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FIRST RECORD OF A SUBTERRANEAN TERMITE, *COPTOTERMES HAVILANDI* HOLMGREN (ISOPTERA: RHINOTERMITIDAE), ON THE WEST COAST OF NORTH AMERICA (MEXICO)

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RESUMEN

El termes subterráneo, *Coptotermes havilandi* Holmgren, se registra de un sitio previamente no documentado localizado en Manzanillo, Colima, México. Es el primer registro de esta especie exótica en la costa oeste de América del Norte. Esta especie fue encontrada dañando tablas nuevas de pino almacenadas en una bodega fiscal del puerto de Manzanillo. Su proximidad al puerto, así como la falta de infestaciones en los alrededores, sugiere que muy probablemente fue introducida por vía marítima. También se incluyen nuevos registros de distribución en la Ciudad de México, D.F. (México) y para el estado de Pará (Brasil). Este trabajo muestra que la especie continúa siendo introducida por el hombre a muchos países a pesar de las cuarentenas establecidas.
Palabras Clave: *Coptotermes havilandi*, distribución geográfica, primer registro, México.

ABSTRACT

The subterranean termite, *Coptotermes havilandi* Holmgren, is reported from a previously undocumented site located in Manzanillo, Colima, Mexico. This is the first record of that exotic species on the West Coast of North America. Termites were found inhabiting and damaging pine logs in a fiscal warehouse at Manzanillo harbor. Their proximity to the harbor, in addition to the lack of any other infestations in the surroundings, suggests that they were probably introduced as a result of maritime trade. New distribution records are also reported in Mexico City (Mexico) and the State of Pará (Brazil). This study shows that that species continues being introduced in many countries despite the efforts of harbor quarantines.
Key Words: *Coptotermes havilandi*, distribution, new record, Mexico.

INTRODUCTION

Coptotermes havilandi Holmgren, an Oriental termite species, is one of the most destructive wood pests and once introduced accidentally into many countries through human activity it has often been well adapted to such new environments (Gay 1967). The causes of those accidents are related to the transport of infested timber and to the fact that in that species individuals can develop into neotenic reproductives (Coaton & Sheasby 1976), what may give to this species a better capability to adapt in the new

environment. Exotic species usually become of great economical significance though seldom invade native environments; instead, they remain in places modified by man (Gay 1969).

Nowadays, the distribution of *C. havilandi* includes the three Americas, Tahiti, Asia and African continent and adjacent islands (Ferraz 2000). Its relatively recent introduction in the USA (Su *et al.* 1997) reveals current lack of control in harbor cities. In Brazil, it was probably introduced at the beginning of the last century through the ports of Rio de Janeiro (RJ) and Santos (SP) (Araujo 1958). Since then, this species has been slowly moving into neighboring localities as well as countryside. It is currently considered the major structural pest in the city of São Paulo (SP) (Lelis 1995). Recently, there was also one introduction in Northeastern Brazil, in the state of Pernambuco (Fontes & Veiga 1998), although the authors did not present further data concerning the presence or absence of swarmers and/or a nest. All previous records of new occurrences of *C. havilandi* in the Americas have been on the east coast and close to harbors (Fig. 1).

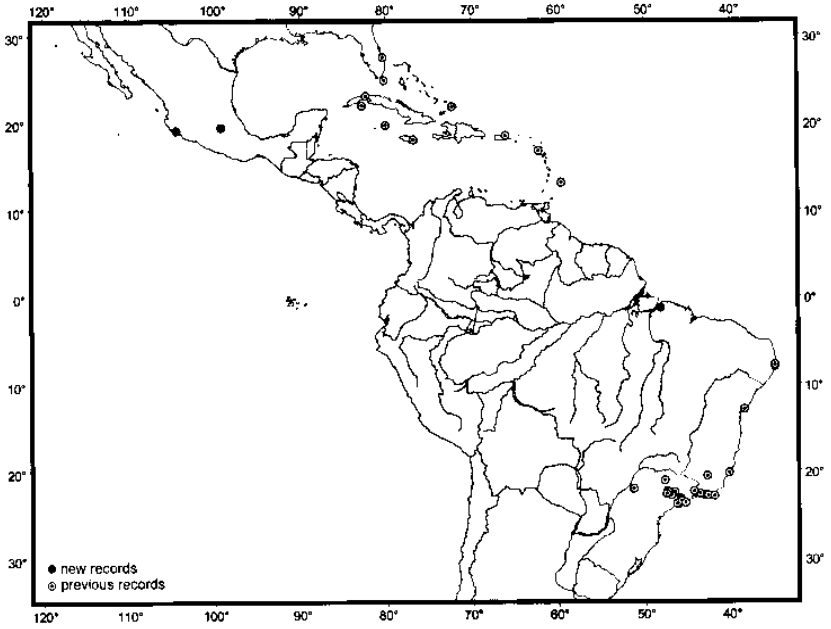


Figure 1
Distribution of *Coptotermes havilandi* in the Americas

MATERIALS AND METHODS

This study was based on the *Coptotermes* review as a part of the PhD thesis of both authors in Brazil and Mexico, respectively. Specimens' revision in the following entomological collections was done: Museu Paraense Emílio Goeldi (PA-Brazil), Universidade de Brasília (DF-Brazil) and Universidad Autonoma de Chapingo (México).

