

TERMITES AND WOOD DESTROYING ORGANISMS

Wood destroying organisms take many forms such as termites, old house wood borers, powder post beetles and death watch beetles. All of these insects attack dry seasoned timber or wood products. While these insects can be very destructive, wood destroying fungi (wood rot) can also cause major wood decay over time and a significant economic impact on buildings.

Wood rot is caused by wood destroying fungi which are a living organism. It can occur in timber or wood products when the moisture content is generally greater than 20% over a sustained period of time or by repeated wetting and drying cycles. Wood decay fungi can also occur in seasoned wood products when the humidity level exceeds 65-70 percent or so for sustained periods of time.

CARPENTER ANTS

Carpenter ants are not generally considered a wood destroying insect because they do not feed off the wood or wood products, but rather eat organic matter. However carpenter ants do like to make their nest in moist or damp wood and will chew out surrounding seasoned wood to enlarge their nest, leaving piles of undigested sawdust like chips near their nest. In that way carpenter ants can cause wood damage, but not nearly to the extent of other wood destroying organisms including wood decay fungi.

CARPENTER BEES

Carpenter bees like carpenter ants in most cases are not considered a wood destroying insect by quasi-legal definition because they do not feed off wood or wood products. They will hollow out seasoned dry wood such as a fascia board of a building or portions of a wooden deck to make a nest. Carpenter bees leave behind tell-tale evidence of their presence in the form of undigested fine powdery sawdust.

SUBTERRANEAN TERMITES

The most common and therefore most destructive type of termite found in North America is the subterranean termite. So named because they make the nests in the soil from which they obtain the necessary moisture to survive. Subterranean termites are present in most areas of North America, although they are generally in much larger concentrations in southern regions of the

United States. The vast majority of termites occur in the tropics. As a matter of interest, The University of Toronto, Department of Entomology recently reported, "That as of 1995 there were approximately 2,753 validly named termite species in 285 genera in the world." On a recent trip to Australia the author observed above ground termite mounds as high as six feet or more. Approximately, 45 species occur in the United States in every state except Alaska. However, most of these species are found in the southern regions United States. The US National Research Council has reportedly stated that subterranean termites cause more economic damages than do earthquakes, tornados, floods and hurricanes. Subterranean termites with few exceptions live in colonies in the ground in a very structured social environment with workers, soldiers, kings and queens all doing their assigned tasks. They have the ability to tunnel in the soil. This ability to tunnel allows them to locate multiple sources of wood and or cellulose. They travel through mud tubes to reach food sources above the soil surface. Their colonies can number from thousands to several million. They have a highly developed sense of smell which, along with their antennae, acts as their guidance system, because many have limited sight or none at all. They secrete a hormone called pheromones for trail making, caste regulation, attraction and communication. Their bodies are about 1/8 inch long, are non-segmented in that the head and abdomen are continuous, unlike an ant which has a distinctively segmented body with a head connected by a throat-like body part to an abdomen and a narrow waist connecting the tail section.

SUBTERRANEAN TERMITE REPRODUCTIVES

The alates or swarmers have four wings of equal length. During the swarming season (generally between March and June depending on the region of the country and warmer temperatures) these reproductive swarm from the colony usually during daylight hours after a rain and then shed their wings. Shed wings are definite evidence of termite activity. Subterranean can create significant structural damage over time. Based on personal experience in the termite capital of the US here in sub-tropical South Florida, termites will generally be in the wood at least three years before any termite activity becomes evident. They will eat the soft spring growth between the growth rings, leaving the wood looking somewhat like the pages of a book. Termites do not eat live wood. Termites remain hidden within the wood or wood products containing cellulose upon which they are feeding. They construct galleries or tunnels in an irregular pattern and travel periodically via shelter tubes to their nest to regain moisture and perform feeding and grooming duties. Mud tubes are approximately the size of a fat pencil and an active infestation will contain pale white termites about the size of a grain of rice. Mud tubes are solid evidence of termite activity. Termite activity can also be located by probing or sounding wood by tapping on the wood with the handle end of a screwdriver or sharp awl or a broom handle type tapping stick, in a non-destructive manner. Termites will eat the wood right up to the paint but not through the paint. That is why tapping for sound and probing are so important.

