

## A new species of the genus *Airapus* Stebnicka & Howden, 1996 (Coleoptera: Scarabaeidae: Aphodiinae) from Papua New Guinea

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A new species of the the genus *Airapus* Stebnicka & Howden, 1996 - *A. madangensis* sp. nov. from Papua New Guinea is described and illustrated.

Key words: taxonomy, new species, Eupariini, *Ataenius*, Papua New Guinea, Oceania

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### INTRODUCTION

During the identification of material from the Institut Royal des Sciences naturelles de Belgique, originally on loan from Alexander Anichtchenko, the author succeeded in finding a still undescribed species of the genus *Airapus* Stebnicka & Howden, 1996. The historical and geographical outline of the genus was (at this moment) sufficiently presented by Král *et al.* (2019) and Rakovič *et al.* (2021). Additionally, Rakovič *et al.* (2021) sufficiently discussed the distribution of the genus in Southeast Asia and the Australasian region. *Airapus madangensis* sp. nov. is the 18th species known from Papua New Guinea and the 31st known species worldwide. Although all known species from Papua New Guinea can be easily assigned to the species groups proposed by Stebnicka (1998) *A. madangensis* sp. nov. does not belong to any of them. Furthermore, it is also significantly different from species from Southeast Asia.

In the Affinity section, the author draws attention to morphological elements that should be studied and paid attention to when describing new species, which will help to better establish affinities between species in the future.

### MATERIAL AND METHODS

The specimen was observed with a Nikon SMZ-U stereoscopic microscope. The photos published here were taken by the use of the Canon EOS 5D Mark III connected with Canon MP-E 65mm macro lens. Photos were edited in the Helicon Focus 7 and Adobe Photoshop Elements 2018 programs.

For morphological terms used in the description of specimens I follow Dellacasa *et. al.* (2010) and Stebnicka (2007).

The type specimens of the newly described species are indicated by a red, printed label bearing the status of the specimen, sex, its name, name of the author, year and month of the designation.

The type specimens are deposited in the following institutions:

IRSN – Institut Royal des Sciences naturelles de Belgique, Brussels, Belgium

ISEA – Łukasz Minkina collection, deposited in Institute of Systematics and Evolution of Animals in Kraków, Poland

## TAXONOMY

*Airapus madangensis* sp. nov.

(Figs 1-5)

**Type locality.** Papua New Guinea, Madang prov., Hansa Bay, Laing Island.

**Type material. Holotype** (♀): Coll. I.R.Sc.N.B. | Papua New Guinea | W. Laing Island, Hansa | Bay, Madang prov. | Wet leaf litter | I.G.: 26373 | 8.vi.1981 | leg. J. Van Goethem || (IRSN).

**Paratype** (♀): Coll. I.R.Sc.N.B. | Papua New Guinea | Hills 4 km NW Bogia | Madang prov., forest | gallery, wet leaf litter | near tree, I.G.: 25848 | 9.v.1978 | leg. J. Van Goethem || (ISEA).

**Description.** Dorsum (Fig. 1). Body length 5.7 mm, elongate, shiny, blackish, sides and apex of elytra with distinct macrosetation.

Head (Fig. 4) relatively large, trapezoidal, convex, shiny, without microreticulation. Clypeus gently bordered, widely sinuate anteriorly, denticulate on sides, widely rounded laterally, not notched before genae, clypeal border without macrosetae. Genae obtuse, very distinctly exceeding eyes, with few very short, thin macrosetae. Frontal suture not noticeable, without gibbositities. Punctuation simple: basally very dense, quite

coarse, with variable in size, rounded punctures; in the middle very dense, coarse, with somewhat variable in size, longitudinal punctures; anteriorly moderately dense, not so coarse, irregular in size, with rounded punctures.

Epipharynx (Fig. 5) transverse, with lateral sides broadly rounded, anterior margin of pedia concavely arcuate, corypha below of margin of pedia, indistinct, with two very short, thick celtas. Mesoepitorma shortened basally, somewhat pear-shaped. Acanthopariae with dense, very short and thin chaetae; acropariae with dense, short and thinner chaetae than on acanthopariae; chaetopariae with dense belt of thick, long chaetae; adelochaetae similar to chaetopariae, but less dense; prophobae very short and thin chaetae; chaetopediae without chaetae. Tormae long.



