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NEW PARISH RECORDS OF *COPTOTERMES FORMOSANUS* (ISOPTERA: RHINOTERMITIDAE) IN LOUISIANA

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The Formosan subterranean termite (FST), *Coptotermes formosanus* Shiraki (Isoptera: Rhinotermitidae), is 1 of 9 termite species currently present in Louisiana (Messenger 2002). The FST is a destructive, introduced pest species indigenous to Southeast China. Its transport from the Pacific theater following WWII resulted in the establishment of this economically important pest in multiple port cities, including New Orleans and Lake Charles, LA (Spink 1967). Since its original introduction, the distribution of the FST has increased both within the state of Louisiana and throughout the southern United States (Messenger et al. 2002; Woodson et al. 2001). Populations of FST have been reported to be established in Texas, Mississippi, Florida, Alabama, Georgia, North Carolina, South Carolina, California, and Tennessee (Su & Tamashiro 1987; Sponsler et al. 1988; Scheffrahn et al. 2001; Woodson et al. 2001; Messenger 2003). Although some increase in range is expected via seasonal nuptial flights (Messenger & Mullins 2005), human transport of infested materials has been implicated as the primary cause of its rapid increase in distribution (La Fage 1987; Scheffrahn et al. 2001; Messenger et al. 2002; Jenkins et al. 2002). In areas where it is established the FST is capable of supplanting native subterranean termites as the primary structural pest species (La Fage 1987). Formosan subterranean termites also routinely attack standing live trees and can cause extensive damage resulting in the weakening of the tree potentially to the point of failure (Osbrink et al. 1999). Because this insect poses an economic threat to wooden structures and live trees, it is imperative to document its increasing distribution throughout Louisiana and other southeastern states.

The most recent published survey of the FST in the state of Louisiana was conducted from 1999 to 2001. Results of the survey substantially increased the known range of the FST within the state and documented localized populations in 13 previously unconfirmed parishes (Messenger et al. 2002). Since that time, the City of New Orleans Mosquito and Termite Control Board has received a number of reports of FST infestations outside this documented distribution. An ongoing deliberate survey throughout much of Louisiana was initiated in the spring of 2006 with the objective of confirming these reports and documenting the current distribution of the FST within the state.

Active searches were conducted in wooded areas, cemeteries, public parks, and public and private buildings, which included schools, businesses, private residences, barns, and outbuildings. In addition, glue-boards (TRAPPER® LTD, Bell Laboratories, Inc., Madison, WI) were installed on light posts in suspected FST-infested areas. Locations of each trap and collection site were recorded with a Garmin GPSMAP® 60CSx (Garmin International, Inc., Olathe, KS) handheld global positioning receiver. When termites were encountered, specimens were collected into 90% ethanol. Termites were identified to species with published keys (Nutting 1990; Scheffrahn and Su 1994). Voucher specimens have been placed in the City of New Orleans Mosquito and Termite Control Board museum collection.

During the summer of 2006, FST populations were identified in 5 previously undocumented parishes (Allen, Beauregard, Iberville, Pointe Coupee, and St. John the Baptist). Collection site GPS coordinates were plotted with ArcView GIS version 9.1 software (Environmental Systems Research Institute, Inc., Redlands, CA) and are presented in Fig. 1.

Three of the collections were made after the authors received reports of localized FST infestations from pest control professionals and local residents. The FST was identified in Allen parish on 12 Apr 2006 in Kinder, LA (30.49179°N, 92.85046°W) when the area surrounding an address reported to have been infested was searched and specimens (workers and soldiers) were collected from a colony actively foraging at the base of a pecan tree (*Carya illinoinensis* (Wangenh.) K. Koch). Subsequently, winged reproductives were collected from 2 glueboards in the surrounding area, 30.49293°N, 92.85072°W and 30.49234°N, 92.85083°W, on 29 Jun 2006. Specimens were collected on 17 May 2006 in Blanks, LA (Pointe Coupee parish) from 2 standing sweetgum trees (*Liquidambar styraciflua* L.; 30.54606°N, 91.58675°W; 30.54590°N, 91.58665°W) and 1 pine (*Pinus* sp.) stump (30.54602°N, 91.58628°W). On 26 Jun 2006 specimens were collected from a pine stump in DeRidder, LA (30.85301°N, 93.26928°W), located in Beauregard parish.

