

Afromorgus reitororum sp. nov. (Coleoptera: Trogidae) from Socotra Island

David KRÁL¹⁾ & Vítězslav KUBÁŇ²⁾

¹⁾Department of Zoology, Faculty of Science, Charles University in Prague, Viničná 7, CZ-128 43 Praha 2, Czech Republic; e-mail: kral@natur.cuni.cz

²⁾Department of Entomology, National Museum, Kunratice 1, CZ-148 00 Praha 4, Czech Republic; e-mail: vkuban@volny.cz

Abstract. *Afromorgus reitororum* sp. nov. from Socotra Island, Yemen is described and its diagnostic characters are illustrated. The new species is compared with similar and probably closely related species *A. squalidus* (Olivier, 1789), *A. frater* (Pittino, 2005), *A. saturoi* (Kawai, 2006) and species of the *A. melancholicus* (Fähræus, 1858) group. The differential diagnosis is based mainly on different structure of the pronotum and elytron, and on the shape of aedeagus.

Key words. Coleoptera, Scarabaeoidea, Trogidae, *Afromorgus*, taxonomy, new species, description, Yemen, Socotra

Introduction

Recently, the authors had an opportunity to study material of Scarabaeoidea collected during several Czech biological expeditions to Socotra, including a new peculiar *Afromorgus* Scholtz, 1986 species described below.

SCHOLTZ (1986) erected *Afromorgus* with the type species *A. squalidus* (Olivier, 1789) as a subgenus of the trogide genus *Omorgus* Erichson, 1847, based predominantly on the characteristic shape of the male genitalia and the Old World type of distribution. Later, *Afromorgus* was elevated to generic rank by PITTINO (2006a). The genus includes, according to present knowledge, about 30 species (HAAF 1954; SCHOLTZ 1980b, 1986; KAWAI 2005; PITTINO 2005, 2006a,b, 2011). The *Afromorgus* species are distributed throughout the Afrotropical and the Oriental regions, but the vast majority (more than 20 species) penetrates into peripheral areas of the Palaearctics (e.g., BARAUD 1985, PAULIAN 1948, PITTINO 2006b, SCHOLTZ 1980a,b).

Material and methods

Specimens were examined with an Olympus SZ61 stereomicroscope, measurements were taken with an ocular graticule. The habitus photographs were taken using a Canon MP-E 65/2.8 MACRO lens with 5:1 optical magnification. Partially focused images of specimens were combined using Helicon Focus 3.20.2Pro software.

Specimens of the newly described species are provided with one printed red label: 'Afromorgus reiterorum sp. nov., HOLOTYPUS [or ALLOTYPUS or PARATYPUS No. x, respectively], sex symbol, David Král & Vítězslav Kubáň det. 2012'. Exact label data are cited for the type material, individual labels are indicated by a double slash (//), individual lines of every label line by a single slash (/). Authors' remarks and additional comments are found in square brackets. Morphological terminology follows SCHOLTZ (1980b). All material is deposited in the collection of the National Museum, Prague, Czech Republic. For details and comments on individual localities visited, including the prevailing spelling, see BEZDĚK et al. (2012).

Taxonomy

Afromorgus reiterorum sp. nov.

(Figs. 1–8)

