# Formosan Subterranean Termite:
# A Threat to Texas' Forests
# Tenth of the "Dirty Dozen"

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Editor's Note: An introductory article discussing exotic invasive pests that could threaten forest resources in Texas appeared in the June 2005 issue of *Texas Forestry*. As a follow-up to that article, a series of 12 short articles about specific exotic pests that are either present in Texas or are at our doorstep is being presented in *Texas Forestry*. The authors (Joe Pase, Ron Billings, and Kim Camilli) are calling this series the "Dirty Dozen." Last month, Kim described Japanese honeysuckle, the ninth pest in the series.

When a homeowner hears the word termite, the emotions of dread and fear are often evoked. With more than 2,600 termite species worldwide, the Formosan subterranean termite (FST), *Coptotermes formosanus*, is the most widely distributed and one of the most economically important. The Formosan subterranean termite is probably endemic to southern China and arrived in the United States in the middle to late 1940s. The first report in Texas was in Harris County in 1956. Since that time, FSTs have been documented in 25 Texas counties, including Anderson, Angelina, Henderson, Gregg, Jefferson, Liberty, Orange, Polk, and Smith counties in East Texas (see distribution map).

Following Hurricane Katrina, there has been much concern about spreading FSTs in wood mulch and salvaged lumber from New Orleans and surrounding areas. Undue alarm has been generated by an e-mail indicating mulch from the new Orleans area will be responsible for spreading FSTs all over the United States. Although it is remotely possible to spread FSTs in bulk or packaged mulch, it is not a cause for alarm. The Louisiana Department of Agriculture and Forestry has quarantined the movement of any wood materials from southeast Louisiana parishes unless these materials have been treated, inspected, and certified by the proper authorities. In addition, the Texas Department of Agriculture has placed entry restrictions on wood materials from southeast Louisiana that could contain FSTs. It is very unlikely that homeowners will purchase mulch that is infested with FSTs.

A more likely source of FST infestations is from recycled railroad ties often used as landscape timbers. The interior core of treated railroad ties may harbor FSTs because creosote usually doesn't penetrate through all the wood. Any wood products used in landscaping should be closely inspected for the presence of FSTs or other pests.

Like many social insects, termites develop in colonies consisting of specialized individuals that perform specific tasks. Colonies of FSTs contain three primary castes: reproductives (which include the queen and winged swarmers), soldiers, and workers. Workers comprise most of the colony and their job is to collect cellulose (present in wood and wood products). Winged swarmers and soldiers are most useful for identification.

Just like subterranean termites native to the United States, FSTs will build mud tubes to connect the soil to a source of cellulose. However, FST nests do not always require a connection to the soil. They will also swarm when large numbers of winged male and female termites leave

the nest (disperse) to start a new colony. Do you remember the song for a commercial that went like this: “When termites are swarming, be sure to take warning . . . . . .?” The truth of this song holds true for FSTs as well as native subterranean termites.

There are some distinct differences between FSTs and native subterranean termites. Winged swarmers of FSTs are large for termites – about one-half inch long. Dispersal flights or "swarms" usually begin at dusk on calm and humid evenings and may occur from April to July. They are attracted to lights. Native subterranean termite swarmers are smaller in size, swarm during the day in spring, and are not readily attracted to lights.

The head of FST soldiers is orange-brown in color and has a distinct oval shape. When disturbed, soldiers become very aggressive and will bite any intruder with their curved mandibles. If a person places his/her finger among disturbed FST soldiers, they will readily bite and hold on. Native subterranean termite soldiers have a rectangular-shaped head and rarely bite intruding fingers. FST workers are difficult to distinguish from native subterranean termite workers.

Dispersing winged swarmers are weak fliers and after a brief flight, their wings are shed. With a male following close behind (like the engine and a caboose of a train), females immediately begin searching for a nesting site. When the pair finds a suitable site (typically a moist crevice with cellulose), they attempt to form a new colony. When FSTs are successful in starting a new colony, it may take three to five years before this colony will cause significant damage and produce swarmers.

