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A new species of the genus *Madecorphnus* (Coleoptera: Scarabaeidae: Orphninae) from Madagascar

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Madagascar has a unique and diverse Orphninae (Coleoptera: Scarabaeidae) fauna with four genera and 39 described species (Paulian 1977, Frolov *et al.* 2016). Half of these species belong to the genus *Madecorphnus* Paulian, 1992 (Paulian 1992, Frolov 2010a,b, 2012, 2014). The purpose of this paper is to describe a new species of *Madecorphnus* and provide a new record for *M. dentatus* Frolov, 2010.

Morphological terminology follows Frolov *et al.* (2016). Photographs of the habitus and parameres were taken with a Leica Z16 APOA system from dry specimens. The photographs were stacked with LAS software and edited with Adobe Photoshop. The endophallus was prepared and photographed according to Frolov *et al.* (2017). The distributional records map was generated with ArcGIS software (ESRI Ltd.). Coordinates of the localities were taken from the specimen labels. The material examined is housed in the collection of the Field Museum of Natural History, Chicago, United States of America (FMNH). The label data are given verbatim with slashes indicating a line break on the label.

Madecorphnus grandis Frolov, Smith, and Akhmetova, new species (Figures 1–5.)

Type material. Holotype: male at FMNH labeled “MADAGASCAR: Befin- / gotra (11.0 km WSW), / Rés Anjanaharibe-Sud, / 14°45’S, 49°27’E, / 1565m, montane rain- / forest, 16.XI.1994 // FMHD #94-58, Winkler / extraction of sifted litter / (leaf mold, rotten wood) / B. L. Fisher #1232 (1-50) / FIELD MUS. NAT.”.

Description. Holotype, male (Figs. 1–5). Body length 7.5 mm (without mandibles). Color uniformly dark brown, almost black, legs and underside of body somewhat paler.

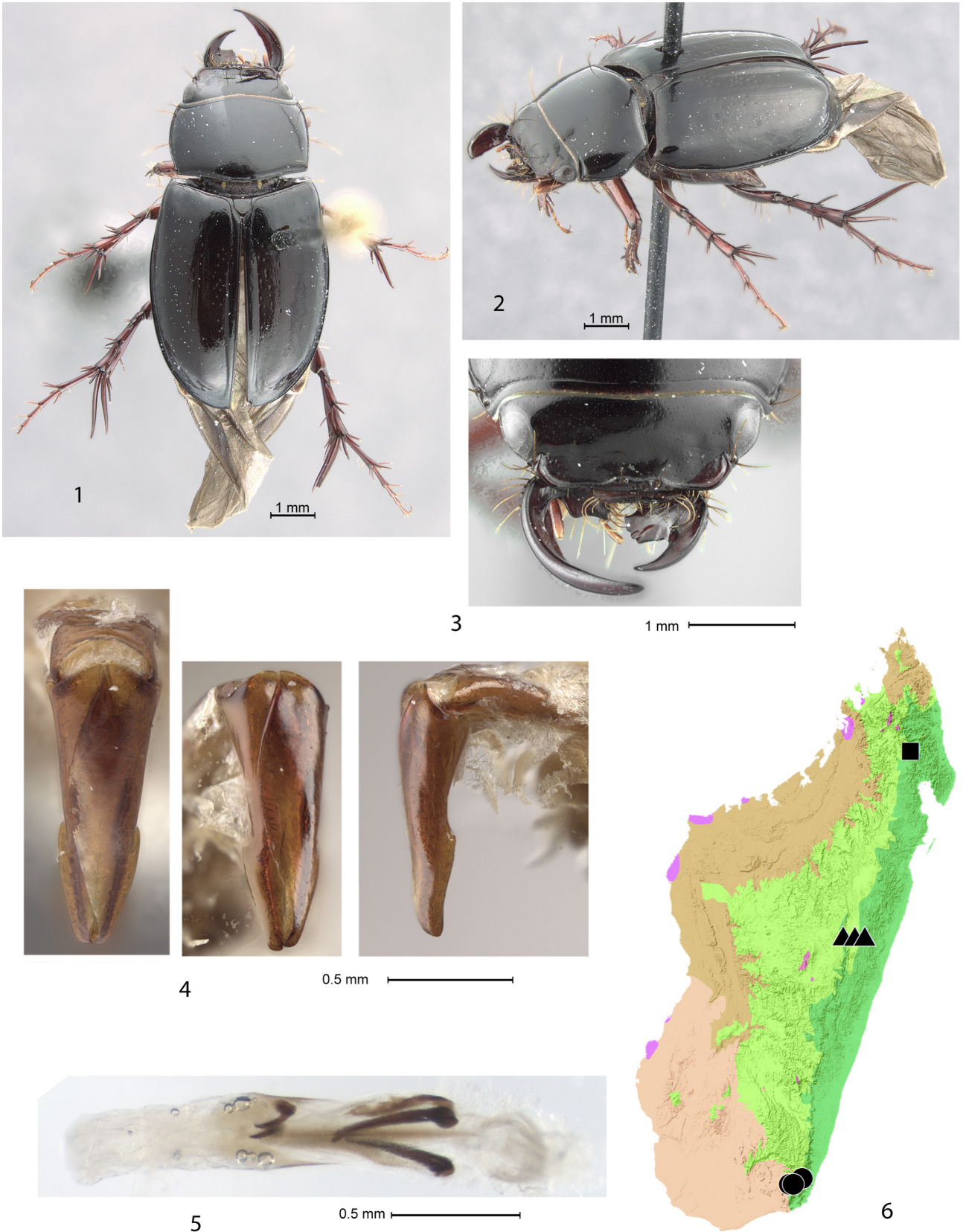
Right mandible 2 times longer than left, without tooth behind apex (Fig. 3). Labrum subtrapezoidal, with slightly rounded sides, length about 1/8 width (in dorsal view). Clypeus slightly asymmetrical, apically obtuse, with 2 long and 3 shorter setae on the apical margin. Canthus and frontal suture indistinct. Clypeus slightly depressed apicomediaally. Head without traces of frontoclypeal suture, finely punctate with minute punctures separated by greater than 4 times their diameter.

