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Taxonomic revision of the Afrotropical scarab beetle genus *Cerhomalus* Quedenfeldt, 1884 (Coleoptera: Scarabaeidae: Orphninae)

Andrey V. FROLOV^{1,*} & Lilia A. AKHMETOVA²

^{1,2}Laboratory of Insect Systematics, Zoological Institute, Russian Academy of Sciences, Universitetskaya nab., 1, St.-Petersburg, 199034 Russia.

*Corresponding author: frolov@scarabaeoidea.com

²Email: akhmetova@scarabaeoidea.com

¹[urn:lsid:zoobank.org:author:FB31931B-44B9-4C22-963B-1023CEA88A21](https://zoobank.org/author:FB31931B-44B9-4C22-963B-1023CEA88A21)

²[urn:lsid:zoobank.org:author:BA35DDDD-6E6A-47A4-AB73-965EB4A92CC3](https://zoobank.org/author:BA35DDDD-6E6A-47A4-AB73-965EB4A92CC3)

¹<https://orcid.org/0000-0002-6724-6828>

²<https://orcid.org/0000-0002-2151-1278>

Abstract. The Afrotropical scarab beetle genus *Cerhomalus* Quedenfeldt, 1884 (Coleoptera: Scarabaeidae) is revised. Two new species are described: *C. quedenfeldti* sp. nov. and *C. petrovitzi* sp. nov. A new combination, *Cerhomalus absconditus* (Petrovitz, 1971) comb. nov., is established. The genus occurs in Central and West Africa with the majority of records from the Congo Basin. Keys, descriptions, illustrations of habitus and male genitalia, and distributional record map are given.

Keywords. Orphnines, Congo Basin, Angola, Republic of the Congo, Democratic Republic of the Congo.

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Introduction

The scarab beetles of the subfamily Orphninae Erichson, 1847, are a predominantly tropical group of insects distributed mostly in the southern continents. The Afrotropical Region is the centre of the diversity of orphnines, with over a hundred species occurring from Sahel in the north to Little Karoo in the south (Paulian 1948; Petrovitz 1971; Frolov 2005, 2013; Frolov & Akhmetova 2016, 2020). Among the Afrotropical orphnines, there is a small group, *Cerhomalus* Quedenfeldt, 1884, which included two nominal species and was treated by different authors as either a distinct genus or a subgenus of *Orphnus* Macleay, 1819.

Cerhomalus was erected by Quedenfeldt (1884) as a genus within the Orphninae (Orphnidae sensu Quedenfeldt) for a single species, *C. mechowii* Quedenfeldt, 1884, described in the same paper. In the diagnosis of the genus, Quedenfeldt (1884) mentioned the large size of the beetles (twice as large as

specimens of *Orphnus*) and the clypeus with a transverse keel. After the original description, *Cerhomalus* was mentioned in a few papers including the catalogues by Arrow (1912) and Schmidt (1913). Paulian (1948) noted that the genus was more evolved than *Orphnus* but retained some ancestral characters; he did not discuss it in any detail, though. Petrovitz's (1971) work on the genus *Orphnus* was the only publication that included additional original information about *Cerhomalus*. He lowered the rank of *Cerhomalus* to a subgenus of *Orphnus* and described the second species of the genus, *O. (C.) absconditus* (Petrovitz 1971).

Cerhomalus has not attracted attention since Petrovitz (1971). In the course of our studies of the Afrotropical Orphninae, we have re-examined the material on *Cerhomalus* accumulated in all available collections to date and found that four distinct species of this group can be recognized. This necessitated examination of the types of the nominal species and a taxonomic revision of *Cerhomalus*. The aims of the present paper are to describe two species as new for science, provide a diagnostic key to all *Cerhomalus* species and illustrate their characters, as well as re-evaluate its subgeneric status suggested by Petrovitz (1971).

Material and methods

Morphological terminology follows Frolov *et al.* (2016). Preparation of specimens, digital images and locality map follow Frolov *et al.* (2017). Labels of the type specimens are cited verbatim with separate labels separated by a slash '/

The material used in this work is deposited in the following organisations (curators in parentheses):

- BMNH = Natural History Museum, London, UK (Maxwell Barclay)
- HNHM = Hungarian Natural History Museum (Természettudományi Múzeum), Budapest, Hungary (Otto Merkl)
- MCSNG = Natural History Museum Giacomo Doria, Genova (Roberto Poggi)
- MHNG = Natural History Museum, Geneva, Switzerland (Giulio Cuccodoro)
- MNHN = National Museum of Natural History, Paris, France (Olivier Montreuil)
- RMCA = Royal Museum for Central Africa, Tervuren, Belgium (Didier Van den Spiegel, Stéphane Hanot)
- SDCMR = Sergey Dementev private collection, Moscow (Sergey Dementev)
- ZMHUB = Museum of Natural History, Leibniz Institute for Evolution and Biodiversity Science, Berlin, Germany (Johannes Frisch, Joachim Willers)

Results

Taxonomic treatments

Class Insecta Linnaeus, 1758
 Order Coleoptera Linnaeus, 1758
 Family Scarabaeidae Latreille, 1802
 Subfamily Orphninae Erichson, 1847

Cerhomalus Quedenfeldt, 1884
 Figs 1–6

Cerhomalus Quedenfeldt, 1884: 289, pl. VIII, fig. 7.

Cerhomalus – Karsch 1887: 5. — Quedenfeldt 1888: 165. — Arrow 1912: 30. — Schmidt 1913: 71. — Paulian, 1948: 11.

Orphnus (*Cerhomalus*) Quedenfeldt – Petrovitz 1971: 2.

Type species

Cerhomalus mechowii Quedenfeldt, 1884, by monotypy.

