A new *Nasutitermes* species from New Guinea
(Isoptera: Termitidae)*

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**ABSTRACT:** A new termite species, *Nasutitermes polygynus*, is described from Papua New Guinea.

**RESUME:** Une nouvelle espèce de ternite, *Nasutitermes polygynus*, est décrite de Papouasie-Nouvelle-Guinée.

1. **INTRODUCTION**

The Neo-Guinean termite Fauna is so far one of the least studied in the world. However, extensive collections have revealed a remarkable diversity, especially among the Nasutitermitinae. Apart from its purely taxonomical interest, the systematic study of the Neo-Guinean fauna is also badly needed for providing unambiguous bases for further behavioural, ecological, or physiological research. Some very peculiar biological characteristics of a new *Nasutitermes* species (Roisin & Pasteels, in preparation) led us to describe it by priority in this preliminary paper. A more thorough revision of the Neo-Guinean *Nasutitermes* is in preparation.

2. **SYSTEMATICS**

*Nasutitermes polygynus* sp. nov.

*Imago* (Fig. 1). Head capsule dark sepia brown. Postclypeus, labrum and antennae pale brown. Pronotum dark sepia brown, with a paler Y-shaped mark. Other thoracic sclerites brown. Legs pale brown. Abdominal tergites dark sepia brown. Sternites paler, whitish in middle. Wing membrane sepia brown. Pigmentation of the sclerites becoming much paler with age in functional reproductives.

Posterior margin of the head regularly rounded. Fontanelle hyaline, Y-shaped

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Figure 1. *Nautiltermes polygyrus* n.sp., holotype winged female: head in front view, pronotum in dorsal view, head in side view. Scale = 1 mm.

Figure 2. *Nautiltermes polygyrus* n.sp., paratype soldier: head capsule in side and dorsal view. Scale = 1 mm.

narrow. Eyes small, almost circular. Ocelli small, distant from eyes by more than own largest diameter. Antennae 15 segmented, segment 3 usually a little longer and thinner than 2, segment 4 distinctly longer and thicker than 3 and 5, sometimes slightly constricted in middle.

Measurements (in mm): head width across eyes, 1.28-1.44 (mean 1.358); largest diameter of compound eye, 0.31-0.35 (0.335); length of ocellus, 0.10-0.14 (0.120); eye to ocellus, 0.12-0.19 (0.153); width of pronotum, 0.97-1.25 (1.103); length of pronotum, 0.61-0.81 (0.725); length of metatibia, 1.52-1.72 (1.614); length of fore wing (excluding stump), 9.2-10.8 (9.86). Number measured, 18 alates from 4 colonies and 23 dealated reproductives from 6 other colonies.

**Soldier** (Fig.2). Head capsule very dark brown, paler around and in front of antennal sockets. Anterior two-thirds of nose paler, from dark ferrugineous to bright orange. Thoracic nota pale brown, abdominal tergites brown. Appendages and abdominal sternites very pale brown.

Head capsule rounded, slightly flattened along the latero-posterior sides; in profile nearly straight. Nose conical, stout. Antennae 13 segmented, segment 3 much longer than 2 and 4. Plosity of head capsule usually as follows: 4 setae around base of nose, 2 on vertex, 2 on lateral borders, 4 surrounding tip of nose. In some individuals, a few supplementary setae, around base or on sides of nose. A row of sparse long setae along posterior border of abdominal tergites. Numerous microscopical hairs scattered on tergite surface.

Measurements (in mm): length of head capsule, 1.38-1.60 (mean 1.484); width of head capsule, 0.81-1.10 (0.956); depth of head capsule, 0.54-0.71 (0.638); length of pronotum, 0.15-0.22 (0.178); width of pronotum, 0.40-0.52 (0.469); length of metatibia, 0.95-1.25 (1.120). Number measured, 42 individuals from 14 colonies.
Worker. Small and large workers are recognizable in *N. polygynus*, as seems to be a rule in *Nasuiternes* species (Noirot 1955). At least two small and three large worker instars are distinguishable on the basis of pigmentation: head very pale brown, tergites hyaline by the first instar, head sepiabrown and tergites pale brown by the second, head dark sepiabrown and tergites brown in third instar large workers.