FSTs will construct above-ground nests of chewed wood, saliva, soil, and fecal material commonly called a carton. Carton nests may occur in wall voids, beneath sinks, or in other areas where humidity is high. They can be located above ground and soil contact is not required, especially in humid climates.

Any wood-to-ground contact is an invitation for FSTs and native subterranean termites. FSTs are persistent and are good at finding small cracks in concrete, which they will use as foraging routes. It has been said that FSTs can chew through solid concrete, but this is a myth. FSTs and native subterranean termites cause the same type of damage; however, FSTs can cause damage in a shorter period of time. In addition to feeding on cellulose in structures, FSTs are known to attack sapwood and heartwood in living trees. In historic areas of New Orleans, living trees (especially live oak trees) have, in effect, been eaten from the inside out by these termites, causing the trees to “fall over” because the structural wood that supports the tree has been removed. The control and repair costs in the city of New Orleans due to FSTs have been estimated at $300 million annually.

Management of FSTs and native subterranean termites, especially in structures, is similar. Tactics include prevention, use of approved insecticides, and bait stations. Detailed control information for termites is beyond the scope of this article. Generally, it is recommended that a qualified and licensed pest control operator (PCO) be used when treating any termite species in structures. Much information about FSTs and other termites can be found on the internet. When searching the internet, glean information about termites from reliable web sites such as state,

extension, and university sites. One good source of information is the termite web site (http://termite.tamu.edu) maintained by the Center for Urban and Structural Entomology at Texas A&M University.

If you suspect you have an infestation of FSTs, collect some winged swarmers or some soldiers by placing them in isopropyl alcohol and contact Joe Pase at the Texas Forest Service, by e-mail (jpase@tfs.tamu.edu) or by phone (936-639-8170).

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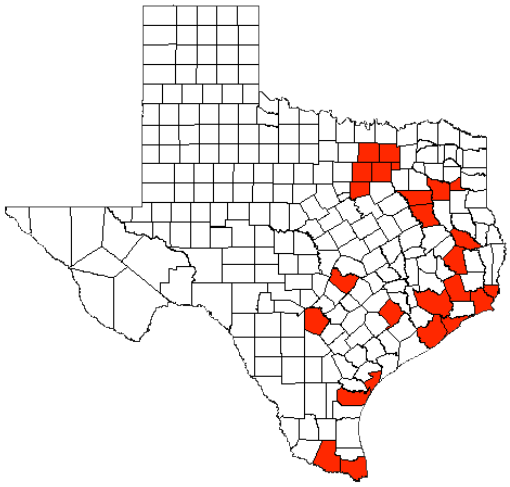
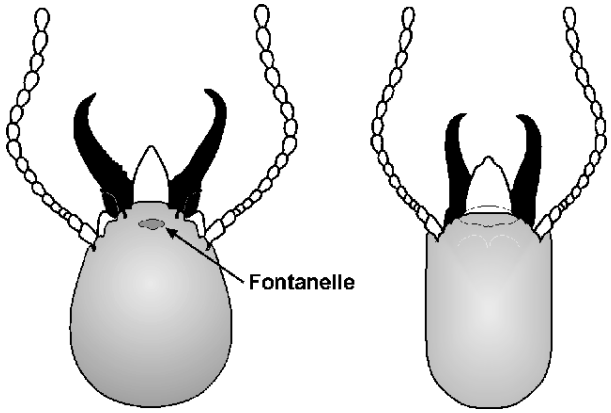


**Reported distribution of Formosan subterranean termites in Texas**
(From: http://termite.tamu.edu/formosan.html#)




**Head of soldier: FST (left) and native subterranean termite (right)**
(From: Formosan Subterranean Termite by B. J. Cabrera, N.-Y. Su, R. H. Scheffrahn, F. M. Oi, and P. G. Koehler, Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: December 2005. Graphic by J. Perrier)

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