Diagnosis

The largest orphnines (body length 15–22 mm). Colour uniformly dark brown to black. Clypeus of both sexes with a transverse keel, higher and apically bilobate in males (Fig. 1A) and lower but distinct in females (Fig. 1G). Pronotal disc of males more or less depressed, sometimes slightly excavated, but distinct pronotal lateral processes always absent. Elytra convex, without ridges, with humeral umbones. Elytral surface sparsely covered with rounded punctures; punctures arranged in longitudinal striae, which are more distinct on disc. Protibiae with 3 strong outer teeth similar in both sexes. Apical protibial spur absent in males. Middle and posterior legs similar in shape; posterior femora and tibiae about $\frac{1}{8}$ longer than middle ones. Parameres symmetrical, not setose apically, very wide in lateral view; inner sides of parameres with longitudinal excavations in 3 species (Fig. 1E). Ventroapical part of phallobase strongly sclerotized, in shape of 2 incompletely separated sclerites (Figs 1C, 5A, *va. phlb. sc.*).

Species composition

The genus comprises four species including two new ones described below.

Distribution

The genus occurs in Central and West Africa with the majority of records from the Congo Basin (Fig. 6).

Key to species of *Cerhomalus* (males)

1. Apices of parameres rounded in apical view, without semi-circular excavations (Fig. 2G, J) and without keels or fossae on ventral side (Fig. 2K); base of elytra with somewhat tile-shaped punctures (Fig. 2A–B) *Cerhomalus absconditus* (Petrovitz, 1971) comb. nov.
– Apices of parameres with semi-circular excavations in apical view (Figs 1E, 3F, 4F, J) and with more or less developed fossae on ventral sides bordered with keel (Fig. 1F); base of elytra smooth (Figs 1A, G, I, 3A, C, 4A, C) 2
2. Ventral fossae on apices of parameres not bordered proximally (Fig. 4G, K, arrowed); apices of parameres in lateral view acute-angled (Fig. 4D, H) *Cerhomalus quedenfeldti* sp. nov.
– Ventral fossae on apices of parameres completely bordered (Figs 1F, 3G); apices of parameres in lateral view right-angled (Figs 1C, 3D) 3
3. Widened part of paramere (in lateral view) about half length of paramere (Fig. 1C); ventral fossa of paramere shorter and wider (Fig. 1F) *Cerhomalus mechowii* Quedenfeldt, 1884
– Widened part of paramere (in lateral view) about two thirds length of paramere (Fig. 3D); ventral fossa of paramere longer and narrower (Fig. 3G) *Cerhomalus petrovitzi* sp. nov.

Cerhomalus mechowii Quedenfeldt, 1884

Figs 1, 5B, 6

Cerhomalus mechowii Quedenfeldt, 1884: 290.

Cerhomalus mechowii – Arrow 1912: 30. — Schmidt 1913: 71.

Orphnus mechowii (Quedenfeldt) – Petrovitz 1971: 2.

