Technomyrmex difficilis (Hymenoptera: Formicidae) in the West Indies

Author: James K. Wetterer
Source: Florida Entomologist, 91(3): 428-430
Published By: Florida Entomological Society
URL: https://doi.org/10.1653/0015-4040(2008)91[428:TDHFIT]2.0.CO;2
TECHNOMYRMEX DIFFICILIS (HYMENOPTERA: FORMICIDAE)
IN THE WEST INDIES

JAMES K. WETTERER
Wilkes Honors College, Florida Atlantic University, 5353 Parkside Drive, Jupiter, FL 33458

ABSTRACT

Technomyrmex difficilis Forel is an Old World ant often misidentified as the white-footed ant. Technomyrmex albipes (Smith). The earliest New World records of T. difficilis are from Miami-Dade County, Florida, collected beginning in 1986. Since then, it has been found in at least 22 Florida counties. Here, I report T. difficilis from 5 West Indian islands: Antigua, Nevis, Puerto Rico, St. Croix, and St. Thomas. Colonies were widespread only on St. Croix. It is probable that over the next few years T. difficilis will become increasingly important as a pest in Florida and the West Indies.

Key Words: exotic species, Technomyrmex difficilis, pest ants, West Indies

RESUMEN

El Technomyrmex difficilis Forel es una hormiga del Mundo Antiguo que a menudo es mal identificada como la hormiga de patas blancas, Technomyrmex albipes (Smith). Los registros más viejos de T. difficilis son del condado de Miami-Dade, Florida, recolectadas en el principio de 1986. Desde entonces, la hormiga ha sido encontrada en por lo menos 22 condados de la Florida. Aquí, informo de la presencia de T. difficilis en 5 islas del Caribe: Antigua, Nevis, Puerto Rico, St. Croix y St. Thomas. Las colonias solamente fueron muy exparcidas en St. Croix. Es probable que la importancia de T. difficilis como plaga va a aumentar durante los próximos años en la Florida y el Caribe.

The white-footed ant, Technomyrmex albipes (Smith), has long been considered a pest in many parts of the world. Recently, however, Bolton (2007) reported that T. albipes is part of an Old World species group that includes 43 species, 4 of which have broad distributions: T. albipes, Technomyrmex vitiensis Mann, Technomyrmex pallipes (Smith), and Technomyrmex difficilis Forel. Bolton (2007) determined that many published reports of T. albipes were misidentifications. For example, T. albipes records in Deyrup (1991) from California and Wetterer (1997) from Hawaii were actually T. vitiensis; T. albipes records in Wetterer et al. (2006) from Madeira were actually T. pallipes; and T. albipes records from Florida in Wetterer & Wetterer (2003) and Wetterer et al. (2007) were actually T. difficilis. Bolton (2007) concluded that all published records of T. albipes from the New World were misidentifications and that all Technomyrmex specimens he examined from Florida were actually T. difficilis.

The earliest New World records of T. difficilis are from Miami-Dade County, Florida, collected in 1986 (Deyrup 1991; misidentified as T. albipes). Deyrup et al. (2000) noted that T. difficilis (misidentified as T. albipes) was spreading rapidly in Florida. By 2005, T. difficilis (misidentified as T. albipes) was known from 22 counties in Florida, as well as from Georgia, South Carolina, and Louisiana (Warner & Scheffrahn 2004; Warner et al. 2005). Here, I report on T. difficilis on 5 West Indian islands.

MATERIALS AND METHODS

The ants collected were determined to be T. difficilis as distinguished from T. albipes according to Bolton (2007) by “the presence of setae on the dorsum of the head behind the level of the posterior margin of the eye (never developed in albipes) and by having the promesonotum somewhat longer and more slender, DTI 127-135 (as opposed to DTI 110-124 in albipes)” (DTI = Dorsal Thoracic Index = length from anterior pronotal margin to metanotal groove × 100, divided by pronotal width).

RESULTS

In 2005-2007, I collected T. difficilis on 5 islands (26 sites; geocoordinates in °N & °W): Puerto Rico (3 sites: Old San Juan; W end; 18.468, 66.121; 16-X-2005. Isla Verde; airport; 18.439, 66.002; 16-V-2006. San Juan; park; 18.408, 66.073; 15-X-2005), St. Thomas (1 site: UVI; parking lot; 18.344, 64.974; 7-XI-2005), St. Croix (18 sites: Roberts Hill; Buccaneer Hotel; 17.753, 64.679; 12-III-2006. The Glynn; 0.5 km N of Rte 72; 17.751, 64.771; 5-III-2006. Mount Victory; 0.5 km NE of camp; 17.750, 64.867; 7-III-2006. Pleasant Vale; Rte 58; 17.748, 64.865; 7-III-2006. Mount Victory; Rte 58; 17.746, 64.866; 7-III-2006. North Hall; Rte 58; 17.746, 64.876; 30-X-2005. William; Rte 58; 17.738, 64.891; 30-X-2005. Grove
Place; 0.6 km N of Rte 76; 17.735, 64.822; 10-III-2006. Upper Love; Holy Cross Church; 17.733, 64.807; 4-XI-2005. Jolly Hill; Rte 76; 17.732, 64.861; 3-III-2006. La Reine; Rte 70; 17.729, 64.774; 4-III-2006. Sunny Isle; shopping center; 17.729, 64.749; 12-III-2006. Prosperity; W end Mahogany Rd; 17.721, 64.885; 30-X-2005. St. George; Botanical Garden; 17.716, 64.831; 1-XI-2005. Bethlehem Middle Works; Rte 64; 17.710, 64.790; 12-III-2006. Hesselberg; Cottages by the Sea; 17.701, 64.836; 3-XI-2005. Hesselberg; S end Shore Dr; 17.692, 64.892; 3-XI-2005. Camporico; Rte 66; 17.689, 64.862; 11-III-2006. Nevis (1 site: Stuart’s; Four Seasons; 17.159, 62.623; 18-V-2007), and Antigua (3 sites: Parham; by dock; 17.113, 61.763; 26-V-2007. North Sound; pasture tree; 17.098, 61.783; 24-V-2007. Seaton’s; Sting Ray City; 17.097, 61.721; 23-V-2007). I deposited vouchers at Harvard University’s Museum of Comparative Zoology.