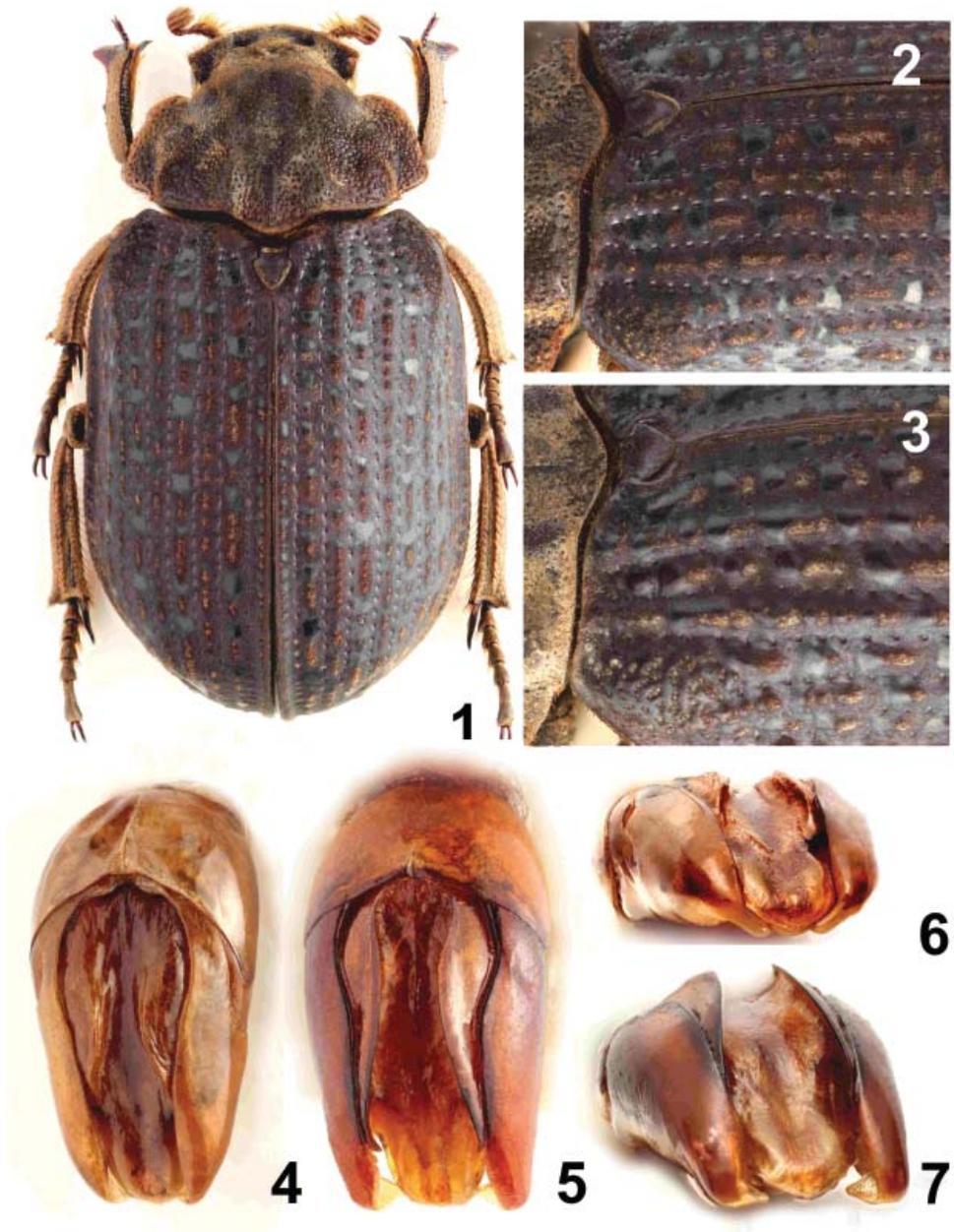
Type locality. Yemen, Socotra Island, Homhil protected area, 364 m a.s.l., 12°34'27"N E 54°18'32".

Type material. HOLOTYPE: ♂, 'Yemen, Soqotra Is. / HOMHIL protected area /, 28-29/xi.2003, 364m / N12°34'27" E54°18'32" / [GPS], David Král lgt. // YEMEN – SOQOTRA 2003 / Expedition; Jan Farkač, / Petr Kabátek & David Král [printed]'. ALLOTYPUS: ♀, same data but 'Jan Farkač lgt.'. PARATYPE No. 1: not sexed spec., 'Yemen, Soqotra Is. / 24-26/xi.2003 / WADIAYHAFT, 190m / N12°36'38" E53°58'49" / [GPS], David Král lgt. // YEMEN – SOQOTRA 2003 / Expedition; Jan Farkač, / Petr Kabátek & David Král [printed]'. PARATYPES Nos. 2–4: (2 ♀♀, 1 not sexed spec. lacking head), 'Yemen, Soqotra Is. / WADI DENEHGHEN /, 27.xi.2003, 85m / N12°36'55" E54°03'49" / [GPS], David Král lgt. // YEMEN – SOQOTRA 2003 / Expedition; Jan Farkač, / Petr Kabátek & David Král [printed]'. PARATYPE No. 5: ♂, 'YEMEN, SOCOTRA island / wadi ES GEGO / 300 m a.s.l. / 12°28'18"N; 54°00'34" / 13.V.2004 lgt. A. Reiter [printed]'. PARATYPE No. 6: ♀, 'YEMEN, Socotra Island E / Kesa env., 220-300 m / N 12°39'37" E 53°26'42" / 28.-29. i. 2010, L. Purchart lgt. [printed]'.

