SHORT COMMUNICATION

NEW RECORDS OF TERMITES (BLATTODEA: TERMITIDAE: SYNTERMITINAE) FROM COLOMBIA

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NEW RECORDS OF TERMITES (BLATTODEA: TERMITIDAE: SYNTERMITINAE) FROM COLOMBIA

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Abstract: Eight species of termite from the Amazon and Orinoquia regions, belonging to four genera of the subfamily Syntermitinae, are recorded for the first time in Colombia. The species are Cornitermes cumulans (Kollar, 1832), Cornitermes pilosus Holmgren, 1906, Cornitermes ovatus Emerson, 1952, Cornitermes snyderi Emerson, 1952, Mapinguaritermes peruans (Holmgren, 1906), Rhynchotermes amazonensis Constantini & Cancellio, 2016, Rhynchotermes perarmatus (Snyder, 1925), and Uncitermes teevani Emerson, (1925). Diagnostic characteristics and geographic distributions for the recorded species are provided, with detailed photographs of the soldier caste. The diversity and distribution of indigenous termite species in Colombia are documented.

Keywords: Amazon, Colombian Llanos, Cornitermes, Mapinguaritermes, neotropical, Orinoco, Rhynchotermes, savannas, termites, Uncitermes.

Termites are insects of ecological importance in the dynamics of ecosystems that contribute to the biological processes of organic matter decomposition and mineralisation (Lewis 2009). Brazil is documented as the site of greatest termite diversity in the Neotropics (Constantino 2005), whereas Colombian termite fauna is much less well characterised and under-represented in the literature, due to a lack of sampling, taxonomic expertise and fewer investigative studies (Constantino 2002).

The first list of Colombian Termitidae genera, based on material deposited in entomological collections, was compiled in 2005 (Vargas-Niño et al. 2005), but a species list has not yet been published. Previous studies on termites in Colombia have focused on plantations and crops (Galvis 1985; Gutiérrez et al. 2004; Pinzón et al. 2012; Abadía et al. 2013), while natural ecosystems that possess higher species richness have received less attention (Morales-Castaño & Medina 2009; Casalla et al. 2016; Pinzón et al. 2017). Herein, we report eight...
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Termitidae species from four genera in Colombia for the first time, thereby expanding our knowledge of termite species occurring in this country.

MATERIALS AND METHODS

Species of the Syntermitinae subfamily deposited in the Colección Entomológica Forestal CEFUD “Universidad Francisco José de Caldas” and the Colección de Artrópodos Terrestres de la Amazonia Colombiana CATA (Instituto Amazónico de Investigaciones Científicas SINCHI) were identified to species level based on the morphology of the soldier caste using the taxonomic keys of Emerson (1952), Rocha et al. (2012), and Constantini & Cancelli (2016).

RESULTS AND DISCUSSION

Four genera and eight Termitidae species are recorded for the first time in Colombia (Figs. 1–4 & Images 1–8). These are the Syntermitinae: Cornitermes cumulans (Kollar, 1832), Cornitermes pilosus Holmgren, 1906, Cornitermes ovatus Emerson, 1952, Cornitermes snyderi Emerson, 1952, Mapinguaritermes peruanus (Holmgren, 1906), Rhynchotermes amazonensis Constantini & Cancelli, 2016, Rhynchotermes perarmatus (Snyder, 1925), and Uncitermes teevani (Emerson, 1925).

Cornitermes cumulans (Kollar, 1832)


Diagnostic features: The head is yellowish, the pronotum is a little lighter than the head, the length of the head with mandibles is 3.29–4.31 mm, the width of the head is 1.85–2.62 mm and the head is sparsely covered with bristles and numerous relatively long hairs about half the length of the bristles. Antennae have 15-16 articles, the labrum has distinct side angles greater than a right angle (Image 1d) and the front margin of the pronotum is not emarginate and does not have a shallow emargination (modified from Emerson 1952).

Distribution: This species has been recorded in Brazil, Argentina and Paraguay (Krishna et al. 2013). This is the first record for a country in the north of South America, although restricted to Orinoquia in Colombia.

Notes: Workers and soldiers were collected from gallery forest during the rainy season and found only in epigeous monticules.

