Incisitermes nishimurai, a new drywood termite species (Isoptera: Kalotermitidae) from the highlands of Central America

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Abstract

Incisitermes nishimurai is described from soldiers and winged imagoes collected in the highlands of Honduras. It is distinguished from all other Incisitermes species by the dark rugosity of the soldier frons and by the rather large, uniformly very dark, imago.

Key words: Kalotermitid taxonomy, new species, high elevation, Honduras, Guatemala

Introduction

Krishna (1961) described the genus Incisitermes from species previously included with Kalotermes Hagen 1853. The primary character used by Krishna (1961) to differentiate Incisitermes from Kalotermes is the dentition of the left imago mandible. In Incisitermes, the anterior margin of the third marginal tooth is longer than the posterior margin of the fused first and second marginal tooth. In Kalotermes, these margins are subequal in length. Additional characters noted by Krishna (1961) for the Incisitermes alate include a narrower costal margin and unsclerotized median vein running to the tips of the wings. In Kalotermes, the costal margin is wider and the median vein is often interrupted near the wing tip. The soldier of Incisitermes has a long and deeply incised pronotum which, in Kalotermes is concave and narrower.

The distribution of these two genera is decidedly allopatric. With few exceptions, Incisitermes occurs in tropical or near-tropical climates while Kalotermes is a subtropical to subtemperate genus (Emerson 1969). The distribution of Incisitermes is limited to the New World and several species in Australia, India, Pacific Ocean, the Philippines, and Taiwan (Emerson 1969, Krishna et al. 2013, Watson and Abbey 1993). By far the greatest diversity and broadest continuous distribution of Incisitermes occurs in the Caribbean Basin, Florida, southern Nearctic, the Bahamas archipelago, and the New World Pacific coast to Ecuador (Fig. 1). No Incisitermes have been reported in the southern Neotropics. In Central America and elsewhere, many Incisitermes habitats are littoral forests where mangroves and other coastal woodlands abound. Most inland localities of Incisitermes are at elevations below 600 m (Fig. 2). Herein, I describe Incisitermes nishimurai, a new species found in high elevations of Central America.

Material and methods

The distribution maps (Figs. 1–2) were created using ArcGIS desktop ver. 10.1 (ESRI, Redlands, CA). Map localities shown contain vouchered specimens in the University of Florida Termite Collection, Fort Lauderdale Research and Education Center, Davie, FL. Figures 3–6 were taken as multi-layer montages using a Leica M205C stereomicroscope with a Leica DFC 425 module run with Leica Application Suite version 3 software. Preserved specimens were taken from 85% ethanol and suspended in a pool of Purell® hand sanitizer (70% EtOH) to position the specimens over a transparent plastic Petri dish background. Measurements (Tables 1–2) were obtained using an Olympus SZH stereomicroscope fitted with an ocular micrometer. Field photographs of live specimens placed in a
(Parque Nacional La Tigre) and only Marginitermes cactiphagus Myles (see Scheffrahn and Postle 2013) was collected at the Matanzas, Guatemala, site. The inverse relationship between provincial elevation and termite diversity is well known. For example, Palin et al. (2011) reported a sharp decrease in termite diversity in Peru as elevation increased from 190 to 1500 m and found no termites above 1550 m. On Mount Giting-Giting, Philippines, Thomas & Proctor (1997) found a few termite species at 1240 m and none ≥1540 m. In Sumatra, Gather-A-Hardy et al. (2001) found the least termite diversity at 1400 m (5 spp.) compared to lower elevations on the island (>30 spp.).

Some neotropical kalotermitids, like I. nishimurai, appear to be higher elevation specialists including Comatermes perfectus (Hagen) (up to 1646 m in Colombia), a new Glyptotermes from Guatemala (1668 m), and an undescribed Neotermes from Venezuela (1831 m) (Scheffrahn et al., unpublished). The most extreme example of a high-elevation kalotermitid, possibly even of all Isoptera, may be that of Rugitermes laticollis Snyder. When describing this species from a donated museum sample, Snyder (1957) may have overlooked the significance of its type locality being “La Paz, Bolivia” which, at 3,400 to 4,000 m, is one of the highest large cities on earth.

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