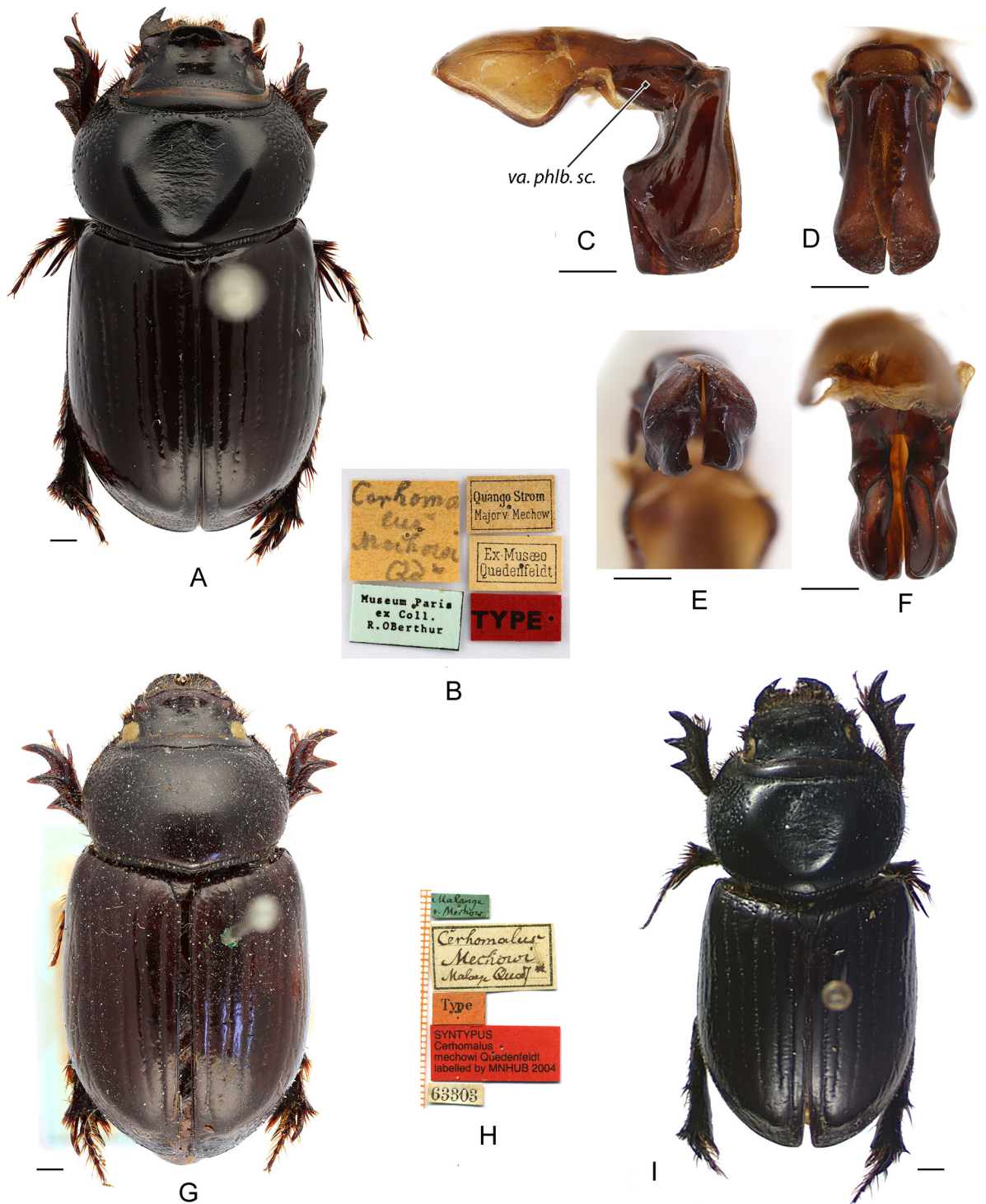


Fig. 1. *Cerhomalus mechowi* Quedenfeldt, 1884. A–F. Lectotype, ♂ (MNHN). G. Paralectotype, ♀ (MNHN). H–I. Paralectotype, ♂ (ZMHUB). A, G, I. Habitus in dorsal view. B, H. Labels. C. Aedeagus in lateral view. D. Parameres in dorsal view. E. Parameres in apical view. F. Parameres in ventral view. Abbreviation: *va. phlb. sc.* = ventroapical phallobase sclerite. Scale bars = 1.0 mm.

Differential diagnosis

Cerhomalus mechow is most similar to *C. petrovitzi* sp. nov. but differs from it in having the widened part of a paramere (in lateral view) about half the length of the paramere (Fig. 1C, vs about $\frac{2}{3}$ the length of the paramere in *C. petrovitzi* sp. nov. (Fig. 3D)) and the ventral fossa of a paramere shorter and wider (Fig. 1F, vs longer and narrower in *C. petrovitzi* sp. nov. (Fig. 3G)).

Type material

Lectotype (here designated)

ANGOLA • ♂; “Quango Strom [Quango River] Major v. Mechow / Ex-Musaeo Quedenfeldt / *Cerhomalus mochow* [sic!] Qd / TYPE / Museum Paris ex Coll. R. Oberthur”; MNHN.

Paralectotype

ANGOLA • 1 ♀; same collection data as for lectotype; MNHN • 1 ♂; “Malange v. Mechow”; ZMHUB.

Remarks

The male paralectotype housed in ZMHUB lacks the aedeagus.

Distribution

The species is known from two localities in northwestern Angola (Fig. 6).

Cerhomalus absconditus (Petrovitz, 1971) comb. nov.

Figs 2, 5A, 6

Orphnus (*Cerhomalus*) *absconditus* Petrovitz, 1971: 3.

Differential diagnosis

Cerhomalus absconditus can be easily separated from congeners by having the apices of the parameres rounded (in apical view), without semi-circular excavations (Fig. 2G, J) and without keels or fossae on ventral side (Fig. 2K), and the base of elytra with somewhat tile-shaped punctures (Fig. 2A–B).

Material examined

Holotype

DEMOCRATIC REPUBLIC OF THE CONGO • ♂; “COLL. MUS. CONGO Tshuapa: Yokamba /1953 J. Stevenard / HOLOTYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA.

Paratypes

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♀ “COLL. MUS. CONGO Kasai: Ipamu -1937 R. Soeur Imelda / PARATYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA • 5 ♀♀; “COLL. MUS. CONGO Kwango: Djuma 1953 /R.P.G. Leta/ PARATYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz / coll. Petrovitz”; RMCA • 1 ♂; “COLL. MUS. CONGO Lulua: Kapanga – XI-1933 F.G. Overlaet / PARATYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA • 1 ♂; “MUS. ROY. AFR. CENTR. Kasai: terr. Dekese I.1960 F. Francois / PARATYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA • 1 ♀; “MUSEE DU CONGO Kasai: Don de la Cie du Kasai / PARATYPUS / R. DET. 1939 F / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA • 1 ♂; “MUSEE DU CONGO Kasai: Ipamu -VIII -1922 P. Vanderijst / PARATYPUS / R. DET. 1939 F / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA • 2 ♂♂; “Musee du Congo Kinda (Katanga) 1927 (Don M. Muller.) / Kinda Katanga 1926 Congo / *O. (Cerhomalus) absconditus* n.sp. Petrovitz / PARATYPUS / R. DET. 1939 F / 139”; MHNG • 1 ♀; “MUSEE DU CONGO Murlambongo (Idiofa) - 1930 (Les Soeurs de la

