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**A NEW SPECIES OF THE GENUS  
*PARAMICROPLUS* (COLEOPTERA, SCARABAEIDAE,  
MELOLONTHINAE, HOPLIINI)  
FROM MADAGASCAR**

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**A New Species of the Genus *Paramicroplus* (Coleoptera, Scarabaeidae, Melolonthinae, Hopliini) from Madagascar. Vasko, B. M.** — An illustrated description and diagnosis of *Paramicroplus keithi* sp. n. and an updated key to the species of the genus *Paramicroplus* Lacroix, 1998 are provided. The new species is similar to *P. vitellinus* Lacroix, 1998, differing by the slightly larger body size, the shape of clypeus, the peculiar shape of aedeagus, and other characteristics.

Key words: *Paramicroplus*, diagnosis, new species, taxonomy, morphology, Madagascar.

## Introduction

Lacroix (1998) described the genus *Paramicroplus* Lacroix, 1998 with nine species, characterized by compact, short body and small size (3–5 mm). Type species: *Microplus strigatus* Burmeister, 1844 (original designation). Scales on elytra are in most species arranged in longitudinal bands. The clypeus is mainly with a straight or slightly recessed anterior margin, in males mostly with small teeth on anterior margin. The Sexual dimorphism is poorly expressed: in females, the anterior margin of clypeus is almost evenly rounded, without teeth; protibial teeth are more elongated. Species of the genus *Paramicroplus* are mainly common in the East of Madagascar.

A previously undescribed species with main characters of the genus *Paramicroplus* was found among unidentified material collected by Professor V. G. Dolin† on Madagascar in 2001–2002. A description of the new species is provided below.

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## Material and Methods

The studied samples were examined using a stereomicroscope MBS-9; measurements were carried out using an integrated reticle. Length measurement is from the anterior margin of the clypeus to the apex of elytra.

Photographs were taken using a Leica Z16 APO stereomicroscope equipped with a Leica DFC 450 camera and processed with LAS Core and Adobe Photoshop.

The labels are given *verbatim* for the material under study. The Aedeagus was extracted and cleaned by hand without any chemical or heat treatment to avoid any deformation. Later, it was glued on a cardboard attached to the specimen under description. Terminology and abbreviations follow Lacroix (1998) with minor modifications.

### *Paramicroplus keithi* sp. n. (Figs 1–7)

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**Material. Type.** Holotype ♂: Madagascar, Centr. Plat. Andasibe, Perinet, 950 m, 19–31.12.2001, V. Dolin & R. Andreeva leg. (ex. in the author's working collection, will later be deposited SIZK).

**Differential diagnosis.** *Paramicroplus keithi* sp. n. is very similar to *P. vitellinus* Lacroix, 1998 in the shape and colour of the scales, the cover of pronotum, elytra and pygidium, but can be readily differentiated by the characters in Table 1 and the key below. According to Lacroix (1998), *P. vitellinus* has the first band of scales reaching scutellum and all bands straight. In my opinion, this is an important character that should be added to the key to species. However, the new species is similar to *P. castaneus* (Blanchard, 1850) in the form and lateral margins of pronotum at the same time, the form of aedeagus resembles *P. vittatus* (Burmeister, 1844), but parameres is apically more developed and extended.



**Fig. 1.** *Paramicroplus keithi* sp. n., ♂ — dorsal view

**Description.** Male (Figs 1–7). Length 4.6 mm. Habitus short oval, compact, dorsal side reddish-brown, slightly shiny, covered with yellow elongated oval scales that do not hide the main background. Antennal club, legs, entire ventral side, propygidium, and pygidium dark brown. Maxillary palps and antennal segments brown-yellow.

