

## Macratriinae (Insecta: Coleoptera: Anthicidae) of New Caledonia

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### Abstract

*Macratria rectipilis* sp. nov. from New Caledonia is described and illustrated. An identification key to species of Macratriinae of New Caledonia is given. Biogeographical peculiarities and endemism in Anthicidae of New Caledonia are discussed for the first time.

### Zusammenfassung

*Macratria rectipilis* sp. nov. aus Neukaledonien wird beschrieben und abgebildet. Ein Bestimmungsschlüssel der Macratriinae Neukaledoniens wird vorgelegt. Die Biogeographie und der Endemismus der Anthicidae Neukaledoniens werden zum ersten mal diskutiert.

**Key words:** Coleoptera, Anthicidae, Macratriinae, *Macratria*, New Caledonia, new species, biogeography, endemism, identification key.

### Introduction

New Caledonia is widely known as an area of high endemism, a “Noah’s Ark” for numerous archaic species of plants and animals (Biodiversity in New Caledonia, <http://www.croixdusud.info>) and one of Earth’s 34 biodiversity hotspots.

The Anthicidae fauna of New Caledonia is insufficiently studied. Very limited material and published sources on the Anthicidae of New Caledonia is available. The currently known recent fauna consists of 11 species (inclusive one species described below) representing 7 genera and 4 subfamilies (Anthicinae, Lemodinae, Macratriinae, Notoxinae) (TELNOV, unpublished data). Of them 5 species (45%) are considered endemic for New Caledonian fauna, 3 species are shared with Australian mainland, 2 species are widely distributed across various Pacific and Indian islands, and one species is cosmopolitan.

In this paper *Macratria rectipilis* sp. nov. is described and illustrated. Redescription and new records for *M.*

*caledonica* Fauvel are also given. An identification key to New Caledonian Macratriinae is presented. General peculiarities of Anthicidae fauna of New Caledonia are discussed.

### Legends

All species are listed alphabetically as a phylogenetic arrangement is not yet possible. All label text is reproduced exactly, with no corrections or additions. Labels (if more than one for the same specimen) are separated by slashes (/). All labels are printed. Author’s comments are placed in square brackets [ ]. Holotype of newly described species is placed in the collection of Muséum national d’Histoire naturelle in Paris.

Acronyms for the collections:

- BMNH – British Museum (Natural History), London (U.K.);
- HMNH – Hungarian National Museum of Natural History, Budapest (Hungary);
- MNHN – Muséum national d’Histoire naturelle, Paris (France);
- QM – Queensland Museum, Brisbane (Australia);
- DTC – Collection Dmitry Telnov, Rīga (Latvia).

### Descriptions of taxa

***Macratria caledonica* Fauvel, 1906** (Figs 1–9)  
FAUVEL (1906: 29); PIC (1911: 18).

**Material.** Carovin, Houadou R. [= Houaïlou River] New Caledon. 17.XI.1914. P.D. Montague. 1918–87 / *Macratria caledonica* Fvl. det. K.G.Blair [2 specimens BMNH]; NEW-CALEDONIE Nouméa Thie Forest / 14.X.1969. / /No.PC–U.5./ leg.Dr.J.Balogh [1 specimen HMNH]; NEW-CALEDONIE Mont Rembai 19–21.I.1977 leg.Dr.J.BALOGH [3 specimens HMNH, 2 specimens DTC]; NEW-CALEDONIE Poindimié 30.I.1977 leg.Dr.J.BALOGH [1 specimen HMNH]; NEW-CALEDONIE Nouméa Mt. Koghi / 14.X.1977.

leg. Dr. J. Balogh [1 specimen HMNH]; NEW CALEDONIA **1 1 1 9 4** 21°37'Sx165°53'E. Plateau de Dogny, 910m. 16 Nov 2002. C. Burwell. pyrethrum, trees & logs. [1 specimen QM]; NEW CALEDONIA **1 1 9 0 5** 20°24'Sx164°32'E. Mandjella, summit, 780m 13 Dec 2004. G. Monteith Beating. rainforest [3 specimens QM]; NEW CALEDONIA **1 1 9 1 5** 21°09'Sx165°19'E. 500m. Aoupinie, sawmill. 17 Dec 2004. G. Monteith pyr.palms, smooth sheaths [6 specimens QM, 2 specimens DTC]; NEW CALEDONIA **1 2 2 8 3** 21°09'Sx165°19'E. Aoupinie, sawmill. 550m 2 May 2005. G. B. Monteith pyrethrum, on palms [2 specimens QM].

Redescription is based on ♂ and ♀ from Mont Rembai.

