (if present);
- sills, joists, support posts, basement window frames, wood under porches;
- hollow blocks, cracks in cement or brick construction and expansion joints; and
- scrap wood on ground, old tree stumps, fence posts and exterior frames of basement windows.

The inspector should be able to determine if termites are active or not, how old the damage may be, and if chemical treatment is necessary.

### **Useful Information If Termite Treatment is Necessary**

1. *Do not panic.* There is no need to be alarmed if termite activity is found in your home and

treatment is necessary. Termites work slowly and the structure will not be extensively damaged or collapse overnight.

2. *Take your time to make a sound decision.* Do not allow anyone to force you to make quick decisions. If you decide to hire a commercial pest control company, get two or more cost estimates. It is important to request the plan of work revealing sites of termite activity and treatment procedures. Ask for written information on chemical treatment procedures, repair of wood work, warranties, copies of insecticide labels and other pertinent information. Compare bids before making decisions. Ask about liability insurance.
3. *Beware these situations:*
  - someone says that a structure will be treated with a secret chemical formula
  - pest control operators with no business address and no listed phone number, and
  - operators with no liability insurance.

### **Termite Control**

The goal is to establish a continuous insecticide barrier between the termite colony (usually in the soil) and wood in a building. Sometimes there may be a secondary termite colony above the soil (in the roof or other areas with a constant moisture supply) that requires additional treatment. Insecticide barriers may be established during or after building construction. In an existing building, termite treatments may involve any of the following procedures: a) mechanical alterations and/or b) use of an insecticide to treat the soil, foundation and wood. In most cases, it is beyond the ability of an untrained person to attempt the termite treatment, unless it is a spot treatment or a person has work experience in this area.

Generally, termite treatment should be performed by professional pest control operators. Termite treatment requires special tools such as hammer drills, sub-slab injectors, rodding devices, engines equipped with pumps, protective equipment, etc. Several insecticides are registered in Nebraska for termite control. Several baits also are available for termite control. Some of these baits are available only through commercial pest control professionals. Over the counter bait products may not provide satisfactory termite control. Make sure to discuss and understand the contract and conditions involved in use of baits for termite control if you hire a pest control professional. Please refer to the University of Nebraska, Cooperative Extension Division publication EC91-1556, Subterranean Termites and Their Control. All of these insecticides control termites if applied properly.

### **Caution**

1. Do not apply insecticides when soil is frozen or saturated with water. Frozen or saturated soil will not absorb insecticide uniformly.
2. Do not let humans and pets touch treated surfaces until surfaces are dry.
3. Before using insecticides for termite control, always READ, UNDERSTAND AND FOLLOW all label directions.
4. Keep all pesticides in original containers, out of reach of children and away from food, feed and water.
5. Do not plant food crops in treated soil.
6. Do not allow children and pets to play in treated soil.

For additional details on termite management, please refer to EC91-1556, Subterranean Termites and Their Control, published by NU Cooperative Extension, University of Nebraska-Lincoln.

**"The applicator is responsible for effects of insecticide use. The information provided in this publication does not supersede the insecticide label specifications. In case of an emergency, you may call:**

**CHEMTREC (Pesticide Emergency Network)  
Phone No. 800 424-9300."**

Again, for additional details on termite management, please refer to EC91-1556, *Subterranean Termites and Their Control*, published by the Cooperative Extension Division, University of Nebraska-Lincoln.

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