Head (Fig. 3) normal, matte, almost evenly covered with yellow oval scales. Clypeus trapezoidal, internally curved and with strongly raised anterior margin, with blunt teeth. Lateral margins with noticeable notches in front of anterior angles, in middle of a strongly raised and rounded, covered with grayish bristles with a sharp apex. Clypeofrontal suture weakly defined, matte, with numerous round matte recessed and wrinkled fossae near the anterior margin. Front matte and shiny, with small transverse wrinkles and pits, its surface, as well



Fig. 2. *Paramicroplus keithi* sp. n., ♂ — lateral view

as genal margin, and the basal segment of antenna sparsely covered with whitish-grey elongated bristles with a sharp apex. Ocular canthus covered with yellow oval scales and thick, dense and long yellow-gray bristles with a sharp apex. Antenna with nine antennomeres, antennal club moderately shiny, covered with numerous hairs. Last segment of maxillary palp elongated, thin, shiny, slightly curved at apex.

Pronotum (Fig. 4) massive, not very transverse with converging sides in their anterior and posterior part, widest, approximately in the middle. Surface cellular-wrinkled, moderately shiny, unevenly covered with yellow elongated oval scales, along lateral and posterior margins with oval scales. Irregularly shaped areas devoid of scales near lateral margins and angles posterior. Anterior angles elongated with rounded apex. Lateral margins moderately curved, from the anterior angles to middle with single short yellowish bristles. Posterior angles with rounded apex.

Scutellum triangular, with rough micro-sculpture on the surface, at a distance from the lateral margins, densely covered with yellow-white oval scales, hiding integument.

Elytra compact, smoothly rounded to apex, with a small tooth in their apical part. Surface cellular-wrinkled, moderately shiny. Scales on elytra yellow elongated oval, arranged in longitudinal bands, at the base with single yellow-white elongated oval scales. First band of scales (counting from sutural stria) not reaching scutellum. Third band markedly curved, all other bands straight. Epipleuron clearly defined, quite wide, gradually decreasing to the apex of elytra.

Venter. Thorax, mesepisternum, metepisternum and sternites densely covered with yellow-white oval scales; femora of all legs and abdominal sternites moderately shiny, with small wrinkles and scattered punctuation, unevenly covered with whitish-grey elongated oval scales.

Pygidium (Fig. 5). Moderately convex, almost equal in length and width. Surface with strong



Fig. 3. *Paramicroplus keithi* sp. n., ♂ — head



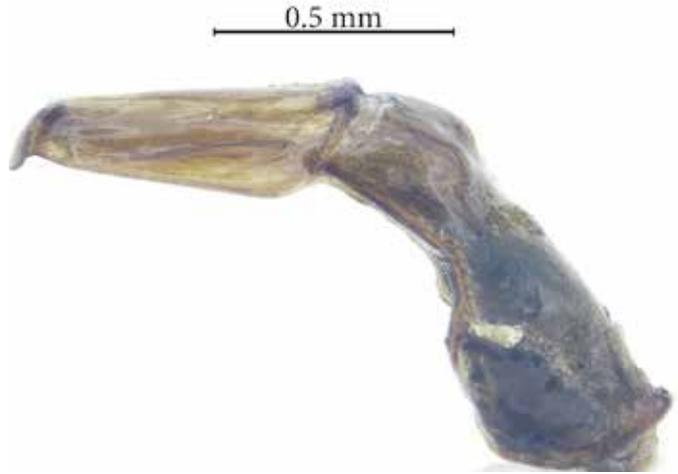
Fig. 4. *Paramicroplus keithi* sp. n., ♂ — pronotum



Fig. 5. *Paramicroplus keithi* sp. n., ♂ — pygidium



**Fig. 6.** *Paramicroplus keithi* sp. n., ♂ —aedeagus, dorsal view



**Fig. 7.** *Paramicroplus keithi* sp. n., ♂ — aedeagus, lateral view



**Fig. 8.** Locus typicus of *Paramicroplus keithi* sp. n. in Alaotra-Mangoro region (Eastern Madagascar) (Modified from map: Google Earth with data from SIO, NOAA, U.S. Navy, NGA, GEBCOLandsat/Copernicus AfriGIS Pty Ltd IBCAO)