**Measurements.** Male, total body length 2.87 mm, maximum combined width at base of elytra 0.86 mm; head 0.61 mm long, across eyes 0.60 mm broad, pronotum 0.76 mm long, maximum width 0.66 mm, elytra 1.60 mm long, 0.86 mm wide. Female, total body length 3.02 mm, maximum combined width at base of elytra 0.82 mm; head 0.62 mm long, across eyes 0.60 mm broad, pronotum 0.80 mm long, maximum width 0.65 mm, elytra 1.65 mm long, 0.82 mm wide.

**Description.** Dorsum and venter brown or pale brown, or pronotum and elytra black with reddish head. Frons, mouthparts, palpi, antennae and legs yellow, latest often with darkened metafemora and (partly) metatibiae. Head round, flattened dorsally, smooth. Eyes very large, prominent, occupying whole sides of head. Tempora absent, head base very broadly rounded, nearly truncate. Frons broad, in both sexes broader than combined length of two basal antennomeres. Punctures minute, very fine and sparse, intervening spaces larger than punctures. Underside of head smooth and shiny, without visible punctures. Pubescence yellowish, very fine, not fully appressed. Antennae comparatively short, reaching the base of pronotum, with weakly defined 3-segmented club. Antennomeres 3–8 slender, not or almost not thickened distally. Antennomeres 9–10 thick, widened distally, longer than previous ones. Terminal antennomere in both sexes shorter than combined length of antennomeres 9–10. Terminal maxillary palpomere short cultriform. Pronotum broadly cylindrical, smooth dorsally, with maximum width across the middle. Anterior margin very broad. Punctures large, deep and dense on the disc, minute on sides and at the

base. Intervening spaces on disc much smaller, on sides larger than punctures. Pubescence yellow, fine, long and quite dense, appressed, angled posteriorly. Several long erect setae present on sides and on the disc. Basal sulcus without patch of dense pubescence. Scutellum broad, truncate apically. Elytra smooth dorsally, slightly narrowing laterally near apices. Dorsal surface densely and coarsely punctured, intervening spaces smaller than punctures; punctures becoming much smaller and flat in apical third. Subhumeral sulcus not present. Pubescence yellow, long and dense, appressed, angled posteriorly. Numerous not much longer erect setae present on the disc and sides. Hind wings fully developed. Legs robust, tibiae densely setose. Basal metatarsomere in both sexes longer than combined length of metatarsomeres 2–4. Metatibial spurs very long. Basal protarsomere strongly widened in both sexes, oval, densely setose (Fig. 8). Last visible ventrites partly or completely exposed from under elytra. Last visible tergite (morphological tergite VII) of male broadly rounded apically, with short and shallow median excavation (Figs 1, 3), in female broadly rounded apically and with very short median projection (Fig. 6). Last visible sternite (morphological sternite VII) of male short, and broad, truncate on apical margin, with or without broad but flat median excavation (Figs 2, 4), in female broadly triangular (Fig. 7). Median lobe of aedeagus long, narrowed apically. Parameres 4-partite, distally setose (Figs 5A–C).

**Sexual dimorphism.** Terminal antennomere is comparatively longer in male, frons is narrower in males than in females.

**Ecology.** This species collected in rainforests and in secondary wood at an altitude 500–910 m.

**Distribution.** Known from Grande Terre Island of New Caledonia.

**Discussion.** This species is possible archaic due to absence of rows of punctures on elytra and lacking of the derivative character – subhumeral sulcus on elytra. Until now the only known member of herewith established *caledonica* species-group.

*Macratia rectipilis* sp. nov. (Figs 10–14)

**Holotypus** ♀ MNHN: NEW CALEDONIA **1 1 9 1 1** 20°58'Sx165°17'E Pic d'Amoa, N. Slope. 480m 16 Dec. 2004. G. Monteith. Pyr.palms, smooth sheaths.

**Measurements.** Holotype female, total body length 3.66 mm, maximum combined width across the middle of elytra 0.96 mm; head 0.66 mm long, across eyes 0.58 mm broad, pronotum 0.85 mm long, maximum width 0.62 mm, elytra 2.15 mm long, 0.96 mm wide.