Pronotum approximately 1.5 times wider than long, widest medially. Disc of pronotum convex, without any depressions, tubercles, or ridges. Punctuation on pronotum similar to that on head. Margins with relatively wide border, lateral margins with 4 long setae: 1 seta on basal angle, 1 seta approximately in the middle of lateral margin, and 2 setae on the apical angle.

Scutellum triangular, angulate apically, about 1/12 length of elytra.

Elytra convex, with distinct humeral and apical umbones, widest at basal third. First stria distinct and reaching the apex of elytron, other striae indistinct. Elytra with double punctuation: entire surface with minute punctures similar to those on head and pronotum; disc with larger, sparse, elongate, setigerous punctures. Epipleura with long, sparse, brown setae. Base of elytron with border from scutellum to humeral callus. Wings fully developed.

Protibiae with 3 outer teeth, lateral margin basad of outer teeth not crenulate. Apex with robust, spur-like seta and a few smaller setae basally. Mesothoracic and metathoracic legs similar in shape to each other. Longer tibial spur shorter than mesotarsomeres 1–2 in mesothoracic legs and as long as metatarsomeres 1–2 in metathoracic legs.



FIGURES 1–6. *Madecorphnus* species. A–E. *Madecorphnus grandis* new species, holotype. Habitus (1, 2), head (3), parameres in dorsal and lateral view (4), endophallus (5). Distributional records (6; square—*M. grandis*, triangle—*M. peyrierasi*, circle—*M. dentatus*).

Apices of parameres rounded in lateral view (Fig. 4). Lateral teeth of parameres poorly developed, situated approximately in middle of lateral paramere margin. Endophallus with 2 large, robust spinules with a sclerotization near base of one of spinules, and 2 smaller, comma-shaped sclerites (Fig. 5).

Female unknown.