The most common treatment for subterranean termite eradication is to establish a continuous barrier between the termite colony and wood in buildings. By treating the soil around the perimeter of the building and the interior foundation when accessible with an EPA approved liquid insecticide and effective termite barrier is created. In Florida and many southern states a liquid barrier is applied to the soil just prior to the pouring of the concrete slab and foundation in new construction to act as an effective subterranean termite barrier. The newer generations of

termite insecticides are bio-degradable which means that they will decompose in the soil over time.

FORMOSAN TERMITES

The Formosan termite is a subterranean and is considered one of the most destructive and aggressive species in the world. This very aggressive termite is a major problem in Hawaii and has infested cities along the Gulf Coast including as far north as Baton Rouge, LA. Atlantic coastal cities in Florida and as far north as Charleston, SC have also been infested.

Entomologists feel that eventually this termite may travel along the Southern Pacific Coast. Formosan termites feed on cellulose like other termites but they have been known to tunnel through asphalt, rubber, lead, plaster and mortar to get to the wood. They have been found as high as the tenth floor of a condominium building in Hallandale, FL according to entomologist Dr. Philip Koehler of the University of Florida. Probably the most significant reasons these insects are so destructive is because of the size of their colonies and massive swarms of winged reproductive these nests produce. A colony may have 1,000,000 to 2,000,000 workers as compared to the more common eastern subterranean termite colony of 60,000 to 100,000 workers.

The primary nest of the Formosan termite is in the ground. However, these termites are capable of making aerial nests when moisture conditions are right. Primary and aerial nests are made of a material called carton, which is a mixture of saliva, chewed wood, and fecal material. The nests are capable of storing considerable water in this sponge-like material.

DRYWOOD TERMITES

Drywood termites are found in a narrow band from southern Virginia to Florida and along the Gulf Coast also, from Mexico to northern California along the Pacific Coast. Their economic impact is not nearly as great as subterranean termites because they are not as widespread and their colonies are relatively small (about 2500 insects.) Drywood termites can live in a very dry environment with less than 10% moisture content in the wood. They will attack any wood product and are occasionally transported in furniture. They have no connection to the ground and they do not need a soil contact for moisture. Drywood termites do not build shelter tubes or mud tunnels and their excrement is dry, producing a pellet commonly referred to as "frass." It is this frass that usually alerts an inspector to an infestation. The frass has very distinguishing characteristics as the pellets are hard, with round ends and have six concave surfaces on their sides. The pellets are about the size of a grain of sand and will usually be the color of the wood that has been eaten. These Drywood termites eat across the grain of the wood, excavating large chambers which connect to other chambers or tunnels. These chambers and tunnels are kept clean and the excrement and other debris are stored in unused cavities. These termites will create small openings in the wood – usually 1/16 to 1/8 inch and kick out the excess frass. In many cases, small piles of the frass can be found near infested wood. Another indication of a Drywood

termite infestation will be the presence of wings and body parts after a swarm of reproductives has occurred. The wings of a Drywood termite have cross veins which distinguish them from a subterranean termite wing which has no cross veins. To eradicate a Drywood termite infestation the most common treatment is what is referred to as a tent fumigation wherein sealed tarpaulins are draped over the building and a fumigant is released under very strict guidelines and under the supervision of a trained Pest Control Operator. The most commonly used fumigant at this time is Vikane® a gas produced by Dow Chemical Company®.

Everett Rawlings is a Florida State Licensed, Certified Pest Control Operator in the categories of Termites and other WDO and in Fumigation. He has performed over 5000 WDO inspections since 1990 and has supervised more than 45,000 inspections in his multi-inspector home inspection business. He is a member of the Certified Pest Control Operators Association.