**Description.** Dorsum and venter uniformly black, abdomen black-brown. Mouthparts, palpi and legs yellow, latest with darkened tibiae. Antennae pale brown, darkened from the mid-length toward apices. Head slightly prolongate anterior to eyes, flattened dorsally, smooth and shiny. Eyes large, very strongly prominent. Tempora broadly rounded on temporal angles, about a half of eye's length. Head base very broadly rounded, almost truncate, with indistinct median notch. Frons broad, in female distinctly broader than combined length of two basal antennomeres. Punctures quite large and very dense on frons, intervening spaces smaller than the punctures; vertex smooth, almost unpunctured. Underside of head smooth and shiny, without visible punctures except several large pores near mouthparts. Pubescence white, very fine and sparse, not fully appressed. Antennae (Fig. 14) comparatively short, in female not or almost reaching the base of elytra. Basal antennomere cylindrical. Third antennomere indistinctly longer than second antennomere. Antennomeres 3–7 elongate and slender, not or almost not widened distally; antennomere 8 slightly shorter than previous ones, more distinctly widened distally. Antennomeres 9–10 thickened, widened distally, longer than previous ones. Terminal antennomere in female elongate but slightly shorter than combined length of antennomeres 9–10. Terminal maxillary palpomere short cultriform. Pronotum flattened and opaque dorsally, with maximum width before and across the middle, distinctly constricted from the middle toward the base. Punctures large, deep and coarse, intervening spaces irregular and much smaller than punctures. Pubescence whitish, very fine, long and quite dense, appressed, angled posteriorly to obliquely laterally. Several long erect setae present on sides and on the disc. Basal sulcus without patch of dense pu-

bescence. Scutellum small, truncate apically. Elytra opaque dorsally near the suture, smooth and shiny on sides, distinctly narrowing laterally in apical third. Dorsal surface densely and coarsely punctuate, intervening spaces irregular, smaller to slightly larger than punctures. Subhumeral sulcus present, reaching elytral apice. Pubescence whitish to yellowish, long and quite dense, appressed, on the disc angled laterally (almost perpendicular to the suture), near apices – obliquely laterally. Many hairs are curved in some way. On sides, pubescence is angled posteriorly. Numerous long and erect setae present on disc and sides. Hind wings fully developed. Legs slender with densely setose tibiae. Basal metatarsomere in female slightly longer than combined length of metatarsomeres 2–4. Apices of last visible ventrites completely covered by elytra. Last visible tergite (morphological tergite VII) of female broadly rounded apically (Fig. 10). Last visible sternite (morphological sternite VII) of female short, broadly rounded apically (Fig. 11).

**Sexual dimorphism.** The male is currently unknown.

**Ecology.** The single known specimen was collected at an altitude of 480 m.

**Differential diagnosis.** A very distinctive species among all known members of Macratriinae due to the completely confusedly punctured elytra (with no sign of rows of punctures) and pubescence of elytral disc angled laterally.

**Etymology.** Named from Latin “rectus” [right, perpendicular] + “pilus” [hair], because of very specifically angled pubescence on the elytral disc.

**Distribution.** Known from Grande Terre Island of New Caledonia.

**Discussion.** This species clearly belongs in *Macratria* Newman, because of the mesoventrite fused with mesanepisterna and being roughly punctured; absence of frontoclypeal suture; bidentate mandibles; presence of subhumeral sulcus on elytra; and presence of tibial spurs. It is possible an archaic species within the genus, lacking the derived character of the punctato-striate elytra. Until now the only known member of herewith established *rectipilis* species-group.

## Identification key to species of Macratriinae from New Caledonia

- 1 Elytral pubescence dense, angled posteriorly on the disc. Subhumeral sulcus absent ..... *Macratria caledonica*  
– Elytral pubescence quite sparse, angled laterally (ie. perpendicular to the suture) on the disc. Subhumeral sulcus present on the whole length of elytra ..... *Macratria rectipilis*

## Biodiversity and endemism

Among the two species of Macratriinae representing of genus *Macratria* until now discovered in New Caledonia, both are considered endemic to this archipelago and all are known only from main island, Grande Terre. Comparing with neighbouring areas, 11 species of Macratriinae are currently known from Australia (all endemic) plus about same quantity of currently undescribed species (TELNOV, unpublished data), and 2 endemic species known also from New Zealand (WERNER & CHANDLER 1995). The region of Indo-Australian transition (including “classic” Wallacea, New Guinea and Solomon Islands) is extremely rich on Macratriinae, with 119 recorded *Macratria* species, 99% of them are endemic to this area (TELNOV 2011, 2012). No records of Macratriinae are hitherto known from Micronesia or Polynesia. New Caledonian *Macratria* represented by two separate species-groups (*caledonica* species-group and *rectipilis* species-group) and both species are possible archaic compared with other recent representatives of *Macratria* due to the absence of rows of punctures on elytra, the lack of a subhumeral sulcus (in *M. caledonica*) and having laterally-angled elytral pubescence (in *M. rectipilis*).