Diagnosis. This species is similar to *M. peyrierasi* Frolov, 2010 and, especially, *M. perinetensis* Frolov, 2010 in the shape of the endophallus armature but differs in having comma-shaped sclerites longer than in other species, wider and rounded in lateral view apices of parameres, and in less developed lateral teeth of parameres. The new species is also 1.5–2.0 mm longer than *M. peyrierasi* and *M. perinetensis* specimens and somewhat longer than the holotype of *M. falcatus* Paulian, 1992, the largest *Madecorphanus* species known so far.

Distribution. The new species is known from a tropical rainforest in the Anjanaharibe-Sud Reserve, in mid-altitude escarpments of northern Madagascar (Fig. 6). The nearest *Madecorphanus* locality is that of *M. barclayi* Frolov, 2012 in the northern part of the Masoala Peninsula (Frolov 2012), some 100 km southeast of Anjanaharibe-Sud. The similar species *M. peyrierasi* and *M. perinetensis* occur some 500 km to the south (Fig. 6).

Etymology. Adjective in the nominative singular. From the Latin *grandis* for large, denoting the relatively large size of the species.

***Madecorphanus dentatus* Frolov, 2010 (Figure 6.)**

Frolov 2010a: 1105.

Material examined. Two males at FMNH labeled “MADAGASCAR: Enakara / (13 km NW), Rés Ando- / hahela, 24°33'S, 46° / 48'E, 1250m, montane / rainforest, 30.XI.1992 // FMHD #92-165, Winkler / extraction of sifted litter / (leaf mold, rotten wood) / B. L. Fisher #561 (1-50) / FIELD MUS. NAT.”

The new locality is near the type locality of the species on the Andohahelo plateau. Both specimens are similar in size to the holotype. One specimen has the right mandible 1.5 times longer than the left, and similar in shape to that of the holotype of *M. grandis* new species.

Acknowledgments

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References cited

- Frolov, A.V. (2010a) Revision of the Madagascan genus *Madecorphanus* Paulian (Coleoptera, Scarabaeidae, Orphninae). *Journal of Natural History*, 44, 1095–1111.
<https://doi.org/10.1080/00222931003632765>
- Frolov, A.V. (2010b) A new species of scarab beetle, *Madecorphanus cuccodoroi* (Coleoptera: Scarabaeidae: Orphninae), from northern Madagascar. *Zootaxa*, 2531, 64–68.
- Frolov, A.V. (2012) Three new species of scarab beetle genus *Madecorphanus* Paulian, 1992 (Coleoptera: Scarabaeidae: Orphninae) from Madagascar. *Proceedings of the Zoological Institute RAS*, 316, 159–165.
- Frolov, A.V. (2014) New species of the Madagascan scarab beetle genus *Madecorphanus* Paulian, 1992 (Coleoptera: Scarabaeidae: Orphninae). *Proceedings of the Zoological Institute RAS*, 318, 34–39.
- Frolov, A.V., Akhmetova, L.A. & Vaz-de-Mello, F.Z. (2017) Revision of the mainland species of the Neotropical genus *Aegidium* Westwood (Coleoptera: Scarabaeidae: Orphninae). *Journal of Natural History*, 51, 995–1014.
<https://doi.org/10.1080/00222933.2017.1319519>
- Frolov, A.V., Montreuil, O. & Akhmetova, L.A. (2016) Review of the Madagascan Orphninae (Coleoptera: Scarabaeidae) with a revision of the genus *Triodontus* Westwood. *Zootaxa*, 4207 (1), 1–93.
<https://doi.org/10.11646/zootaxa.4207.1.1>
- Paulian, R. (1977) Les Orphnidae de Madagascar, Insecta Coleoptera Scarabaeoidea. *Bulletin du Muséum National d'Histoire Naturelle, 3e série, Zoologie*, 411, 1199–1223.
- Paulian, R. (1992) Un nouveau genre et une nouvelle espèce d'Orphnidae de Madagascar (Coleoptera, Scarabaeoidea). *Revue Française d'Entomologie, New Series*, 14, 169–171.