Cornitermes pilosus Holmgren, 1906


Diagnostic features: The head has numerous long bristles on the upper side and a dense contrasting mat of short hairs on the upper and under sides. The postmentum is covered with short hairs, the length of the head with mandibles is 4.00–5.00 mm and the width of the head is 2.06–2.76 mm. The frontal tube is relatively short and depressed in profile. The labrum is rounded and bluntly pointed with lateral angles, and the margins from the base of the median white lobe to the lateral angles are straight (Image 2D). Antennae have 15 articles, and the second, third and fourth are approximately equal (adapted from Emerson 1952).

Distribution: This species has been recorded only in Brazil (Araujo 1977; Constantino 1998; Fontes 1998). In Colombia, it was only recorded in Puerto Gaitán, Meta.

Notes: Workers and soldiers were collected from Image 1. Cornitermes cumulans (Kollar, 1832) A - Dorsal view; B - Head lateral view; C - Pronotum; D - Labrum and mandibles. © W. Garcia, 2017.
gallery forest during dry and rainy seasons. Samples were obtained from dry branches and epigeous monticules.

*Cornitermes ovatus* Emerson, 1952


**Figure 1.** Distribution map of *Cornitermes cumulans* and *Cornitermes snyderi*.

**Figure 2.** Distribution map of *Cornitermes pilosus* and *Cornitermes ovatus*.

**Figure 3.** Distribution map of *Rhynchotermes amazonensis* and *Rhynchotermes perarmatus*.

**Figure 4.** Distribution map of *Mapinguariitermes peruanus* and *Uncitermes teevani*. 
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Diagnostic features: The head has numerous bristles on top and a few underneath, and has a mat of contrasting short hairs. The head is light reddish-brown, the length of the head with mandibles is 5.08–5.30 mm and the width of the head is 2.98–3.20 mm. The pronotum has numerous bristles and a few short hairs (Image 3c). Antennae have 15 articles. The sides of the labrum are obtusely pointed or rounded, and the angles at the junction of the white median lobe are distinct (Image 3B) (adapted from Emerson 1952).

Distribution: This species has been previously recorded in Brazil (Krishna et al. 2013). In Colombia, it was recorded in two localities of the Meta Department.

Notes: Workers and soldiers were collected from gallery forests during dry and rainy seasons. Samples were obtained from dry branches, epigeous monticules and soil.

Cornitermes snyderi Emerson, 1952

Diagnostic features: The head is dark yellow and subrectangular, and has numerous bristles and some shorter hair. The length of the head and mandibles is 2.74–3.47 mm, and the width is 1.50–1.85 mm. The pronotum is yellow with a number of bristles and a few short hairs on the posterior half. Antennae have 15 articles. The labrum has somewhat blunt lateral angles, and the margin between the lateral angles and the base of the median white tip is slightly concave or nearly straight (adapted from Emerson 1952).

Distribution: This species has been reported in Bolivia (Emerson 1952), as well as northeastern (Bandeira & Vasconcellos 1999), central-western (da Cunha et al. 2006) and Amazon (Constantino & Cancello 1992; Fontes 1998) regions of Brazil.

Notes: Workers and soldiers were collected from 20cm depth soil samples in a secondary forest.

Mapinguaritermes peruanus (Holmgren, 1906)

Diagnostic features: The head capsule is oval in the dorsal view, and the frontal tube is conical, almost parallel with the base of the head capsule and approximately four-fifths of its length in profile. Bristles on the head are sparse, varying in number, but never fewer than 15. The frontal tube always has bristles, at least until the middle of the proximal region. Antennae have 14 articles (adapted description of Rocha et al. 2012).

Distribution: This species has been recorded in Peru and Brazil (Holmgren 1912; Mathews 1977) and is distributed in the Amazon region (Rocha et al. 2012). In Colombia, two records of this species were found 11km from the city of Leticia in the Amazonas Department, at the Natural Reserve Cerca Viva and the Tacana River.
Notes: Workers and soldiers were collected from primary and secondary forest in Leticia, close to the Amazon River. They were collected from soil samples in a secondary forest, and also from anthropogenic soil (terra preta) in secondary forests at a depth from 0 to 10 cm.

*Rhynchoptermes amazonensis* Constantini & Cancelli, 2016


Diagnostic features: This species is dimorphic. The head of major soldiers is slightly constricted behind the antennae. In profile, the dorsal margin of the head and the margin of the frontal tube are concave, the length of the head to the lateral base of the mandibles is 0.67–0.85 mm and the width of the head is 0.82–0.92 mm. Mandibles are strongly curved, with a serrated inner margin. The forecoxa process is subcylindrical, and antennae articles are long (adapted from Constantini & Cancelli 2016).

