

***Anhangatermes macarthuri*, a New Genus and Species of Soil-feeding Nasute Termite from Amapá, Brazil (Isoptera, Termitidae, Nasutitermitinae)**

Reginaldo Constantino^{1, 2}

ABSTRACT - *Anhangatermes macarthuri*, gen. n., sp. n., collected in the forest of Serra do Navio, Amapá State, Brazil is described. The new genus is related to *Cyranotermes* as shown by the morphology of worker mandibles and digestive tube. Drawings are presented of the soldier's head and the worker's head, mandibles and digestive tube.

KEY WORDS: *Anhangatermes*, *macarthuri*, termites, taxonomy, Nasutitermitinae.

RESUMO - *Anhangatermes macarthuri*, gen. n., sp. n., coletado na floresta da Serra do Navio, Estado do Amapá, Brasil é descrito. O novo gênero é relacionado a *Cyranotermes* Araujo, o que é mostrado pela morfologia das mandíbulas e do tubo digestivo do operário. São apresentados desenhos da cabeça do soldado e da cabeça, mandíbulas e tubo digestivo do operário.

PALAVRAS-CHAVE: *Anhangatermes macarthuri*, cupins, taxonomia, Nasutitermitinae.

¹Museu Paraense Emílio Goeldi, Departamento de Zoologia, C.P. 399, 66040, Belém, PA, Brazil.

²Bolsista do Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq.

INTRODUCTION

The soil-feeding nasute termites of the Neotropical Region are still poorly known due mainly to the small size and subterranean habits of the majority of the species. They are, in general, rare in collections. Fontes (1979, 1982, 1987a, 1987b) studied this group of termites and erected 4 new genera: *Atlantitermes*, *Araujotermes*, *Agnathotermes* (previously described as a subgenus), and *Coatitermes*. The other genera are: *Angularitermes*, *Convexitermes*, *Cyranotermes*, and *Subulitermes*.

In addition to the subterranean habits, these termites have in common the following: worker mandibles with large apical teeth; molar ridges reduced or absent; soldier mandibles vestigial without points (except *Angulatitermes*, which has distinct points); slow-moving soldiers and workers. Although having several common characteristics, the soil-feeding nasutes seem to be a polyphyletic group and the similarities are probably due to convergence related to common habits. Fontes (1987a) recognized 4 distinct patterns in the digestive tube of the 14 Neotropical and Ethiopian described genera of this group.

As a result of new intensive collecting in the Amazon Region, I have discovered several new taxa of this group of termites. In this paper a new genus and species of soil-feeding nasute from the forests of Serra do Navio, Amapá State, Brazil are described. The terminology used in this paper for the mandibles and digestive tube is the same as Fontes (1987a, 1987b).

Anhangatermes, gen. n.

TYPE-SPECIES - *Anhangatermes macarthuri*, sp. n..

IMAGO - Unknown.

SOLDIER - Head capsule broad and rounded. Nasus conico-cylindrical, long and slender. Labrum short, not visible from dorsal view. Vestigial mandibles without points. Antenna with 13 segments, extending a little beyond tip of nasus. Width of pronotum approximately half the width of the head. Head almost glabrous, with few bristles on vertex and hairs at tip of nasus. Remainder of body with relatively few bristles. Tibial spurs 2:2:2.

WORKER - Monomorphic. Head capsule rounded, widest anteriorly. Post-clypeus moderately inflated. Antenna with 14 segments. Head with few bristles. Apical tooth of mandibles well developed with inner margin concave. Left mandible: cutting edge of 1st plus 2nd marginal tooth sinuous; 3rd marginal tooth small; point of molar tooth hidden beneath the

molar prominence; molar prominence large and rounded, without ridges. Right mandible: third marginal tooth vestigial, almost absent; molar plate concave. Abdomen voluminous with sclerites and membranes transparent showing gut contents. Digestive tube: crop voluminous, asymmetrical; gizzard with armature sclerotized, without spines; mixed segment present, shorter than the width of mesenteron; Malpighian tubules insertion as in Fig. 11; first proctodeal segment shorter than mesenteron; enteric valve ventro-laterally placed; armature (Figs. 9-10) with three longitudinal major swellings (swellings of 1st order) alternating with three longitudinal minor swellings (swellings of 2nd order), with large spines arranged in a bowed line and small scattered spines; colon long.

