The termite genus *Amitermes* Silvestri in Papua New Guinea*

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ABSTRACT: Three species of *Amitermes* Silvestri are reported from Papua New Guinea. One of them, *A. laurenisi* Mjöberg, was previously known from northern Australia. The other two are new and described here: *A. papuanus* and *A. arboreus*.

1. INTRODUCTION

The termite genus *Amitermes* Silvestri is a common inhabitant of dry tropical regions. It is present in grasslands and savannas from the Neotropics to Australia (Emerson 1955), where it reaches an extreme diversity, with 57 species described to date (Gay 1968, Scheffrahm & Su 1987), whereas only 2 species are known from the Indonesian archipelago (Haviland 1898, Holmgren 1914). In spite of the geographical proximity of Australia and its belonging to the same continental plate, there is no published report of the presence of *Amitermes* species in New Guinea. In this paper, I will report the discovery of 3 *Amitermes* species in Papuan savannas and woodlands, two of which are new to science.

2. METHODS

Collections were made during trips to Papua New Guinea, Central Province (Y.Roisin, J.M. Pasteels) and Western Province (Y.Roisin, M. Leponec). Specimens were usually fixed in FAA (formol:alcohol:acetic acid) and preserved in alcohol. Drawings were made with a camera lucida. Type specimens are in the collections of the Institut Royal des Sciences Naturelles de Belgique, Brussels.

* King Leopold III Biological Station, Laing Island, Papua New Guinea, contribution No. 197.
3. SYSTEMATIC ACCOUNT

Anitermes laeurnsis Mjöberg

_Hanitermes laeurnsis_ Mjöberg, 1920, pp. 74-75 (soldier, worker, neotenic queen), 113, 120 (nest), fig. 38b (soldier); from Cape York Peninsula (Queensland), from Laura to Coleman River.

![Image of Anitermes laeurnsis](image)

Figure 1. Soldier of Anitermes laeurnsis Mjöberg. Head from above, gula, head in profile. Hairs represented only on head capsule and labrum. Scale = 1 mm.

_Hanitermes (Hanitermes) laeurnsis_ Mjöberg, Hill 1942, pp. 330-333, figs. 245-246 (imago, soldier), synonymy, biology; from Queensland, various localities, north to Banks Island in Torres Strait.

_Anitermes laeurnsis_ Mjöberg, Synder 1949, p. 120, synonymy.

_Anitermes laeurnsis_, GAY 1968, pp. 452-456, identification key to alates and soldiers.

_Anitermes laeurnsis_ Mjöberg, Moore 1968, chemical composition of soldier frontal gland secretion.

*Imago*

Not available from Papua New Guinea collections.

**Soldier (Fig. 1)**

A medium-sized species. Head ochraceous, mandibles ferrugineous. Head broadly rounded on sides and posteriorly, with few hairs. Head capsule relatively short, rounded in profile, frons falling steeply from vertex. Labrum with parallel sides, broadly rounded anteriorly. Clypeus strongly bilobed. Mandibles about two-thirds as long as head capsule, with sharp, backwardly directed tooth near middle; curvature starting well below marginal tooth. Gula short and broad, weakly constricted near base. Antennae 14-segmented, with articles 3 and 4 of approximately equal length, or as in Australian specimens, 15-segmented with 3rd and 4th articles somewhat coalescent. Measurements: see Table 1.

**Worker**

Medium-sized, head capsule whitish to pale brown. Head width (in mm), 0.90-1.06, mean 0.994 (18 individuals from 3 colonies).

