

Subterranean Termites

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The advent of centrally heated homes has made it possible for termites to become a threat in virtually every region and state in the U.S. On the average, there could be as many as 13 to 14 subterranean termite colonies per acre, which means that a typical home may easily have three to four colonies situated under or around it. And because there can be as many as 1,000,000 subterranean termites per colony, the threat of infestation becomes a very real one indeed.

Cause more damage to homes in U.S. than storms and fire combined; colonies can contain up to 1,000,000 members.

Subterranean termites nest in the soil to obtain moisture, but they also nest in wood that is often wet. They easily attack any wood in contact with the ground. If the wood does not contact the soil, they can build mud tunnels or tubes to reach wood several feet above the ground. These tunnels can extend for 50-60 feet to reach wood and often enter a structure through expansion joints in concrete slabs or where utilities enter the house.

Winged termites emerging from the ground out-of-doors near the house does not necessarily mean the house is infested, but it is a good reason to check further. Termites in the wood of homes or other buildings usually come from colonies already established in the soil.

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Subterranean Termite Biology

Termites are small, ant-like insects. However, they differ from ants in that they feed off the cellulose in wood. Working largely unseen under the surface, they can tunnel through the wooden structural members in buildings and completely destroy them. Wood that comes in contact with the soil, such as the exterior trim or cladding on your home, provides a perfect point of entry for a termite colony.

Termites are social insects that live in colonies where labor is divided among a caste system. They have reproductive and soldier castes. In many termite societies there is also a distinct worker caste, but the typical duties of workers(nest building and food gathering and feeding the reproductives and soldiers) are handled by nymphs as well. Workers and nymphs do all the work, soldiers sole job is to defend the colony.

Winged adults are often called swarmers, they are primary reproductives. They emerge from the colonies on colonizing flights during certain seasons in the year. After the flights, the male(king) and female(queen) will pair up, lose their wings and construct a small cell in the soil. They will mate,lay eggs, and rear the first group of workers. In colonies where the primary reproductives are not present, secondary reproductives (without color or functional wings)often occur in large numbers.

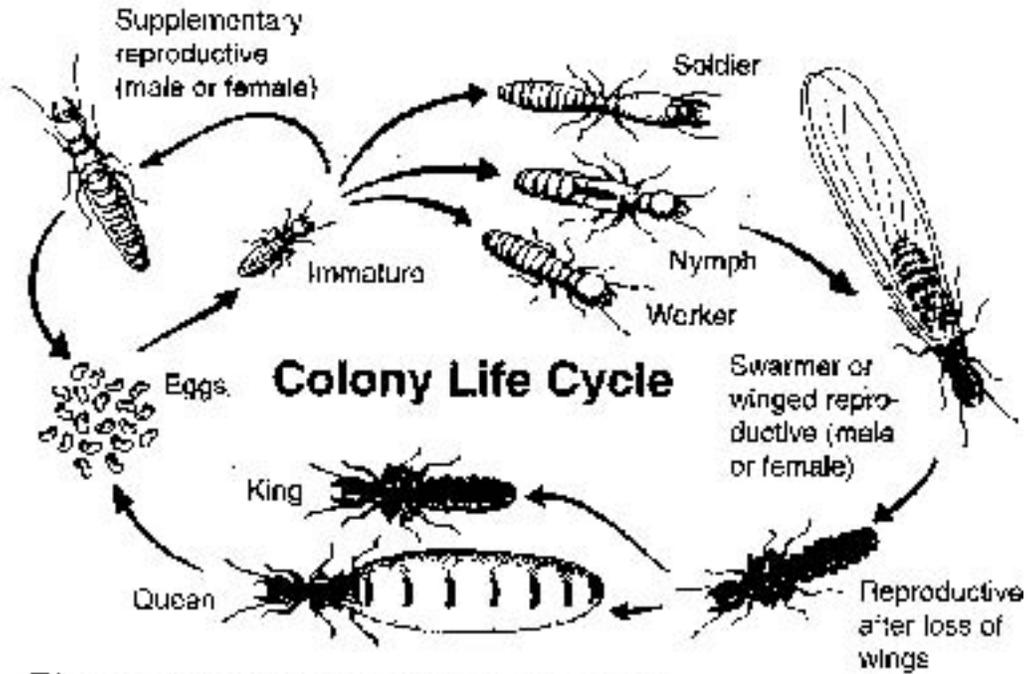
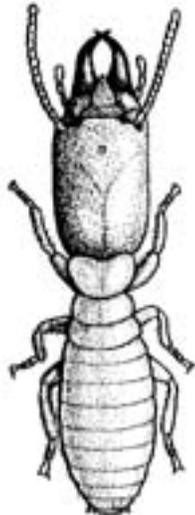


Figure 1. Typical subterranean termite life cycle.