Perceptive growth between first and second instar in both lines. Antennae 14 segmented, fourth segment very small by the first instar, clearly distinct from the second instar.

Measurements (in mm): head width, first instar small workers, 0.78-0.88 (mean 0.832), second instar 0.84-0.94 (0.888), first instar large workers, 1.00-1.10 (1.052), second instar 1.08-1.18 (1.147), third instar 1.08-1.20 (1.141). Number measured, 15 individuals of each category, from the type colony (PNGT4).

**Holotype.** Winged female, Nubia, 3 km on the road to Bunapas (Bogia District, Papua New Guinea), 16 November 1978, nest number PNGT4 (type colony), fixed in alcoholic Bouin’s fluid and preserved in alcohol, coll. J.M. Pasteels (JMP). In the collection of the Institut Royal des Sciences Naturelles, Brussels (IRSNB).

**Paratypes.** Alates, soldiers and workers from the type colony. All castes, including five physogastric queens, from colony number PNGT483, Laing Island, 28 November 1983, fixed in alcoholic Bouin’s fluid and preserved in alcohol, coll. Y. Roisin (YR). In the collections of the IRSNB and the authors.


From dead wood on the ground: Hatzfeldhafen, 3 km on the road to Yoro, 25 August and 23 September 1984, soldiers and workers (PNGT792 and 844, YR).


The samples were fixed in Bouin’s fluid, FAA (formalin-alcohol-acetic acid) or ethanol, and are preserved in 70% alcohol.

**Distribution.** All the collecting localities mentioned above are situated within a 40 km radius from Bogia (Madang Province, Papua New Guinea). A sample of alates from Deria (Amazon Bay, Central Province of Papua New Guinea) is tentatively assigned to this species, in spite of slightly different measurements: head width across eyes, 1.38-1.45 (mean 1.425); largest diameter of compound eye, 0.37-0.42 (0.395); length of ocellus, 0.13-0.14 (0.135); eye to ocellus, 0.11-0.15 (0.130); width of pronotum, 1.11-1.18 (1.145); length of pronotum, 0.67-0.73 (0.705); length of metatibia, 1.60-1.70 (1.655); length of fore wing (excluding stump), 10.0-10.8 (10.39). Number measured, 6. Reference number 10463 in CSIRO collection, Canberra, Australa, coll. W. Brandt, December 1962.

**Affinites.** *N. polygynus* could only be confused with two other sympatric species, *N. princeps* (Desneux, 1905) and *N. novaramhebridarum* (N. & K. Holmgren, 1915). The alate of *N. polygynus* can be recognized by its smaller size, much smaller eyes and ocelli, darker colour, uniform dark brown wings without yellowish tinge. *N. ambloinaensis* (Kemner, 1931) from Ambioina comes obviously closer to the two species cited above than to *N. polygynus*.

The soldier of *N. polygynus* is smaller and much less hairy than that of *N. princeps*. It is much smaller and darker coloured than *N. novaramhebridarum*.

**Remark.** The diterpene composition of the defensive secretion of soldiers from the type colony was studied by Dupont et al. (1981), who called the species *Nasuiternes* sp. B.

3. **BIOLOGICAL NOTES**

*N. polygynus* is an arboreal-nesting termite, whose nests usually form highly polycaic systems linked by wood carton galleries. The rate of polygyny is exceptionally high in this species: of 14 nests dissected with functional reproductives, 13 were polygynous. A detailed account of those peculiarities will be presented elsewhere.

A few swarming alates were caught around sunset on 20 November 1978 and 7 November 1983. On both occasions, the weather had been rainy for the preceding night and the whole morning of the day of swarming.

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REFERENCES


