



Drywood Termites

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In nature, termites are scavengers that feed on wood, paper and other materials that contain cellulose. This process returns nutrients to the soil. However, when termites invade buildings, they can cause serious structural damage. In fact, termites cause more than \$1.7 billion in damage each year in the United States.

Distribution

Drywood termites are found throughout the state of Texas, with the highest concentrations along the Gulf Coast (Fig. 1). Subterranean termites are also found in Texas, and are easy to distinguish from drywood termites. Colonies of

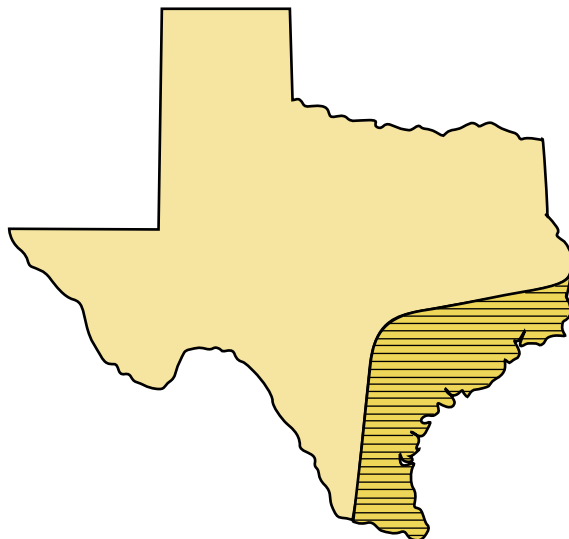


Figure 1. Distribution of drywood termites in Texas.

subterranean termites are located in the soil, while drywood termites live in sound, dry wood. They need no contact with soil because the wood they digest provides the moisture they need to survive.

Life Cycle

Like ants and bees, termites are social insects that form colonies (Fig. 2). A pair of reproductive termites, called the “queen” and

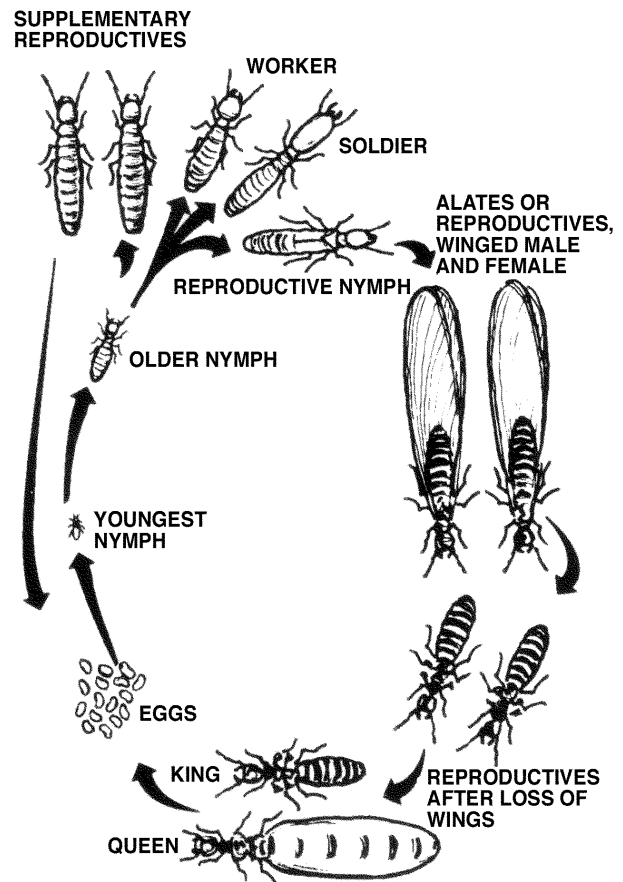


Figure 2. Termite Life cycle.

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“king,” build a nest in wood. In structures, termites prefer to nest under the roof, shingles, siding or eaves. The pair mates and the queen begins to lay eggs. When the newly hatched termites are large enough to consume wood, they form a worker caste that tends to the nest and feeds the other termites. It is the workers that damage wood. When workers mature they become either soldiers or reproductives. The soldier caste protects and defends the colony from outside invaders such as ants and other termites. In late August and early September, reproductives develop wings and swarm from the nest. Within a few minutes after swarming, the male and female termites pair, shed their wings, and begin to search for a suitable nest site.

Ants often swarm at the same time of year as termites. It is easy to distinguish ants from termites (Fig. 3).