RESULTS

In a sample collected in Manzanillo, Colima, México (19°02' N, 104°19' W), one of us (T. M. M.) observed that the individuals did not belong to the common *Coptotermes* species usually found in Mexico. A close examination of soldiers revealed that they belonged to another species of subterranean termite, *Coptotermes havilandi* Holmgren. Soldiers of this species are readily distinguishable from other *Coptotermes* species by the following characters: the external margin of the mandibles and anterior lateral margin of head are straight, the lateral margins of head are sub-parallel, the fontanelle has a single pair of setae on its base and the invaginant line of the fosseta runs from the middle of its margin (Fig. 2 - see arrows) (Ferraz 2000).

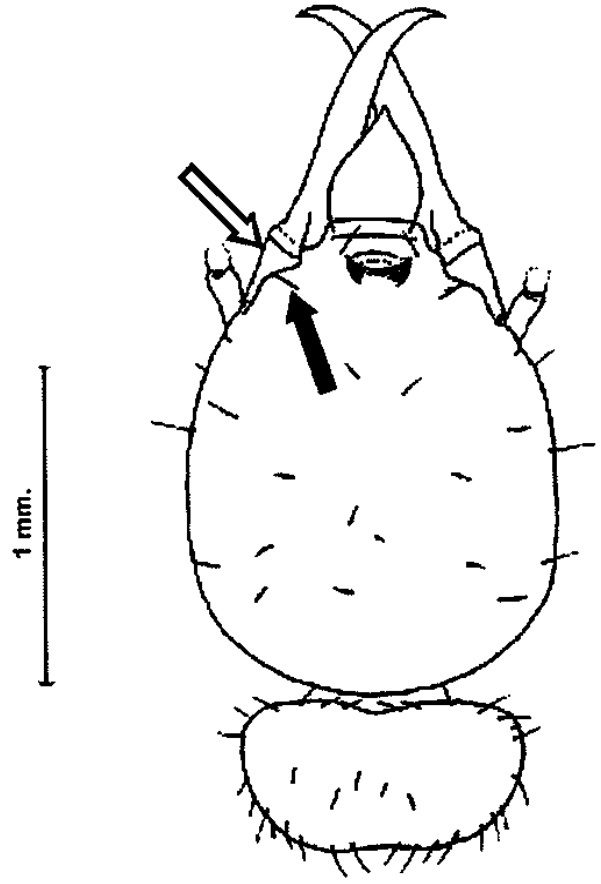


Figure 2
Head and pronotum of soldier of *Coptotermes havilandi* in dorsal view (white arrow: anterior lateral margin of head; black arrow: invaginant line of the fosseta).

DISCUSSION

This sample contained only workers and soldiers, and came ashore in a shipment of pine logs proceeding from Chile. Hundred of thousand termites were found damaging these pine logs stored for several months in a fiscal warehouse at Manzanillo harbor, México. Dispersal flights have not been observed. The lack of alates may indicate that the colonies were not mature, although a mature colony may pass some periods with no alates. Nevertheless, the history of introductions of this species in foreign countries demonstrates that it can quickly establish new colonies and become a severe structural pest in a relatively short period of time. Their proximity to the harbor, in addition to the lack of any other infestations in the surroundings, suggests that they were probably introduced through maritime transportation.

This is the first record of this species on the west coast of North America. In addition to these facts, on March 2000 the customs staff of "Procuraduría Federal de Protección al Ambiente", in Mexico City (19°30' N, 99°10' W), intercepted goods (palettes) proceeding from Indonesia, which were also damaged by *C. havilandi*.

A new distribution record is also reported from Brazil in the state of Pará (01°21' S, 48°13' W), with no further data. In Brazil, alates of this species swarm almost all year, with a clear peak swarm from August to October (end of winter and beginning of spring), which coincides with the beginning of the rainy season (Ferraz & Cancello 2001). The flight period preferred is around sunset, but flights can be observed from 3:00 PM to as late as midnight.

Examined material: MEXICO: *Colima*: Manzanillo: DCFM-0023, 23/xii/1994 (T. Méndez-Montiel coll.) - soldiers, workers; *Distrito Federal*: Ciudad de México: DCFM-0178, 28/iii/2000 (E. Gómez Tagle coll.) - soldiers. BRAZIL: *Bahia*: Salvador: UNB-13, 18/xii/1977 (N. Anjos coll.) - soldiers, workers; UNB-14, 18/xii/1977 (N. Anjos coll.) - soldiers, workers; *Pará*: Benevides: MPEG-3970, 15/x/1988 (L. Macambira coll.) - soldiers.

Voucher specimens are deposited at the Universidad Autónoma Chapingo, División de Ciencias Forestales, Chapingo, México (DCFM-0023, DCFM-0178); at the Universidade de Brasília, Departamento de Zoologia, Brasília, DF, Brazil (UNB-13, UNB-14); and at the Museu Paraense Emílio Goeldi, Departamento de Zoologia, Belém, PA, Brazil (MPEG-3970).

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