Description of holotype. Total body length 15.0 mm; maximum width (at posterior third of elytron) 7.5 mm; blackish, surface alutaceous, with fulvous or greyish tomentose coating, elytral intervals with flat shiny tubercles; macrosetation pale (Fig. 1).

Clypeus obtusely triangular, with moderately upturned anterior margin and two impunctate, deep, shiny pits anterolaterally on either side; genae rectangular, pointed; frons distinctly bituberculate; punctures coarse, dense, regularly distributed, separated by approximately their diameter; antennal scape elongate, stout, arcuate, pointed, more than twice as long as wide, covered with dense, long macrosetae, flagellomeres dark reddish brown.

Pronotum (Fig. 1) attenuated anteriorly, sides broadly explanate, lateral margins regularly rounded, finely indistinctly wavy over anterior two thirds, then obtusely rounded and obliquely converging backwards, slightly sinuate basally; anterior and posterior angles obtuse, weakly produced; marginal macrosetae sparse, short; base distinctly sinuate and finely margined on either side near visibly produced posteromedian lobe; discal area elevated, smooth, flat, with moderately developed ridges and depressions, basal medial tubercles large, elongate, poorly



Figs. 1–7. 1, 2, 4, 6 – *Afromorgus reiterorum* sp. nov., male. 3, 5, 7 – *A. squalidus* (Olivier, 1789); Namibia, Windhoek, male. 1 – holotype habitus, dorsal aspect; 2–3 – left elytron, dorsolateral aspect; 4–7 – parameres; 4–5 – dorsal oblique aspect; 6–7 – frontal oblique aspect.

Table 1. Characters separating *Afromorgus frater* (Pittino, 2005), *A. reiterorum* sp. nov., *A. satorui* (Kawai, 2006) and *A. squalidus* (Olivier, 1789) from one another, and the known distribution of these taxa.

Character	<i>Afromorgus frater</i> (Pittino, 2005)	<i>Afromorgus reiterorum</i> sp. nov.	<i>Afromorgus satorui</i> (Kawai, 2006)	<i>Afromorgus squalidus</i> (Olivier, 1789)
outline of pronotal lateral margin	broadly rounded (PITTIÑO 2005: Figs. 15, 16)	broadly rounded (Fig. 1)	broadly rounded (KAWAI 2006: Figs. 1, 2)	weakly bisinuate (e.g. PITTIÑO 2005: Fig. 17)
even elytral intervals (II, IV, VI, VIII)	flat; with irregular, flattish, blackish, shiny areas; tomentose patches oval (PITTIÑO 2005: Figs. 15, 16)	flat; with irregular, flattish, blackish, shiny areas; tomentose patches narrowly elongate (Figs. 1, 2)	flat; with irregular, flattish, blackish, shiny areas; tomentose patches oval (KAWAI 2006: Figs. 1, 2)	moderately convex; with oval tubercles; tomentose patches oval (Fig. 3)
odd elytral intervals (III, V, VII)	flat; only with very sparse, flat, blackish, shiny areas (PITTIÑO 2005: Figs. 15, 16)	flat; only with very sparse, flat, blackish, shiny areas (Figs. 1, 2)	flat; only with very sparse, flat, blackish, shiny areas (KAWAI 2006: Figs. 1, 2)	strongly convex; with oval tubercles, and tomentose patches (Fig. 3)
dorsal outline of lateral lobes of aedeagus	broadly rounded with obtuse angle in distal third externally; slightly emarginate internally (PITTIÑO 2005: Fig. 3)	broadly rounded externally; weakly bisinuate internally (Fig. 4)	broadly rounded externally; distinctly bisinuate internally (KAWAI 2006: Fig. 3)	almost straight externally; weakly bisinuate internally (Fig. 5; PITTIÑO 2005: Fig. 5)
lateral lobes of aedeagus apically	weakly sclerotized (PITTIÑO 2005: Figs. 3, 4)	weakly sclerotized (Figs. 4, 6)	more sclerotized (KAWAI 2006: Figs. 3, 5)	more sclerotized (Figs. 5, 7)
dorsal laminae of medial lobe	elevate, complete, pointed apically (PITTIÑO 2005: Figs. 3, 7)	weakly elevate, missing in basal half, rounded apically (Figs. 4, 6)	elevate, complete, rounded apically (KAWAI 2006: Figs. 3, 4)	obviously elevate, complete, sharply pointed apically (Figs. 5, 7)
distribution	India: Karnataka, Pakistan: Punjab, Sri Lanka (PITTIÑO 2005)	Socotra Island	Republic of South Africa: Cape, Ivory Coast (KAWAI 2006, 2009)	almost whole Sub-Saharan Africa north to Mauritania, Algeria, Chad, Somalia, Ethiopia and Egypt, ?Arabia (BARAUD 1985; HAAFF 1954; PITTIÑO 2006a; SCHOLZ 1980a,b)