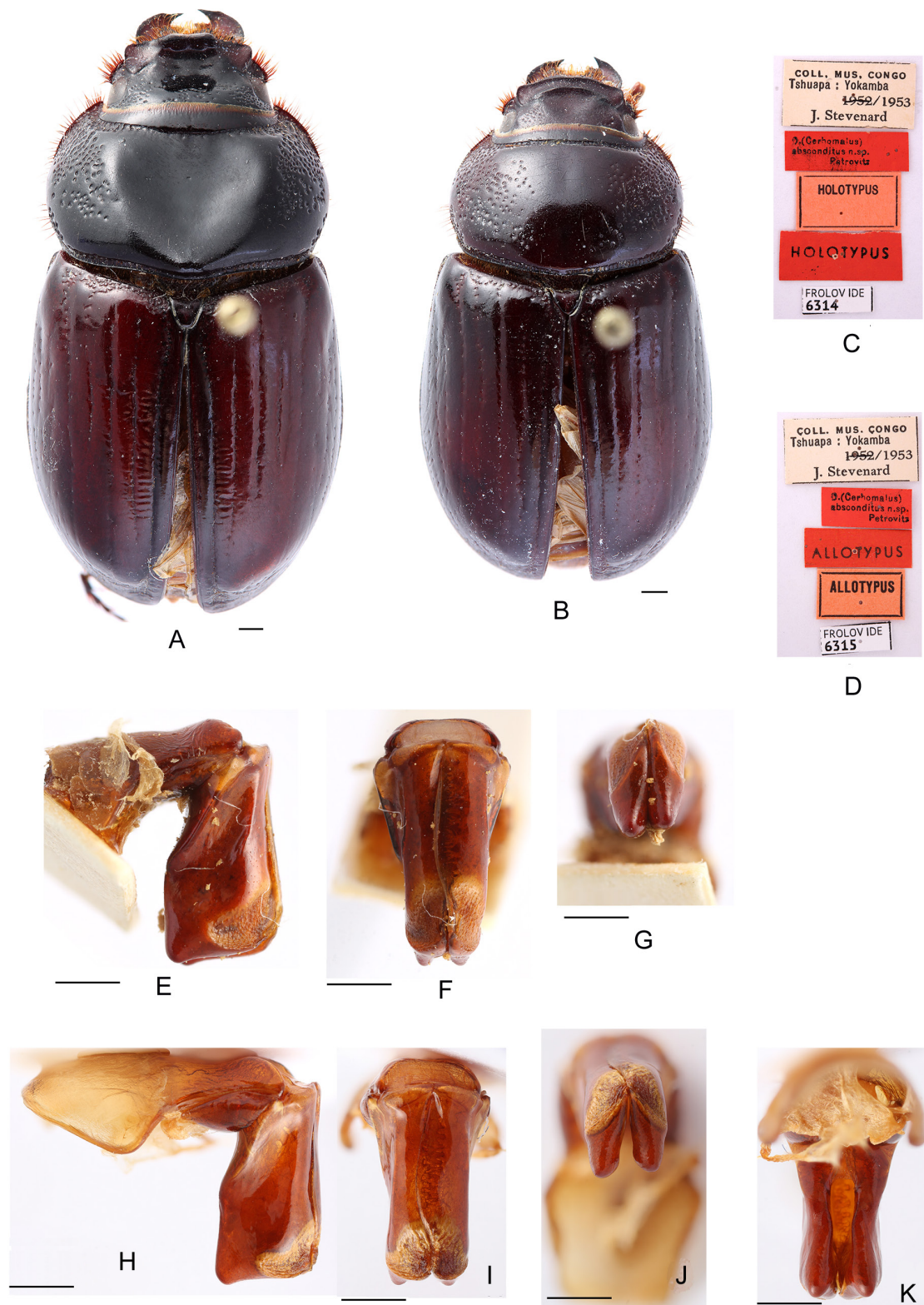


Fig. 2. *Cerhomalus absconditus* (Petrovitz, 1971). A, C, E–G. Holotype, ♂ (RMCA). B, D. Paratype, ♀ (RMCA). H–K. Male specimen from Andrada, Angola. A–B. Habitus in dorsal view. C, D. Labels. E, H. Aedeagus in lateral view. F, I. Parameres in dorsal view. G, J. Parameres in apical view. K. Parameres in ventral view. Scale bars = 1.0 mm.

Mission) / PARATYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA • 1 ♂; “Musée du Congo Sankuru: Komi (Lodja) 27-I-1930 J. Ghesquiere / R. DET 1939 F / *Cerhomalus mehowi* Qued. / *O. (Cerhomalus) absconditus* n.sp. Petrovitz / PARATYPUS”; RMCA • 1 ♂; “COLL. MUS. CONGO Sankuru: Katako-Kombe VIII - 1952 Dr M. Fontaine / *O. (Cerhomalus) absconditus* n.sp. Petrovitz / PARATYPUS / PARATYPUS”; MCSNG • 1 ♂, 1 ♀; “COLL. MUS. CONGO Tshuapa : Ikela 1956 R. Deguide / PARATYPUS / *O. (Cerhomalus) absconditus* n. sp. Petrovitz”; RMCA • 1 ♀; “COLL. MUS. CONGO Tshuapa : Ikela 1956 R.P. Lootens / PARATYPUS / *O. (Cerhomalus) absconditus* n. sp. Petrovitz”; RMCA • 1 ♀; “COLL. MUS. CONGO Tshuapa: Bosekele VI-1952 J. Van Vynckt / *O. (Cerhomalus) absconditus* n.sp. Petrovitz / PARATYPUS”; RMCA • 1 ♀; “COLL. MUS. CONGO Tshuapa: Yokamba /1953 J. Stevenard / ALLOTYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz”; RMCA • 1 ♂; “COLL. MUS. CONGO Terr. de Dibaya Kamponde 1945 Rev. Fr. ALLAER 1945 / PARATYPUS / *O. (Cerhomalus) absconditus* n. sp. Petrovitz”; RMCA • 1 ♀; “COLL. MUS. CONGO Katoka-Luluabourg / -1938 R. P. VANKERCKHOVEN / PARATYPUS / *O. (Cerhomalus) absconditus* n.sp. Petrovitz / coll. Petrovitz”; RMCA • 1 ♂; “MUSEE DU CONGO Luebo -III-1931. 1 ex. J.P. Colin / *O. (Cerhomalus) absconditus* n.sp. Petrovitz / PARATYPUS”; RMCA.

Other material

DEMOCRATIC REPUBLIC OF THE CONGO • 1 ♀; Équateur, Tshuapa, Etata; Aug.–Sep. 1969; J. Hauwaert leg.; RMCA.

ANGOLA • 1 ♂, 3 ♀♀; Bié, Catabola; 15–27 Sep. 2012; T. Lackner leg.; BMNH • 4 ♀♀; Lunda Norte, Andrada; 7°41' S, 21°17' E; Aug.–Sep. 1952; M. Fetchkowsky leg.; RMCA • 2 ♀♀; Dundo; Sep. 1948; Machado leg.; RMCA • 1 ♂; Cuando Cubango Province, N of Menongue City; 1600 m a.s.l.; 22 Nov. 2019; S. Dementev leg.; SDCMR.

CAMEROON • 1 ♂; 1912; BMNH.

Distribution

This is the most widely distributed species of the genus. The majority of records are from the Congo basin, but the species occurs up to Cameroon in the north (no precise locality is recorded) and to the Ancient Plateau in Angola in the south (Fig. 6).

Cerhomalus petrovitzi sp. nov.