ETYMOLOGY - The generic name derives from the Tupi “Anhangá”, a god or spirit of the forest.

COMPARISONS - The soldier of *Anhangatermes* is easily distinguishable from the other genera of Neotropical soil-feeding nasutes by the very broad head and the long and slender nasus. The worker mandibles and digestive tube are similar only to *Cyranotermes*, which has the following distinct characteristics: smaller molar prominence, with the point of molar tooth visible; cutting edge of 1st plus 2nd marginal tooth concave; larger 3rd marginal tooth; no vestige of 2nd marginal on right mandible.

Anhangatermes macarthurii, sp.n.

TYPE MATERIAL - BRAZIL. **Amapá State**, Serra do Navio (01°00'N 52°04'W). Lot number MPEG 3267 in the collection of Museu Paraense Emílio Goeldi, 02.XI.1989, R. Constantino col. (holotype soldier and paratypes soldiers and workers). Part of the same lot to be deposited in the collection of Museu de Zoologia da Universidade de São Paulo.

SOLDIER (Figs. 1-4) - Head capsule and postmentum orange; nasus ferruginous orange, darker toward tip; antenna and pronotum orange yellow, sclerites transparent, yellowish. Head with 2 bristles on top; tip of nasus with hairs. Pronotum, mesonotum and metanotum without bristles. Legs with few bristles. Tergites with 4 long bristles on posterior margin; sternites with a row of long bristles on posterior margin and scattered short bristles on surface. Antenna: 3rd segment longer than 2nd, 4th and 5th; 2nd and 4th about the same length; 5th longer than 4th. Measurements (in millimeters) of 5 soldiers: length of head with nasus 2.33-2.40; length of

nasus 1.15-1.22; width of head 1.27-1.32; height of head excluding postmentum 0.80-0.85; width of pronotum 0.63-0.66; length of hind tibia 1.11-1.22; maximum width of postmentum 0.36-0.38.

WORKER (Figs. 5-15) - Head, antennae and legs pale-yellow. Pronotum yellow-white. Sclerites transparent, yellowish. Head capsule with a row of 4 bristles in the middle and 2 at back; postclypeus with 6 bristles; labrum with 8 bristles. Pronotum with long bristles on margins. Tergites and sternites with a row of long bristles on posterior margin. Sternites with numerous short bristles on surface. Legs with numerous long and short bristles. Antennae: 2nd segment longer than 3rd, 4th and 5th; 3rd and 4th about the same length; 5th longer than 4th.

ETYMOLOGY - The specific name is derived from the John D. and Catherine T. MacArthur Foundation, sponsor of the research that led to the discovery of the new taxon.

BIOLOGY - The single colony was collected from soft soil with no visible structure below a fallen rotten tree trunk in a primary rain forest. This species is a soil and humus feeder and probably has subterranean habits. The soldiers and workers are slow-moving.

DISCUSSION

Anhangatermes is clearly related to *Cyranotermes*. The following characteristics are common to both genera: 1) right mandible without third marginal tooth (a very small vestige in *Anhangatermes*); 2) a very similar mixed segment (see Fontes, 1987a, Fig. 47); 3) enteric valve armature well sclerotized with small and large spines arranged in the same pattern; 4) similar shape and relative size of all parts of the digestive tube; 5) reduced number or absence of bristles and hairs on soldier's head and thoracic nota. The soldier's head of *Anhangatermes* is, however, much different from that of the three known species of *Cyranotermes*.