<table>
<thead>
<tr>
<th></th>
<th>A. laeurnsis 12(3)</th>
<th>A. papuana 30(7)</th>
<th>A. arborea 10(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>Mean</td>
<td>Range</td>
<td>Mean</td>
</tr>
<tr>
<td>Head, to apex of labrum, long</td>
<td>1.40-1.58 1.518</td>
<td>1.26-1.60 1.514</td>
<td>1.66-1.92 1.815</td>
</tr>
<tr>
<td>Head, wide</td>
<td>1.04-1.20 1.129</td>
<td>0.96-1.16 1.079</td>
<td>1.30-1.39 1.344</td>
</tr>
<tr>
<td>Head capsule (excluding gula), deep</td>
<td>0.79-0.89 0.834</td>
<td>0.68-0.90 0.828</td>
<td>0.96-1.02 0.999</td>
</tr>
<tr>
<td>Left mandible, from external condyle to apex</td>
<td>0.78-0.86 0.827</td>
<td>0.70-0.80 0.755</td>
<td>0.80-0.90 0.833</td>
</tr>
<tr>
<td>Left mandible, from tip of marginal tooth to apex</td>
<td>0.40-0.46 0.428</td>
<td>0.38-0.45 0.418</td>
<td>0.41-0.48 0.440</td>
</tr>
<tr>
<td>Pronotum, wide</td>
<td>0.63-0.79 0.732</td>
<td>0.56-0.69 0.629</td>
<td>0.90-0.98 0.925</td>
</tr>
<tr>
<td>Hind tibia, long</td>
<td>0.90-1.04 0.977</td>
<td>0.83-0.98 0.911</td>
<td>1.19-1.26 1.214</td>
</tr>
<tr>
<td>Gula, at constriction, wide</td>
<td>0.30-0.35 0.322</td>
<td>0.24-0.29 0.265</td>
<td>0.28-0.34 0.305</td>
</tr>
</tbody>
</table>
New records
The following 3 series comprise soldiers, workers and nymphs: Morehead, Western Province, Papua New Guinea (8°43'S, 141°38'E), 22 March 1989, reference No. PNGT1410, from periphery of Nasutitermes mound, probably N. magnus (Froggatt); Morehead (8°43'S, 141°39'E), 24 March 1989, under identical conditions (PNGT1434); ibidem, 27 March 1989, from cathedral nest of Nasutitermes triodiae (Froggatt) (PNGT1465).

Note
In Australia, A. laurensis is known to build mounds (Mjöberg 1920, Hill 1942), although Hill also reports the occurrence of subterranean nests. Thus far, no mounds of this species have been found in Papua New Guinea.

Amitermes papuanus, sp. nov.
Imago
Not known.

Soldier (Fig. 2)
A medium-sized species. Head yellow, mandibles ferrugineous in distal two-thirds. Head broadly rounded posteriorly, flattened on sides, with numerous hairs. Head capsule rounded in profile, frons falling slowly from vertex. Labrum pointed, clypeus strongly bilobed. Mandibles about two-thirds as long as head capsule, curved in distal half; marginal tooth slightly below middle of mandible, with hind edge almost at right angle to the mandible. Gula long, with obvious constriction near base. Antennae of 14 articles, 4th smallest of all. Measurements: see Table 1.

Worker
Medium-sized, head capsule whitish to pale golden brown. Head width (in mm), 0.92-1.06, mean 0.972 (28 individuals from 7 colonies).

Affinities (soldier)
A. papuanus is much hairier than A. laurensis and distinct from it by the shape of its mandibles, marginal teeth, labrum and gula. Compared to Australian species, A. papuanus comes closest to A. perryi Gay, from Western Australia (much smaller) and A. eucalypti Hill, from the Townsville area, Queensland. This latter species has 15-segmented antennae, marginal teeth distinctly directed backwards and very few hairs on head capsule (see Hill 1942, fig. 234).

Material examined
Type series: Morehead, Western Province, Papua New Guinea (8°43'S, 141°39'E), 27 March 1989; holotype soldier, paratype soldiers, workers and nymphs (reference No. PNGT1468); from huge earthen mound about 1.5 m

Figure 2. Soldier of Amitermes papuanus, sp. nov. Head from above, gula, head in profile. Hairs represented only on head capsule and labrum. Scale = 1 mm.
high, with pillar-like processes, of which this species seemed to be the primary inhabitant; Microcerotermes repugnans and an unidentified Termes species were present in this mound as well.

Other series (soldiers and workers only, unless otherwise stated): Morehead (8°42'S, 141°40'E), 23 March 1989, in decaying bamboo on the woodlands floor (PNGT1425); same data, in the ground nearby a tree stump (PNGT1426); Morehead (8°43'S, 141°39'E), 27 March 1989, in periphery of Nasutitermes torresi (Hill) mound at base of an eucalypt tree (PNGT1462); Wipim, Western Province (8°47'S, 142°53'E), 29 March 1989, in decaying wood on forest floor (PNGT1473); ibidem, 30 March 1989, under same conditions (PNGT1489); Sirimumu Dam, Central Province, Papua New Guinea (9°28'S, 147°27'E), 9 March 1985, with larvae, nymphs, eggs and 1 neotenic, from periphery of Nasutitermes mound, probably N. magnus (Froggatt) (PNGT934).