On all 5 islands, I found enormous colonies of T. difficilis, but colonies were widespread only on St. Croix, where I found this ant at 18 diverse sites. On St. Croix, I most often found colonies in planted trees growing in urban and residential areas, e.g., around the grounds of Sunny Isle shopping center, Holy Cross Church, the Buccaneer Hotel, and Cottages by the Sea resort. The ants, however, also occurred at high densities in some forested areas, such as along Route 58 (Creque Dam Road), particularly in Mt. Victory and Pleasant Vale, where I found T. difficilis colonies in virtually every tree along extended stretches of the road.

On the other 4 islands, I encountered colonies of T. difficilis at few locales. In Puerto Rico, I found T. difficilis at 3 sites: in a large tree in a Park Luis Muñoz Marín in San Juan, in a tree in Old San Juan, and in several trees around the parking lot of Luis Muñoz Marín International Airport. On St. Thomas, I found swarms of T. difficilis under a tree by a parking lot on the University of the Virgin Islands campus. On Nevis, I collected T. difficilis in trees and several buildings at the Four Seasons Hotel. On Antigua, I found T. difficilis at 3 sites: nesting in branches of sea grapes growing by the Parham dock, in branches throughout an enormous tree in the pasture southeast of Sir Vivian Richards Stadium, and in several trees on the grounds of Sting Ray City.

**DISCUSSION**

In the 20 years since it was first collected in Florida, Technomyrmex difficilis has quickly expanded its range across a large portion of the state, and is now spreading across the West Indies. Torres et al. (2001) reported the earliest record of Technomyrmex (presumably T. difficilis) from the West Indies, males collected in 1996 and 1997 in Guánica, Puerto Rico. Warner & Schef-
specimens from this region to confirm their species identity. It would be unfortunate if the incorrect assumption that all *Technomyrmex* in Florida are *T. albipes* were replaced with another incorrect assumption.

ACKNOWLEDGMENTS

I thank A. Wetterer, M. Wetterer, and J. Warner for comments on this manuscript; B. Bolton for ant identifications; the National Science Foundation and Florida Atlantic University for financial support.

REFERENCES CITED

BOLTON, B. 2007. Taxonomy of the dolichoderine ant genus *Technomyrmex* Mayr (Hymenoptera: Formicidae) based on the worker cast. Contrib. American Entomol. Inst. 35: 1-150.

DEYRUP, M. 1991. *Technomyrmex albipes*, a new exotic ant in Florida (Hymenoptera: Formicidae). Florida Entomol. 74: 147-148.

DEYRUP, M., L. DAVIS, AND S. COVER. 2000. Exotic ants in Florida. Trans. American Entomol. Soc. 126: 293-326.

FOREL, A. 1892. Les Formicides (concl.), pp. 232-280 In A. Grandidier [ed.], Histoire physique, naturelle et politique de Madagascar. Volume XX. Histoire naturelle des Hyménoptères. Deuxième partie. Supplément au 28e fascicule. Hachette et Cie, Paris.

TORRES, J. A., R. R. SNELLING, AND M. CANALS. 2001. Seasonal and nocturnal periodicities in ant nuptial flight in the tropics (Hymenoptera: Formicidae). Sociobiol. 37: 601-626.

WARNER, J., AND R. H. SCHEFFRAHN. 2004. Feeding preferences of white-footed ants, *Technomyrmex albipes* (Hymenoptera: Formicidae), to selected liquids. Florida Agric. Exper. Sta. Series R-10161.

WARNER, J., R. H. SCHEFFRAHN, AND B. CABRERA. 2005. White-footed ant, *Technomyrmex albipes* (Fr. Smith) (Insecta: Hymenoptera: Formicidae: Dolichoderinae). Univ. Florida IFAS Extens. Doc. EENY-273.

WETTERER, J. K. 1997. Ants on *Cecropia* in Hawaii. Biotropica 29: 128-132.

WETTERER, J. K., X. ESPADALER, A. L. WETTERER, D. AGUIN-POMBO, AND A. M. FRANQUINHO-AGUIAR. 2006. Long-term impact of exotic ants on the native ants of Madeira. Ecol. Entomol. 31: 358-368.

WETTERER, J. K., AND A. L. WETTERER. 2003. Ants (Hymenoptera: Formicidae) on non-native Neotropical ant-acacias (Fabales: Fabaceae) in Florida. Florida Entomol. 86: 460-463.

WETTERER, J. K., L. W. WOOD, C. JOHNSON, H. KRAHE, AND S. FITCHETT. 2007. Predaceous ants, beach replenishment, and nest placement by sea turtles. Environ. Entomol. 36: 1084-1091.