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Reticulitermes malletei (Isoptera: Rhinotermitidae): a valid Nearctic subterranean termite from Eastern North America

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Abstract

The taxonomic status of *Reticulitermes* Holmgren in North America has been in need of revision for years, but because of morphological ambiguity, traditional morphological identification of *Reticulitermes* species has always been difficult and unreliable. Analysis of termites, applying non-morphological genetic comparisons of mitochondrial DNA from numerous populations across North America, has implicated new species which are presently under investigation. Applying the 16S rRNA gene with biometric, cuticular hydrocarbons, and ethological data, a cryptic species of Nearctic *Reticulitermes* has been identified from Delaware, Georgia, Maryland, North Carolina, and South Carolina and determined to constitute a valid species with an apparently Atlantic distribution. Epicuticular hydrocarbon analysis showing the presence of rare triunsaturated alkenes, and a total absence of methyl branched alkanes also support this cryptic group as a distinct species. The name for this species is *Reticulitermes malletei*, previously described, but not generally accepted by termite experts in the United States. Comparisons from a 403 bp region of the mtDNA 16S rRNA gene was used to discriminate known *Reticulitermes* species from North America: The eastern subterranean termite *R. flavipes* (Kollar), dark southern subterranean termite *R. virginicus* (Banks), light southern subterranean termite *R. hageni* Banks, arid subterranean termite *R. tibialis* Banks, and western subterranean termite *R. hesperus* Banks. When compared to this new species, both maximum parsimony and maximum likelihood support their genetic isolation from sympatric populations of known species and eliminate either exotic Palearctic introductions or western Nearctic involvement.

Key words: *Reticulitermes*, Rhinotermitidae, Nearctic, mtDNA, cuticular hydrocarbon

Introduction

In North America there are 6 species of termites presently known in the genus *Reticulitermes* Holmgren: *R. hesperus* Banks is a western species not found east of the Rocky Mountains; *R. tibialis* Banks occurs in the West, Southwest, Central plains states, and is known to occur as far east as Indiana and through northern Mexico; *R. flavipes* (Kollar) has the most significant distribution occurring from Canada down through Mexico and throughout the eastern United States (Banks and Snyder 1920, Snyder 1954, Weesner 1965, Messenger 2003), and established populations have recently been confirmed in the western states of New Mexico, Ari-

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