Distribution: This species has previously been recorded only in Brazil (Constantini & Cancelli 2016) in an Amazonian forest. In Colombia, it was recorded in two departments of the Amazonian region: Caquetá and Amazonas.

Notes: Workers and soldiers were collected from soil samples in a primary forest and from anthropogenic soil samples (terra preta) in the indigenous community of Aduche (Puerto Santander, Amazonas). They were found in soil samples taken from a depth of 0-20 cm.

*Rhynchoptermes perarmatus* (Snyder, 1925)


Diagnostic features: The head is short, pear-shaped, with a very elongated nasus that is curved downward and gradually attenuated toward the apex, and subcylindrical. The length of the head and nasus is 2.50–2.60 mm, and the width of the head is 0.65–0.67 mm. The mandibles are larger than the head, and clearly visible in the dorsal view when closed (adapted...
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from Snyder 1925 and Constantini & Cancell 2016).

**Distribution:** This species has been recorded in Panama, Honduras, Costa Rica, Guatemala, Ecuador and Belize (Snyder 1925; Snyder 1949; Becker 1953; Araujo 1977). In Colombia, the species was found in a dry forest region of the Huila Department.

**Notes:** Constantino (1998) reported that this species is distributed from Belize to Ecuador, but there is no published evidence of any report for Colombia. Only a single soldier was collected.

**Uncitermes tee vani (Emerson, 1925)**


**Diagnostic features:** Soldiers of this species have a rounded head capsule (in the dorsal view), and the head has a few sparse bristles. The frontal tube is conical and glabrous, and the same length as the base of the head capsule, and forms an almost 45° angle with the base of the head (in profile). Antennae have 15 articles. The enteric valve of workers has major ridges that are slightly dilated at the apex (Image 8C), and all are decorated with curved spines (Rocha et al. 2012).

**Distribution:** This species is restricted to tropical regions of South America. It has been recorded in Bolivia, Brazil, French Guyana, Guyana, Venezuela and Ecuador (Snyder 1949; Constantino 1998; Davies 2002; Carrijo et al. 2016). In Colombia, these first records were restricted to the Colombian Orinoquia.

**Notes:** Workers and soldiers were collected from
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New records of termites from Colombia identified in Colombia for the first time. Venezuela and Peru (Krishna et al. 2013) have now been expanded the known geographical distribution of termite genera, and species previously known to occur in Brazil, Paraguay, Bolivia, Argentina, Ecuador, Guyana, Venezuela and Peru (Krishna et al. 2013) have now been identified in Colombia for the first time.

**DISCUSSION**

Termite genera and species records from the Orinoco and Amazon regions of Colombia, where most of our records are from, are mainly the result of studies focusing on economically important agricultural and forest species (Sánchez 2011; Sterling et al. 2011; Lores & Pinzón 2011; Pinzón et al. 2012), and samples from these regions are scarce in Colombian collections (Vargas-Niño et al. 2005; Morales-Castano & Medina 2009). Termite diversity in riparian forests in these regions is poorly studied, despite the presence of ecologically important species (Decaëns et al. 2006; Pinzón et al. 2017).

The records presented in the present work expand the known distribution of *Cornitermes*, extending from Panama to northern Argentina. Two species of this genus have been previously listed in Colombia (Krishna et al. 2013), and the present study expands this to six records. By contrast, the genus *Rynchotermes* is known to be restricted to the north of South America (Constantini & Cancelllo 2016), and we herein add two new records, *R. perarmatus* from a region of dry forest and *R. amazonensis* from a tropical humid forest. Thus, three species are now known to occur in Colombia, including the previous record of *R. bulbinasus* Scheffrahn in the northern savannas (Scheffrahn 2010). The genera *Uncitermes* and *Mapinguaritermes* were previously known to occur in geographical regions sharing ecological similarities, such as the Brazilian northeast and Venezueulan Orinoco Llanos (Rocha et al. 2012; Carrijo et al. 2016). Herein, we enlarge their known distribution to include the Colombian Oriental Llanos. To conclude, the new records of eight species expand the known geographical distribution of termite genera, and species previously known to occur in Brazil, Paraguay, Bolivia, Argentina, Ecuador, Guyana, Venezuela and Peru (Krishna et al. 2013) have now been identified in Colombia for the first time.

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