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Figs 3, 5C, 6

Differential diagnosis

Cerhomalus petrovitzi sp. nov. is most similar to *C. mehowi* in having the ventral fossae on the apices of the parameres completely bordered (Figs 1F, 3G) and the apices right angled in lateral view (Figs 1C, 3D) but can be separated from it in having the widened part of a paramere (in lateral view) about two thirds the length of the paramere (Fig. 3D) and ventral fossa of a paramere longer and narrower (Fig. 3G).

Etymology

The new species is named after Rudolf Petrovitz (1906–1974), a German coleopterist.

Type material

Holotype

DEMOCRATIC REPUBLIC OF THE CONGO • ♂; “MUSEE DU CONGO BELGE KISANTU P. Goossens”; MNHN.

Paratypes

DEMOCRATIC REPUBLIC OF THE CONGO • 2 ♂♂, 1 ♀; same collection data as for holotype; RMCA • 1 ♂; “MUSEE DU CONGO Belge [Kasaï-Occidental] (Don M. Corpentier)”; MHNG.

Other material

NIGERIA • 1 ♂; “Nigeria W. Afr. / (Staudinger coll.) 1914-412.”; BMNH.

Description

Male, holotype (Fig. 3A–B, D–G)

Body length 20.1 mm. Colour uniformly brown to black.

Anterior margin of frontoclypeus somewhat rectangular, slightly convex in middle, bordered and slightly serrate in dorsal view (Fig. 3A). Frontoclypeus with a keel-shaped transverse process near anterior margin; height of keel about half its width. Surface of frontoclypeus almost smooth, with minute punctures. Eye tubercles feebly developed. Eyes rather large: width about $\frac{1}{6}$ distance between eyes in dorsal view. Antennae 10-segmented.

Pronotum widely rounded laterally, as wide as elytra. Anterior border wide. Basal border narrow, keel-shaped, separated from pronotal disc by deep groove with row of longitudinally elongated punctures. Pronotal disc with a rounded depression occupying more than half of the surface, somewhat rugose anteriorly. Most of pronotum surface covered with minute punctures separated by more than 3 puncture diameters. Anterolateral angles with much larger and denser punctures; posteriolateral angles with same punctures but in smaller numbers.

Scutellum subtriangular, narrowly rounded apically, about $\frac{1}{10}$ length of elytra.

Elytra 1.1 times longer than wide, with distinct humeral humps. Elytra widest in middle, lateral margins almost parallel in basal half. First (sutural) stria distinct, as groove with row of punctures. Other stria before humeral humps as rows of round setiferous punctures. Striae laterad of stria 5 feebly distinct. Elytral intervals covered with minute punctures, somewhat sparser than those on pronotum.

Macropterous.

Abdominal sternite 8 medially longer than sternites 6 and 7 combined; sternite 6 about as long as sternite 7. Pygidium invisible from above, with slightly truncate apex. Plectrum triangular with rounded apex, wider than long.

Aedeagus. Ventral fossae on the apices of the parameres completely bordered, long and narrow (Fig. 3G); apices of parameres right angled in lateral view, its widened part (in lateral view) about two thirds the length of paramere (Fig. 3D).

Female

Female (Fig. 3C) differs from male in having a relatively smaller, convex pronotum without tubercles and only with a small depression medially, frontoclypeus with much smaller, low keel not bimodal apically, protibial spur, and pygidium with rounded apex. Body length 21.0 mm.

Variation

Body length of examined male paratypes varies from 17.0 to 22.5 mm.

Distribution

The species is known from western Democratic Republic of the Congo (Fig. 6). The record from Nigeria is doubtful and need confirmation, therefore the specimen is not included in the type series.



Fig. 3. *Cerhomalus petrovitzi* sp. nov. A–B, D–G. Holotype, ♂ (MNHN). C. Paratype, ♀ (RMCA). A, C. Habitus in dorsal view. B. Labels. D. Aedeagus in lateral view. E. Parameres in dorsal view. F. Parameres in apical view. G. Parameres in ventral view. Scale bars = 1.0 mm.

Cerhomalus quedenfeldti sp. nov.

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Figs 4, 5D, 6

Differential diagnosis

Cerhomalus quedenfeldti sp. nov. is similar to *C. mechowi* and *C. petrovitzi* sp. nov. in having the apices of the parameres with semi-circular excavations in apical view and with more or less developed fossae on ventral sides bordered with a keel, but can be separated from them in having the ventral fossae on the apices of the parameres not bordered proximally (Fig. 4G–K, arrowed) and the apices of the parameres in lateral view acute-angled (Fig. 4D, H).

Etymology

The new species is named after Friedrich Otto Gustav Quedenfeldt (1817–1891), a German coleopterist.

Type material

Holotype

REPUBLIC OF THE CONGO • ♂; “Congo Brazzaville O.R.S.T.O.M. XI-1965 R. Paulian”; MNHN.

Paratypes

REPUBLIC OF THE CONGO • 1 ♂; “Mai 1978 Voka Congo Coll. Th. Porion”; MNHN; 6 ♀♀; “Congo Brazzaville O.R.S.T.O.M. XI-1965 R. Paulian”; MNHN • 1 ♀; “CONGO BRAZZAVILLE XI-57 / ORSOM PARIS MOUCHET 1957”; MNHN • 1 ♀; “Soil-Zoological Exp. Congo-Brazzaville Brazzaville ORSTOM / 18.10.1963 No 3 singled in park leg. Endrody-Younga”; HNHM • 1 ♂; “Soil-Zoological Exp. Congo-Brazzaville Brazzaville ORSTOM park / 16.1.1964 No 695 soil trap in forest leg. Balogh & Zicsi”; HNHM • 1 ♀; “Soil-Zoological Exp. Congo-Brazzaville Brazzaville ORSTOM park / 22.12.1963 No 492 soil trap leg. Balogh & Zicsi”; MHNG • 2 ♂♂, 3 ♀♀; “Brazzaville Congo XI-1963 / MUSEUM PARIS Mission A. Descarpentiers et A. Villiers 1963-1964”; MNHN • 1 ♂; “Soil-Zoological Exp. Congo-Brazzaville Kindamba, Kimboukou river/ 28.10.1963. No 38 singled on river side leg. Endrody-Younga”; MHNG.