Figs 1-3. *Airapus madangensis* sp. nov., ♀, holotype: 1- dorsal view; 2- ventral view; 3- lateral view. Figs 1-3: scale lines: 1.0 mm.

Pronotum transverse, approximately as wide as base of elytra, widest in the middle,

convex, shiny, without microreticulation, with simple, quite regularly distributed punctation, punctures are coarser on disc, quite irregular in shape, mainly rounded. Base not distinctly bordered by a groove, anteriorly and on sides not bordered. Sides and base moderately long, quite thick macrosetae. Anterior angles widely rounded. Base before hind angles truncate.

Scutellum small, triangular, with ogival sides, with few small punctures, moderately shiny, without microreticulation.



Figs 4-5. *Airapus madangensis* sp. nov., ♀, holotype: 4- head; 5- epipharynx. Fig. 4-5: scale lines: Fig. 4: 1.0 mm; Fig. 5: 0.2 mm.

Elytra elongate, convex, parallel, shiny, with weak microreticulation (which is more distinct on sides and before apex), with short and thin macrosetae on sides and before apex; with small indistinct humeral denticles; with ten striae and ten intervals. Intervals shiny, convex, with quite regularly distributed, simple, coarse punctation; part of punctures nearby sides connected with

punctures of striae and because of it striae seems indenting intervals margins here very distinctly; on sides because of that structure intervals seems to be somewhat tuberculate. Striae distinctly, quite densely punctate, with medium sized punctures; punctures distinctly indenting margins of intervals. All striae joined together before apex.

Legs. Femora shiny, without microreticulation, moderately coarsely and sparsely punctate, with punctures bearing very short macrosetae. Protibiae distinctly tridentate laterally, proximally not serrulate; dorsal side smooth, shiny, with few very fine punctures; apical spur long, moderately broad, gently downwardly and inwardly bent, with apex rounded. Meso- and metatibiae fimbriate apically with row of short spinules of equal length. Apex of metatibiae without accessory spine. Metatibiae superior apical spur very slightly shorter than basimetatarsomere, latter approximately as long as three of next metatarsomeres combined. Claws short, thin, distinctly arcuate.

Macropterous.

Venter (Fig. 2). Meso-metaventral plate shiny, weakly convex, with distinct, shallow, quite narrow longitudinal furrow in the middle; furrow with deeper part nearby base and nearby apex, additionally with reversed-heart shaped concavity before apex; surface with moderately coarse, sparse punctures. Abdominal ventrites moderately shiny, anteriorly weakly fluted, with weak microreticulation, with sparse, moderately coarsely, irregularly spaced punctures; all punctures bearing very short and quite thin macrosetae. Pygidium with similar structure to ventrites.

**Etymology.** Toponymic; an adjective derived from the name of Madang province, where the new species was collected.

**Variability.** Body length: 5.6 – 5.7mm. Punctuation of body is weakly variable.

**Sexual dimorphism.** Unknown.

**Affinity.** Newly described species at first glance, due to relatively regularly convex body, not very distinctly deplanate anterior angles of the pronotum and lack of typical deplanations on sides of the pronotum, as well as the relatively normally developed elytral intervals with macrosetae only on the sides and before apex, seems to be more similar to the genus *Ataenius* Harold, 1867. Besides, large distance between mesocoxae, typical shape of meso-metaventral plate, denticulate clypeus and typical punctuation of head definitely place newly described species in the genus *Airapus* Stebnicka & Howden, 1996. *Airapus madangensis* sp. nov. can be distinguished from all other known species due to unique structure of elytral intervals (quite smooth on the disc, slightly granulate on the sides; with characteristic punctuation); additionally it cannot be including to any group of species created by Stebnicka (1998) and due of it is easily distinguishable from other species from Papua New Guinea. Additional body composites that allow it to be distinguished from other species are shape of meso-metaventral plate and shape of scutellum – both of which are distinctive and unique among different species of the genus. In any case, the two features mentioned need to be studied in the future in different manuscript, as they are not easy to determine (unique shapes of concavities before apex of meso-metaventral plates, unique clustering of scutellum punctuation, etc.), and also – with this features it will probably be easier in the future to determine the relationship of affinities between species and possible new genera (as *Airapus* or even *Ataenius* (see Stebnicka, 2007) probably paraphyletic, due to the presence of unique features between some species).

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