Two additional collections were made during deliberate searches of areas suspected to have established FST populations. Workers, soldiers, and winged reproductives were collected on 26 Apr 2006 in St. Gabriel in Iberville Parish from colonies foraging at the base of a water oak (*Quercus nigra* L., 30.32064°N, 91.02072°W) and within 3 cut sections of a downed water oak (30.32052°N,

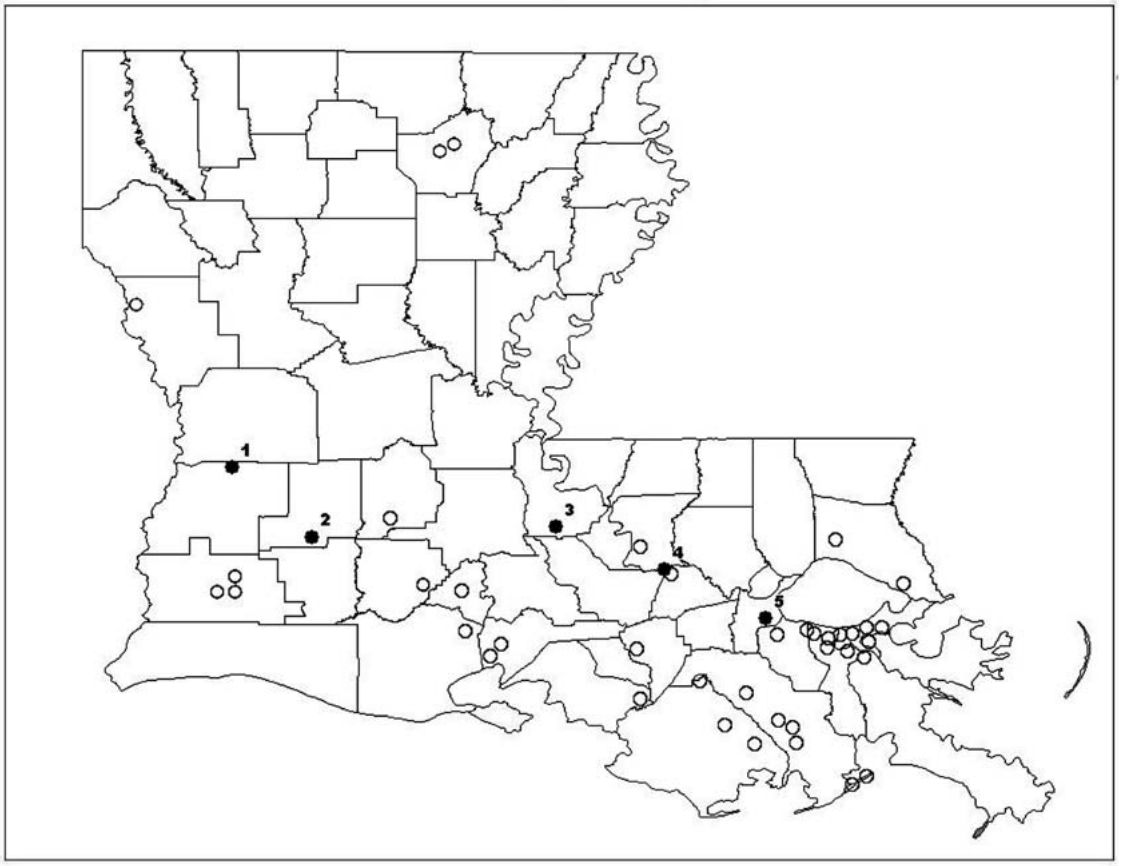

Fig. 1 State of Louisiana showing published distribution of *Coptotermes formosanus* (open circles) and locations of collection sites from the current survey (numbered, solid circles): 1) Beauregard Parish—DeRidder, 2) Allen Parish—Kinder, 3) Point Coupee Parish—Blanks, 4) Iberville Parish—St. Gabriel, 5) St. John the Baptist Parish—LaPlace.

91.02108°W; 30.32053°N, 91.02106°W; and 30.32057°N, 91.02106°W). The next collection was made on 27 Apr 2006 when specimens were collected from a live oak (*Quercus virginiana* P. Mill.) stump in LaPlace, LA (30.06938°N, 90.49949°W, St. John the Baptist Parish).

In addition to these new records, the FST was again confirmed in Monroe, LA (Ouachita parish) the site of extensive control efforts following confirmation of localized introduced populations in 2001 (Messenger et al. 2002). Specimens were collected from a fallen (32.53606°N, 92.14911°W) and standing (32.53597°N, 92.14937°W) sweetgum tree in a riparian area within the Monroe city limits. This established population continues to represent the northernmost boundary of the current FST distribution in Louisiana. Although represented as collection points in Fig. 1, FST populations are ubiquitous in Orleans and Jefferson parishes and have largely displaced populations of native *Reticulitermes* spp., especially in more urbanized areas of these parishes. FST populations, if unchecked, threaten to do the same in locations where they are introduced.

It remains likely that the distribution of the FST will continue to increase within the state of Louisiana via the unwitting transport of populations in infested building materials and landscape timbers. Increasing public awareness of the biology of the FST (i.e., identification), the scope of the FST problem within the state, common modes of its transport, as well as areas where it is currently established will undoubtedly aid in limiting the anthropogenic spread of this destructive species. The City of New Orleans Mosquito and Termite Control Board continues to survey the state with the intention of documenting the current distribution of the FST and investigating new reports.

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Summary

Five new parish records of the Formosan subterranean termite, *Coptotermes formosanus* Shiraki, an economically important pest species, are reported from Louisiana. Populations continue to be established as far north as Monroe, LA (Ouachita parish).

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