Description

Male, holotype (Fig. 4A–B, D–G)

Body length 19.8 mm. Colour uniformly brown to black.

Anterior margin of frontoclypeus somewhat rectangular, slightly convex in middle, bordered and slightly serrate in dorsal view (Fig. 4A). Frontoclypeus with a keel-shaped transverse process near anterior margin; height of keel about $\frac{2}{3}$ its width. Surface of frontoclypeus almost smooth, with minute punctures. Eye tubercles feebly developed. Eyes rather large: width about $\frac{1}{6}$ distance between eyes in dorsal view. Antennae 10-segmented.

Pronotum widely rounded laterally, as wide as elytra. Anterior border wide. Basal border narrow, keel-shaped, separated from pronotal disc by deep groove with row of longitudinally elongated punctures. Pronotal disc depressed, somewhat rugose anteriorly. Most of pronotum surface covered with minute punctures separated by more than 3 puncture diameters. Anterolateral angles with much larger and denser punctures; posteriolateral angles with same punctures but in smaller numbers.

Scutellum subtriangular, narrowly rounded apically, about $\frac{1}{10}$ length of elytra.

Elytra 1.1 times longer than wide, with distinct humeral humps. Elytra widest in middle, lateral margins almost parallel in basal half. First (sutural) stria distinct, as groove with row of punctures. Other stria

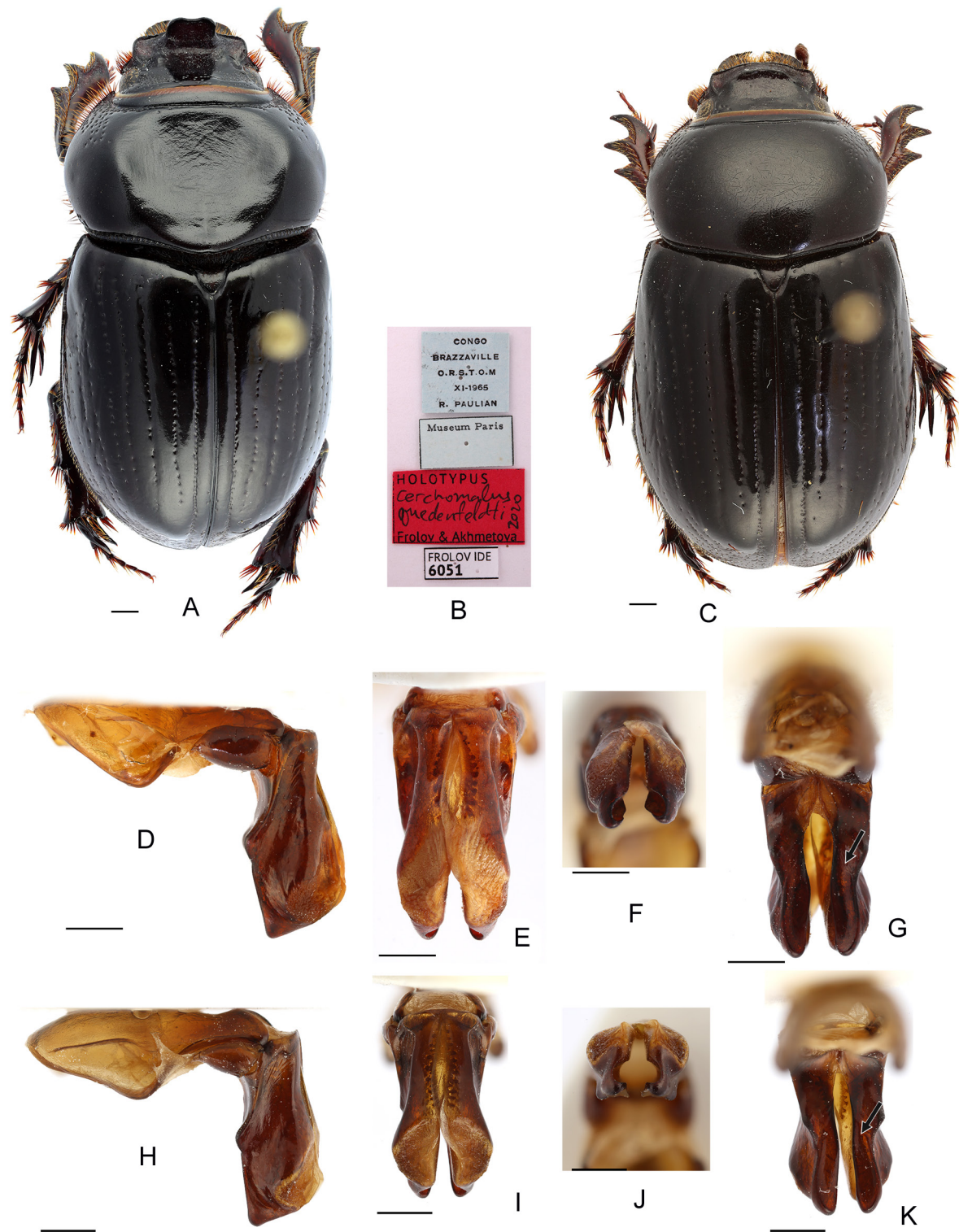


Fig. 4. *Cerhomalus quedenfeldti* sp. nov. **A–B, D–G.** Holotype, ♂ (MNHN). **C.** Paratype, ♀ (MNHN). **H–K.** Paratype, ♂ from Voka ♀ (MNHN). **A, C.** Habitus in dorsal view. **B.** Labels. **D, H.** Aedeagus in lateral view. **E, I.** Parameres in dorsal view. **F, J.** Parameres in apical view. **G, K.** Parameres in ventral view. Scale bars = 1.0 mm.

before humeral humps as rows of round setiferous punctures. Striae laterad of stria 5 feebly distinct. Elytral intervals covered with minute punctures, somewhat sparser than those on pronotum.

Macropterous.