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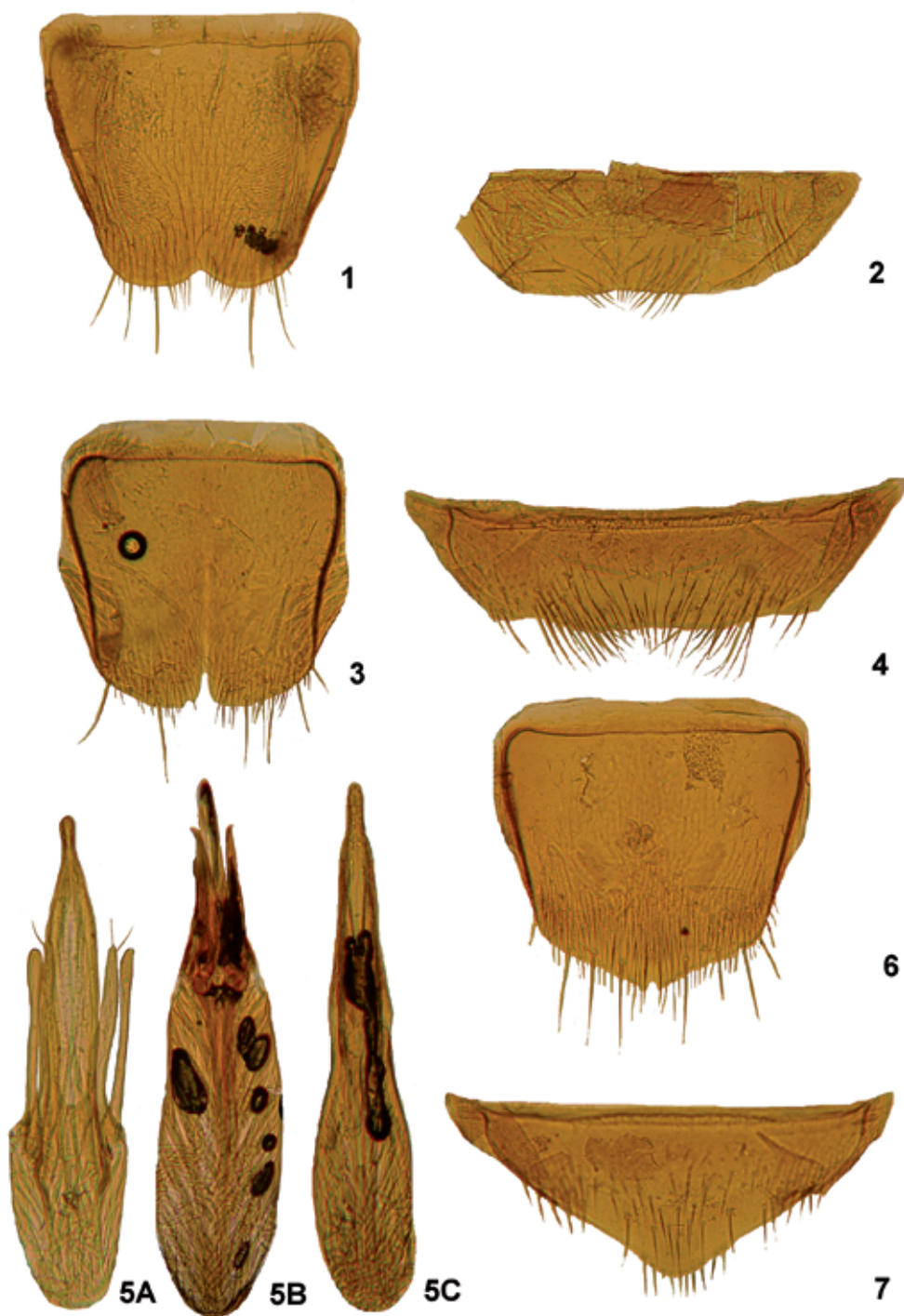
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**Figures 1–7.** *Macratrìa caledonica* Fauvel, 1906, ♂ & ♀. 1 – morphological tergite VII (♂), dorsal view; 2 – morphological sternite VII (♂), ventral; 3 – morphological tergite VII (♂), dorsal (different specimen); 4 – morphological sternite VII (♂) ventral (another specimen); 5A, B & C – aedeagus (different positions); 6 – morphological tergite VII (♀), dorsal; 7 – morphological sternite (♀), ventral.



Figures 8-9. *Macratria caledonica* Fauvel, 1906, ♂. 8 - left protibia - and tarsus, dorsal view; 9 - body, dorsal view -





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12



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14

**Figures 10–14.** *Macratria rectipilis* sp. nov., holotype ♀. 10 – morphological tergite VII, dorsal; 11 – morphological sternite VII, ventral; 12 – body, dorsal view; 13 – forebody, dorsal view; 14 – right antenna.

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