Table 1. The main differences for the species *P. vitellinus* and *P. keithi* sp. n.

| Characters                          | <i>P. vitellinus</i>                     | <i>P. keithi</i> sp. n  |
|-------------------------------------|--|---|
| Size                                | 3.5–4 mm                                 | = 4.6 mm  |
| Anterior margin of clypeus          | Slightly raised, wider, denticles weaker | Strongly raised, narrow, denticles stronger                           |
| Lateral margins of clypeus          | Slightly raised                          | Strongly raised   |
| Lateral margins of pronotum (males) | Evenly rounded                           | Moderately curved   |
| Scales of dorsal side               | Oval yellow                              | Oval and elongated yellow and yellow-white                            |
| Bands on elytra                     | First reaches scutellum, all straight    | First does not reach scutellum. Third markedly curved, other straight |

wrinkles and punctuation, moderately shiny, unevenly covered with yellow-white oval scales, bare in the middle. Lateral margins and apex covered with long yellowish and whitish bristles and hairs.

Legs strong, surface moderately shiny, covered with whitish-grey elongated and apically sharpened scales. Protibiae bidentate, strong, dent apical short, basal clearly distinct. Protarsi and mesotarsi with articles I–IV very short. Metatarsi long. Metatarsal claws elongated. Inner margin slightly convex in the middle of the length. Left article V and metatarsal claw missing.

Aedeagus as on Figs 6, 7.

Female unknown.

Distribution. This Species is known only from the territory of the Andasi-be-Mantidia National Park, Moramanga district (Périnet), which is located in Alaotra-Mangoro region, in Eastern Madagascar (Fig. 8).

Etymology: The specific name is dedicated to Denis Keith, specialist in Melolonthinae of the Palaearctic and Oriental Regions, Chartres, France.

#### Key to species of the genus *Paramicroplus* (modified from Lacroix, 1998)

1. Pronotum elongate, narrow, rounded at base; scutellum very narrow; scales round and white, arranged in bands..... *P. occiduus* Lacroix
- Pronotum transverse, wide at base, scutellum wide ..... 2
2. Pronotum densely covered with scales, more abundant on sides and middle; secondary hairs present ..... 3
- Pronotum covered with fine regularly arranged scales; secondary hairs absent ..... 8
3. Scales of dorsal side yellow ..... 4

- Scales of dorsal side white ..... 6
- 4. Scales of dorsal side strong, rounded; anterior margin of clypeus males narrow, internally curved ..... *P. castaneus* (Blanchard)
- Scales of dorsal side fine, oval, arranged on elytra in longitudinal bands ..... 5
- 5. Anterior margin of clypeus males slightly raised, wider, denticles weaker; first band reaches scutellum, all other straight; smaller: < 4.2 mm ..... *P. vitellinus* Lacroix
- Anterior margin of clypeus males strongly raised, narrow, denticles stronger; first band not reaching scutellum, third markedly curved other straight, larger: > 4.2 mm ..... *P. keithi* sp. n.
- 6. Scales on elytra abundant, arranged in very clear bands ..... *P. vittatus* (Burmeister)
- Scales on elytra rare, present along the suture ..... 7
- 7. Scales of dorsal side, oval, body large; larger: > 4.85 mm ..... *P. obscurus* Lacroix
- Scales of dorsal side, round, body narrow; smaller: < 4.85 mm ..... *P. devastivus* Lacroix
- 8. Basal dent of protibia indistinct; dents on male clypeus pronounced; small species with short body ..... *P. brevis* (Blanchard)
- Basal dent of protibia always distinct; dents on male clypeus weak; body more elongated ..... 9
- 9. Colour body reddish-brown; scales on elytra arranged in very distinct bands; anterior angles of pronotum weak ..... *P. strigatus* (Burmeister)
- Colour body blackish; scales on elytra more dispersed; anterior angles of pronotum pronounced ..... *P. insignicollis* (Burmeister)

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