Abdominal sternite 8 medially longer than sternites 6 and 7 combined; sternite 6 about as long as sternite 7. Pygidium invisible from above, with slightly truncate apex. Plectrum triangular with rounded apex, wider than long.

Aedeagus. Apices of parameres acute angled in lateral view (Figs 4D, H, 5D), with semi-circular excavations in apical view (Fig. 4F, J) and with more or less developed fossae on ventral sides not bordered proximally (Fig. 4G, K).

Female

Female (Fig. 4C) differs from male in having a relatively smaller, convex pronotum without tubercles, frontoclypeus with much smaller, low keel not bimodal apically, protibial spur, and pygidium with rounded apex.

Variation

Body length of examined male paratypes varies from 18.5 to 22.5 mm (males) and from 16.0 to 19.0 mm (females).

Distribution

The species is known from a few localities in the Republic of the Congo (Fig. 6).

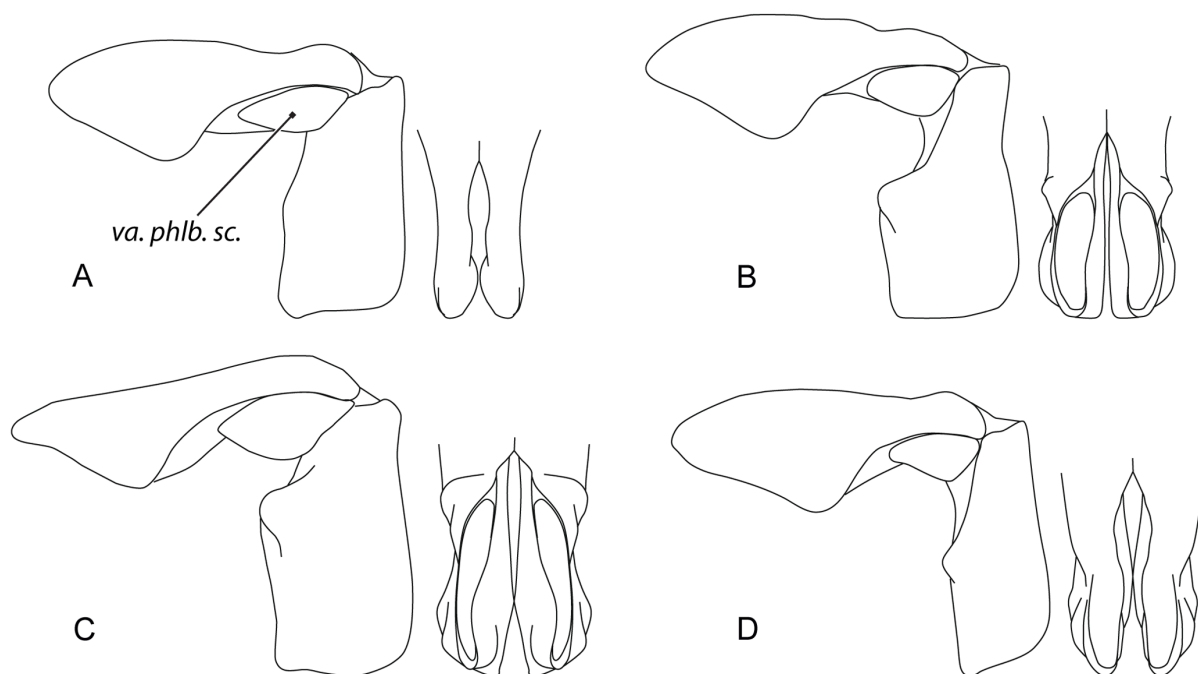


Fig. 5. *Cerhomalus* spp., scheme of aedeagus in lateral view and parameres in ventral view. **A.** *C. absconditus* (Petrovitz, 1971). **B.** *C. mechowi* Quedenfeldt, 1884. **C.** *C. petrovitzi* sp. nov. **D.** *C. quedenfeldti* sp. nov. Abbreviation: *va. phlb. sc.* = ventroapical phallobase sclerite. Not to scale.

Discussion

Petrovitz (1971) argued that *Cerhomalus* should be considered a subgenus of *Orphnus* based on the presence of the similarly shaped head and pronotum in different species of *Orphnus*. Indeed, the shape of the head and pronotum varies considerably within *Orphnus* and some species of this genus show the habitus similar to that of *Cerhomalus*. However, these are mostly the secondary sexual characters that are found in males and are subject to reasonable allometric variation. Phylogenetic value of such characters is unclear. Also, Petrovitz (1971) did not recognize the unique structure of the ventroapical part of the phallobase (see above), the character that distinguishes *Cerhomalus* from *Orphnus*. Therefore, until a phylogenetic analysis supporting the changes of the generic status of *Cerhomalus* is available, we follow Quedenfeldt and the majority of other authors and consider *Cerhomalus* as a separate genus.