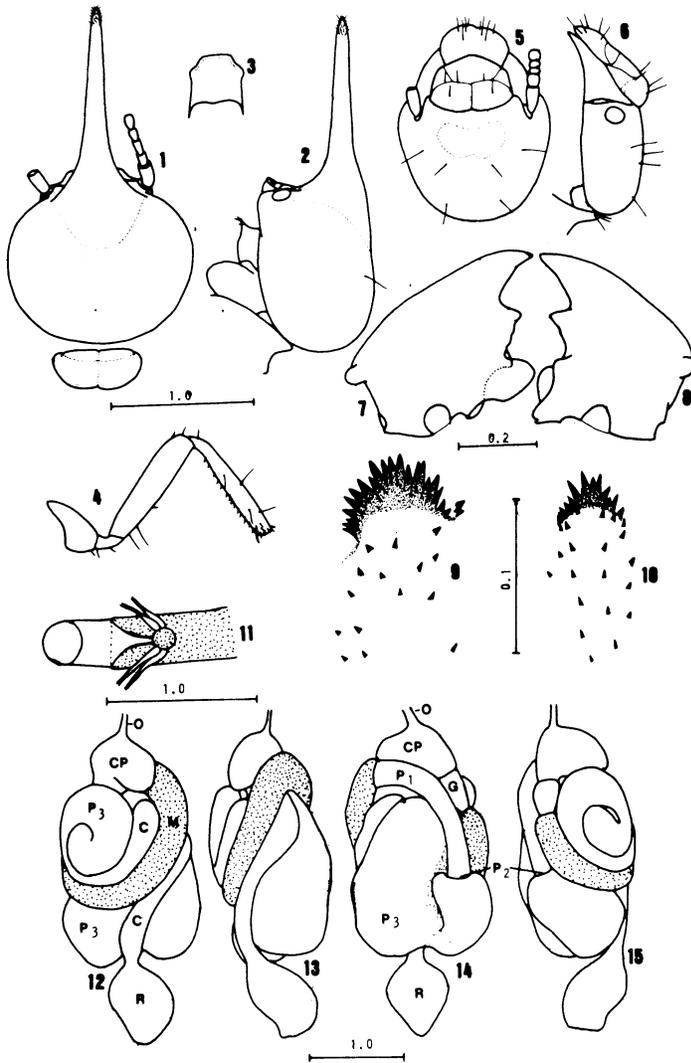
These two genera probably form a monophyletic group, but the relations with other genera remain unclear. The Ethiopian genera *Postsubulitermes*, *Mimeutermes* and *Tarditermes* also have worker mandibles with incomplete marginal dentition, but the gut pattern is distinct (Fontes, 1987a). This similarity in mandible dentition is probably a result of convergence. These questions can be clarified only after a complete study of the group, based on large collections, still unavailable.

ACKNOWLEDGEMENTS

This work was supported by the John D. and Catherine T. MacArthur Foundation through a grant to the Museu Paraense Emílio Goeldi Zoology Department administered by the World Wildlife Fund - US, and the Brazilian National Research Council (CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico). I thank the staff of the Museu Costa Lima for help with the field work in Amapá State.

REFERENCES

- Fontes, L.R. 1979. *Atlantitermes*, novo gênero de cupim, com duas novas espécies do Brasil (Isoptera, Termitidae, Nasutitermitinae). *Rev. bras. Ent.* 23(4): 219-227.
- Fontes, L.R. 1982. Novos taxons e novas combinações nos cupins nasutos geófagos da região Neotropical (Isoptera, Termitidae, Nasutitermitinae). *Rev. bras. Ent.* 26(1): 99-108.
- Fontes, L.R. 1987a. Morphology of the worker digestive tube of the soil-feeding nasute termites (Isoptera, Termitidae, Nasutitermitinae) from Neotropical Region. *Rev. bras. Zool.* 3(8): 475-501.
- Fontes, L.R. 1987b. Morphology of the alate and worker mandibles of the soil-feeding nasute termites (Isoptera, Termitidae, Nasutitermitinae) from Neotropical Region. *Rev. bras. Zool.* 3(8): 503-531.



Figures 1-15

Anhangatermes macarthuri, sp. n. Soldier: 1. head, dorsal view; 2. head, profile; 3. postmentum; 4. right foreleg. Worker: 5. head, dorsal view; 6. head, profile; 7. right mandible; 8. left mandible. Enteric valve armature: 9. swelling of 1st order; 10. swelling of second order. 11. mixed segment, showing Malpighian tubules insertion. Coiled digestive tube: 12. dorsal; 13. right; 14. ventral; 15. left. O= oesophagus; CP= crop; G= gizzard; M= mesenteron; P1= first proctodeal segment; P2= enteric valve; P3= paunch; C= colon; R= rectum. Scales in millimeters.