Subterranean Termite Biology - Click on Links to Enlarge and see more Description

	<p><u>Nymphs</u></p> <p>These immature termites develop into workers, soldiers or reproductives. As the nymphs become larger, they also begin to damage wood.</p>
	<p><u>Soldiers</u></p> <p>These termites protect the colony. They have enlarged jaws called mandibles, which they use to defend the colony. They look like workers, but their heads are enlarged and darker colored than the workers. They comprise only 1 to 3 percent of the foraging termite population</p>



Workers

These are the termites that cause most of the damage by eating wood, but they also maintain the colony, build and repair the nest, forage for food, and help care for the young. Workers are the most numerous of the three castes.



Reproductives

Reproductives can be primary or secondary. The secondary termites are found in mature colonies and serve as replacements if something happens to the primary reproductives. Winged reproductives (alates) are coal black to pale yellow-brown, flattened and about 1/4 to 3/8 inch long, with pale or smoke-gray to brown wings. Alates are also known as "swarmers."

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Formosan Subterranean Termites

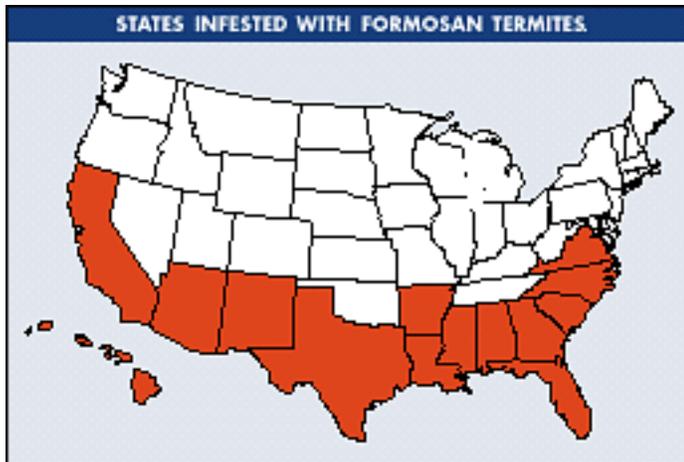
These "supertermites" were introduced to the coastal regions of the United States after WWII.

Formosan termites are 1/2-inch long; the winged reproductives are pale yellow to brownish yellow, and the hairy wings have two dark veins at the leading edge

The soldiers have an oval head with massive toothless mandibles which cross at the tips. Formosan termites have been found in the Gulf Coast states, along the eastern seaboard north to North Carolina, as well as in Tennessee, California, and Hawaii.

Formosan termites are subterranean termites which usually live in the ground, build mud tubes, and construct carton nests which consist of soil and wood cemented together with saliva and feces.

The carton nests of Formosan termites retain moisture and enable colonies and satellite colonies to establish aerial nests and survive without maintaining contact with the soil. Swarms appear on warm and rainy days, around dusk, and continue into the evening. Formosan swarmers are often attracted to light.



	Native Subterranean Termite	Formosan Termite
Average Colony Size	100,000 up to 1 million.	Ten million or more. The largest known single Formosan termite colony was found in a public library building in Algiers, Louisiana. The colony exceeded 70 million termites within a nest weighing approximately 600 pounds.
Aggressiveness	Moderately aggressive; a typical colony will consume about 7 pounds of wood per year. Termite shields (properly installed) are reasonably effective in helping to control. Percentage of soldiers in a typical colony is less than 2%, making them somewhat vulnerable to outside predators like ants.	Extremely aggressive; a typical colony will consume over 1,000 pounds of wood per year. Termite shields are less effective. Formosan subterranean termites will go through thin sheets of metal, mortar, PVC pipe, electric power lines and telecommunications lines to get to wood or cellulosic material. This termite will eat wood, paper, books, furniture — anything cellulosic. A typical colony has 10% to 20% soldiers and therefore is much less vulnerable to outside natural predators.
Adaptability	Moderately adaptable; more limited range; species is ground-dependent for water, making it easier to detect via mud tubes. If present in the structure, they are usually concentrated at the first-floor level. Prefers wet dead wood. Will not ordinarily infest living trees.	Extremely adaptable; not ground-dependent for moisture; can live off water condensation even at attic level. Builds carton nests in walls and roofs; carton nest serves as a satellite home, trap-ping and conserving water. Very difficult to detect in closed structures until severe damage has been done. Also attacks and causes severe damage in a broad species range of living trees; they prefer hardwoods like oak, gum and maple, but will attack softwoods including Southern Pine. Much more