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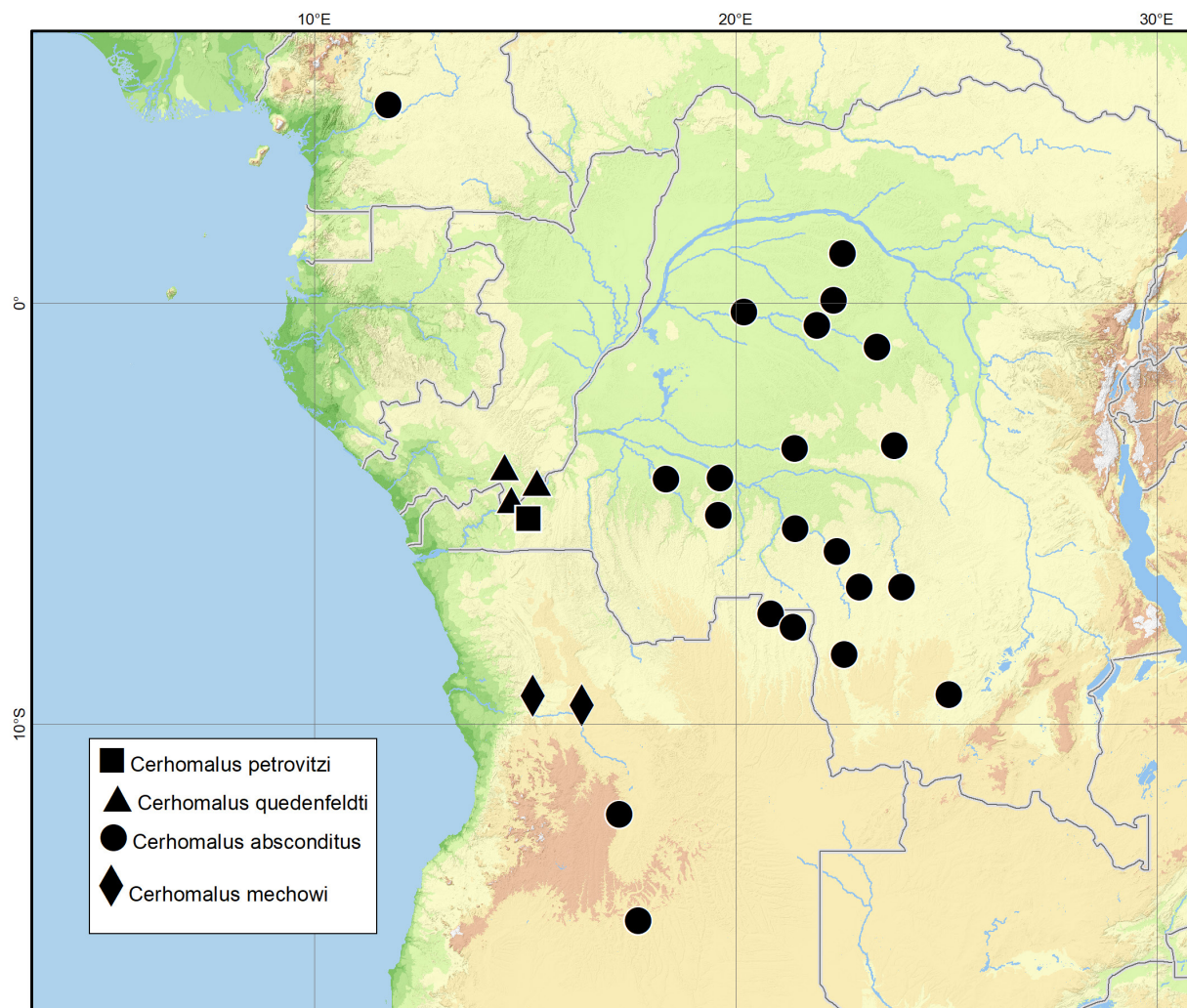


Fig. 6. *Cerhomalus* spp., distributional record map.

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References

- Arrow G.J. 1912. Pachypodinae, Pleocominae, Aclopiniae, Glaphyrinae, Ochodaeinae, Orphninae, Idiostominae, Hybosorinae, Dynamopinae, Acanthocerinae, Troginae. In: Junk W. & Schenkling S. (eds) *Coleopterorum Catalogus* 43: 1–66. W. Junk, Berlin.
- Frolov A.V. 2005. Taxonomic position of *Sissantobius mandibularis* (Lansberge) and synonymy of *Orphnus* over *Sissantobius* (Coleoptera, Scarabaeidae, Orphninae). *Journal of Afrotropical Zoology* 2: 69–72.
- Frolov A.V. 2013. New and little known species of the genus *Orphnus* MacLeay (Coleoptera: Scarabaeidae: Orphninae) from the East African Rift. *Zootaxa* 3710: 297–300. <https://doi.org/10.11646/zootaxa.3710.3.8>
- Frolov A.V. & Akhmetova L.A. 2016. Revision of the subgenus *Orphnus* (*Phornus*) (Coleoptera, Scarabaeidae, Orphninae). *European Journal of Taxonomy* 241: 1–20. <https://doi.org/10.5852/ejt.2016.241>
- Frolov A.V. & Akhmetova L.A. 2020. Description of a new brachypterous scarab species, *Orphnus brevialetus* (Coleoptera: Scarabaeidae: Orphninae) from East Africa, with notes on flightlessness in the orphnines. *Zootaxa* 4750: 425–431. <https://doi.org/10.11646/zootaxa.4750.3.8>
- 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: 1–93. <https://doi.org/10.11646/zootaxa.4207.1.1>
- 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: 1035–1090. <https://doi.org/10.1080/00222933.2017.1319519>
- Karsch F. 1887. Altes und Neues über Koleopteren. *Berliner Entomologische Zeitschrift* 31: 1–8. <https://doi.org/10.1002/mmnd.18870310105>
- Paulian R. 1948. Revision des *Orphnus* africains (Coleoptera, Scarabaeidae). *Annales de la Société entomologique de France* 117: 1–75.
- Petrovitz R. 1971. Beitrag zur Kenntnis der Gattung *Orphnus* M'Leay (Orphninae, Scarabaeidae, Coleoptera). *Revue de zoologie et de botanique africaines* 84: 1–46.
- Quedenfeldt G. 1884. Verzeichniss der von Herrn Major a. D. von Mechow in Angola und am Quango-Strom 1878–1881 gesammelten Pectinicornen und Lamellicornen. *Berliner Entomologische Zeitschrift* 28: 265–340. <https://doi.org/10.1002/mmnd.18840280207>
- Quedenfeldt G. 1888. Beiträge zur Kenntniss der Koleopteren-Fauna von Central-Afrika nach den Ergebnissen der Lieutenant Wissman'schen Kassai-Expedition 1883 bis 1886. *Berliner Entomologische Zeitschrift* 32: 155–219.
- Schmidt A. 1913. *Coleoptera. Lamellicornia. Fam. Scarabaeidae. Subfam. Aegialinae, Chironinae, Dynamopinae, Hybosorinae, Idiostominae, Ochodaeinae, Orphninae*. Genera Insectorum 150: 1–87. V. Verteneuil & L. Desmet, Brussels.

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