Identification

There are three common species of drywood termites in Texas. Reproductives of the most common species, *Incisitermes snyderi*, are $\frac{7}{16}$ inch long; light yellow with clear, uncolored wings; and swarm at night (Fig. 4a). Reproductives of the second species, *Cryptotermes brevis*, are similar to the first. The third species, *Incisitermes minor*, was introduced from California. Its reproductives are slightly longer ($\frac{9}{16}$ inch); have dark bodies and yellow, brown or colorless wings; and swarm in the daytime (Fig. 4b). Soldiers of all species are about $\frac{5}{16}$ inches long and have dark yellow heads armed with strong mandibles projecting to the front. They never have wings (Fig. 5, left). The worker termites are smaller than soldiers and have soft, white bodies (Fig. 5, right).

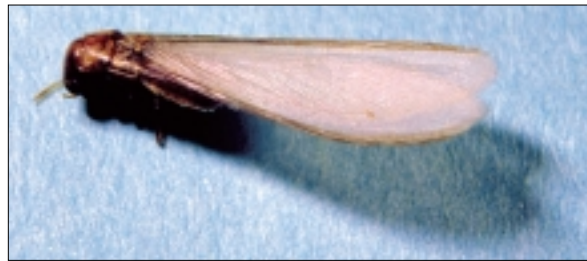


Figure 4a. Reproductive of the species *Incisitermes snyderi*.



Figure 4b. Reproductive of the species *Incisitermes minor*.



Figure 5. Soldier (left) and worker (right) termites.

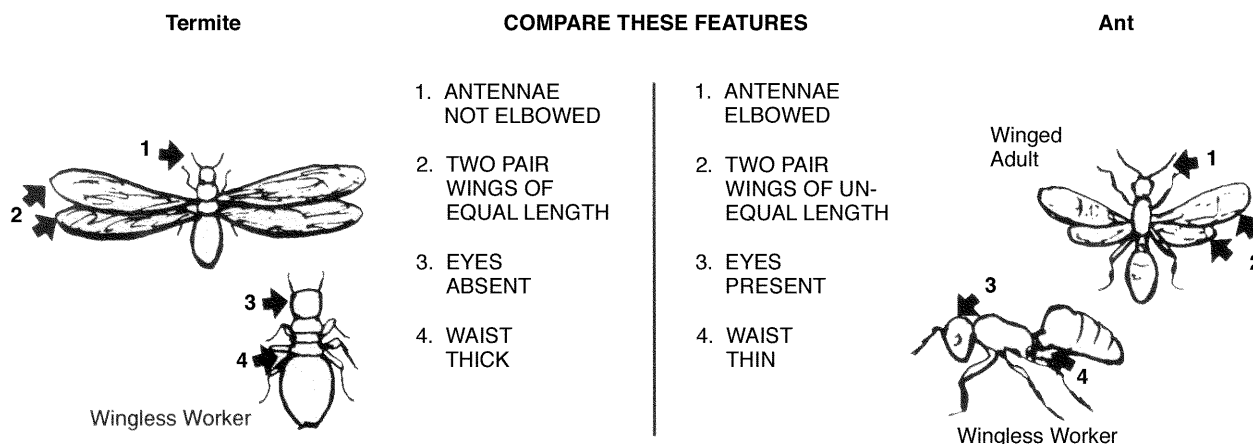


Figure 3. A comparison of termites and ants.

Signs of Infestation

The first sign of a drywood termite infestation usually is reproductives swarming from small openings in the surface of wood. If the swarmers are found inside a structure, then the infestation is almost certainly in the structural timbers of the building. If the termites are found outdoors, they may have come either from within the structure or from nearby timber or brush. To confirm an infestation, search inside for termite bodies and wings in light fixtures and cobwebs, and on window sills.

Also look for fecal pellets (Fig. 6). These pellets can be almost any color. They are about $\frac{1}{32}$ inch long and, when viewed with even modest magnification, show a long dimple or flute down each surface. The pellet also appears to be six-sided, blunt at one end and pointed at the other. Fecal pellets of this size and shape are unique to drywood termites. The termites push the pellets out of the nest through openings in the surface of the wood known as “kick holes.” These openings are about $\frac{1}{16}$ inch in diameter and usually have a few fecal pellets lodged in them.



Figure 6. Termite fecal pellets.

Characteristics of Damaged Wood

A drywood termite infestation can be confirmed by inspecting the structural wood in the building (Fig. 7). These termites consume both the soft springwood and the harder summerwood of timbers, giving their galleries a sculp-

tered appearance. The galleries also contain fecal pellets. These characteristics distinguish drywood termite damage from that caused by other kinds of termites. For example, subterranean termites usually consume only the springwood, leaving alternating layers of damaged and undamaged wood. The galleries of the subterranean termite also contain soil. Formosan termites consume summerwood as do the drywood termites, but their galleries contain no fecal pellets.



Figure 7. Wood damage.

Prevention

It is very hard to keep drywood termites out of wood frame structures. One way is to use non-wooden building materials. Any exposed wood should be painted or varnished, which keeps termites from entering the wood. Wood that is pressure treated with ACZA, CCA, or borates also resists invasion.