Amitermes arboreus, sp. nov.

Imago (Fig. 3)

A moderately large species. Head capsule dark sepia brown, postclypeus paler; pronotum and abdominal tergites dark brown, meso- and metanotum paler, abdominal sternites much paler in middle. Antennae and legs orange-brown; wings brown. Head semicircular behind eyes. Eyes moderately small; ocelli small, oval, a little less than own largest diameter from eyes. Fontanelle appearing as a round, light brown depression, with hyaline, spatulate extension in front. Antennae of 15 articles, 3rd smallest and slightly coalescent with 4th. Pronotum of overall trapezoidal shape, with angles broadly rounded, small notch in posterior margin. Posterior margins of meso- and metanotum deeply notched. Entire body with many long and short hairs.

Measurements (in mm - 2 males):

<table>
<thead>
<tr>
<th>Character</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length with wings</td>
<td>11.7-12.3</td>
</tr>
<tr>
<td>Length without wings</td>
<td>5.5-5.8</td>
</tr>
<tr>
<td>Head, to apex of labrum, long</td>
<td>1.38-1.46</td>
</tr>
<tr>
<td>Head, to clypeofrontal suture, long</td>
<td>0.75-0.77</td>
</tr>
<tr>
<td>Head, wide</td>
<td>1.19-1.21</td>
</tr>
<tr>
<td>Postclypeus, long</td>
<td>0.36</td>
</tr>
<tr>
<td>Eyes, maximum diameter</td>
<td>0.31-0.32</td>
</tr>
<tr>
<td>Ocelli, long</td>
<td>0.11-0.12</td>
</tr>
<tr>
<td>Ocellus to eye</td>
<td>0.08-0.09</td>
</tr>
<tr>
<td>Pronotum, long</td>
<td>0.66-0.71</td>
</tr>
<tr>
<td>Pronotum, wide</td>
<td>1.06-1.09</td>
</tr>
<tr>
<td>Forewing, long</td>
<td>9.7-10.2</td>
</tr>
<tr>
<td>Forewing, wide</td>
<td>2.40-2.68</td>
</tr>
<tr>
<td>Hind tibia, long</td>
<td>1.20-1.22</td>
</tr>
</tbody>
</table>

Figure 3. Imago of Amitermes arboreus, sp. nov. Head and pronotum, from above. Filosity not represented. Scale = 1 mm.

Soldier (Fig. 4)

A large species with ochraceous head, dark ferruginous mandibles. Head large and deep, widest at posterior third, with very sparse hairs. Head angular in profile, from frons falling steeply from vertex. Labrum rounded, with hyaline tip; anterior margin of clypeus sinuated. Mandibles short and stout, about half
the length of head capsule, curved in distal two-thirds; marginal tooth directed backwards, slightly below middle of mandible. Gula wide, short, with obvious constriction near base. Antennae of 15 articles, 3rd and 4th smallest, 5th a little longer.

Measurements: see Table 1.

Worker

Large-sized, head capsule whitish to medium brown. Head width (in mm), 1.10-1.26, mean 1.197 (20 individuals from type colony).

Affinities

The winged adult of *A. arboreus* has a very distinctive fontanelle. By its measurements, following Gay's (1968) key to Australian species, *A. arboreus* comes closest to *A. darwini* Hill, from the Northern Territory, but differs from it by its head shape (see Hill 1942, fig. 230). The soldier of *A. arboreus* is much larger than *A. laurensi* and *A. papuanus* and has relatively shorter and stouter mandibles. It is also well distinct from all Australian species: Gay's (1968) key leads to either *A. conformis* Gay or *A. calabyi* Gay, from Western Australia, which are both smaller than *A. arboreus* and have a distinctive head shape (see Gay 1968, figs 5A-C).

Material examined

Type series only: Wipim, Western Province, Papua New Guinea (8°47'S, 142°53'E), 2 April 1989, holotype soldier, paratype soldiers, workers, nymphs and 2 alates (reference No. PNGIT1512); from dead tree in wooded savanna, under earthen sheathing joining a nest-like structure at a height of about 3 m with the ground.

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REFERENCES