		adaptable to varying soil types, climates, and settings — urban to the wild.
Mobility	Moderate to low; ground dependent; and relatively weak flyers in the alate (flying stage) form.	Very mobile; move around extensively when disturbed; not ground dependent. Ablates are proportionately stronger flyers.

The state of Louisiana has been hit very hard with them.

For a much greater understanding of these subterranean termites go to: [Louisiana State University](#)

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Prevention and Control for Subterranean Termites

Mechanical Alternation:

Avoid moisture accumulation near the foundation. Divert water away with properly functioning downspouts, gutters and splash blocks. Ground near the foundation needs to be sloped or graded in order for surface water to drain away from the building. Termites and ants are attracted to moisture.

Reduce humidity in crawl spaces with proper ventilation. Crawl spaces should have ventilation openings in the foundation at the rate of two square feet per 25 linear feet of foundation wall. One vent needs to be within five feet of each exterior corner of the building. This helps keep the ground dry and unfavorable for termites. Prevent shrubs, vines and other vegetation from growing over and covering the vents. It is important to have maximum cross-ventilation. Install polyethylene sheeting over 75 to 85 percent of the soil surface in crawl spaces to reduce excess moisture.

There should be no contact between the building woodwork and the soil or fill. Exterior woodwork should be located a minimum of 6 inches above ground and beams in crawl spaces at least 18 inches above ground to provide ample space to make future inspections.

Sanitation

Before and during construction, never bury wood scraps or waste lumber in the backfill, especially near the building. Be sure to remove old form boards, grade stakes, etc. left in place after the building was constructed. Remove old tree stumps and roots around and beneath the building. Never stack or store firewood lumber or other wood products against the foundation or within the crawl space. Prevent trellises, vines, etc. from touching the house. (Prevent any potential hidden paths of termite entry into the structure which could bypass any termiticide soil barrier already in place.)

TERMITE BAITING TREATMENTS

Soil Treatments

Application of termite treatments to the soil and adjacent to the building forming a continuous barrier.

Foundational Treatments:

Foundational treatment is the application of termiticide to a foundation setting up a barrier against the termites. The objective is to place termiticide in all cracks at the footing as well as through the cracks in the foundation wall which may lead to the ground outside. Treating the inside of hollow concrete walls is an example of foundational treatment. The foundations are generally of three types: Slab, Basement, and Crawl space.

All three types of construction will require specialized treatment to form this chemical barrier. Treatment outside the structure may involve trenching and treating or rodding to treat the soil on the outside of the foundation, rodding beneath slabs, or vertical drilling and treating of outside slabs, stoops or porches. Treatments inside may involve trenching and treating the soil along foundation walls in crawl spaces, vertical drilling and treating slab foundations, rodding around bath traps and other utility openings, or treating wood directly.

Concrete Slab Construction: It is possible to trench around the outside of a slab after it has been poured, but this alone usually will not give satisfactory control because the termite colony may be entering the structure from the soil under the slab.

For more information on chemical treatments for subterranean termites go to:

TRADITIONAL TREATMENTS-LIQUID BARRIERS

Homeowners are not equipped to treat under slabs after the slab foundation is completed. A professional pest control operator usually is needed to do subslab chemical injections

Wood Treating:

Borates (disodium octaborate tetrahydrate) such as Timbor or Boracare and/or pressure-treated wood (chromated copper arsenate) protects against termites and wood decay fungi. However, even railroad ties, telephone poles and pressure treated wood, over time, can be subject to termite attack. Mud tubes can be built over the surface or entry gained through cut and cracked ends.