Treating wood with silica aerogel dust or compounds that contain boron will keep drywood termites from penetrating wood surfaces, as long as a sufficient concentration of chemical is used.

Drywood termites enter structures through attic and foundation vents, under eaves and fascia boards, and through gaps around doors and windows (Fig. 8). Attic and crawl space vents can be covered with 20-mesh screen wire to prevent drywood swarmers from entering those areas. Use caulk around doors and windows.

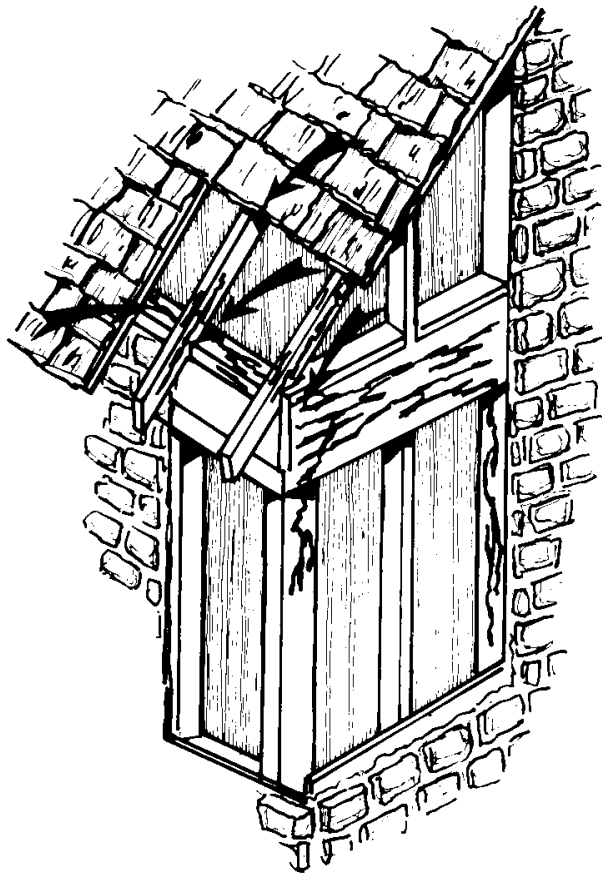


Figure 8. Termite entry points.

Inspection

A thorough inspection is necessary to confirm a drywood termite infestation, assess the damage, and determine the correct treatment (Fig. 9). Inspections should be conducted by pest control operators licensed in the category of Termite or Structural Fumigation.

The shingles and the roof structure should be inspected for depressions that indicate weak or collapsed areas. Fascia boards and eaves should be inspected for “kick holes.” Also check these areas for spider webs that



Figure 9. Inspection points.

might have trapped swarming termites or fecal pellets. Wooden siding should be inspected along its lower edges for drywood termite damage. Horizontal surfaces, such as the upper surface of the ceiling in the attic, should be inspected for accumulations of fecal pellets. In pier-and-beam construction, check sills and floor joists for damage and the soil beneath them for fecal pellets. Indoors, check light fixtures, spider webs, and window sills for dead swarmers or discarded wings.

Treatment

Treatment must always be done by a certified pest control operator. There are several treatment methods.

Direct wood treatment

Some control techniques are directed at the individually infested pieces of timber or lumber. This is useful only when all infested wood can be located.

Wood removal and replacement. The infested wood can be removed and replaced with sound wood.

Pesticide injection. Infested wood can be drilled and injected with pesticides. The pesticides will enter the termite galleries and kill the colony.

Excessive cold or heat. Applying liquid nitrogen lowers the temperature in the center of an infested timber to -15 degrees F. There are also treatments that raise the temperature in the center of infested timbers to 120 degrees F for at least 60 minutes. Either method kills termites inside the wood.

Electricity. An electrical device (Electrogun®) is available to treat the surface and the interior of infested wood. Researchers report that the device will kill drywood termites in the areas treated.

Microwaves. Exposing infested timbers to microwaves at 700 watts will kill termites.

Whole structure treatment

The most common treatment for drywood termite infestations is tent fumigation of the structure. To do this, the structure is covered with a tarp and a toxic gas is released within the covered structure (Fig. 10). Fumigants containing methyl bromide or sulfuryl fluoride are effective. These gasses penetrate infested timbers and kill all termites present. Both gasses are extremely toxic, and the law requires that the structure be kept under constant guard during the fumigation.

Effectiveness of Treatments

Research has shown that only fumigation, excessive cold and excessive heat kill all the termites in a colony. If even a few workers survive, they can tend the eggs and sustain the colony.



Figure 10. Covered structure fumigation.

The gasses dissipate from the structure when the fumigation ends and the tarps are removed. The whole process may require several days, depending on local conditions. The structure cannot be used during that time. Tent fumigation gives no residual protection against termite reinfestation.

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