elevated, joining discal area; surface laterally moderately convex from base to apex, lacking ridges and tubercles, weakly impressed near sides and over short extent medially near base, punctures rather sparse and fine discally, denser and coarser laterally.

Scutellar shield hastate (Figs. 1, 2).

Elytra (Figs. 1, 2) broadly elongate, strongly convex, almost parallel, widest in posterior third; humeral umbones prominent, humeral angles obtuse, moderately produced; epipleurae broad, flat, scarcely declivous, with central row of close small tomentose patches, each bearing single inconspicuous macroseta; external margins smooth, with narrow continuous tomentose rim bearing short, erect macrosetae; sutural interval narrow, moderately convex, other intervals almost flat; even intervals wider than odd ones; even intervals (especially II, IV, VI, VIII) flat, covered with large, irregularly angular, blackish, shiny areas with elongate tomentose patches between; odd intervals (especially III, V, VII) covered with small, very sparsely distributed, black, shiny areas and elongate tomentose patches; each tomentose patch bearing several short, erect macrosetae; striae distinctly impressed, each with deep, coarse, regularly distributed row of punctures. Prosternal apophysis moderately produced, rounded apically.

Protibiae moderately dilated proximad, bidentate apically, dilated apical portion bent moderately ventrad, broadly rounded externally, acutely pointed medially, slightly sinuate in between; external edge with weak denticle approximately at middle and slightly crenate basal third; apical spur robust, regularly curved, pointed, longer than protarsomeres I–IV combined; mesotibiae with smooth external edge.

Male genitalia (Figs. 4, 6). Aedeagus symmetrical; pars basalis sclerotized, fused dorsally; lateral lobes slender, broadly rounded externally, subapical tooth triangular, weakly sclerotized; dorsal laminae of medial lobe weakly elevate, missing in basal half, rounded apically.

Additional external sexual dimorphism not visible.

Variability. Body length 15.0–15.5 mm; all paratypes of both sexes moderately shiny, more or less lacking tomentose patches and macrosetation, all this due to excessive wear on.

Differential diagnosis. The new species belongs to the genus *Afromorgus* sharing the following set of diagnostic characters: clypeus reflexed, antennal scape elongate, pedicel attached subapically, pronotal length less than half elytral length, scutellar shield hastate, aedeagus with complex medial lobe, and pars basalis well sclerotized, fused dorsally. It is related to *A. squalidus* (Olivier, 1789) and allies, namely *A. frater* (Pittino, 2005), and *A. satorui* (Kawai, 2006), in having smoothly rounded both lateral pronotal and elytral margins, discal area of pronotum with tubercles and ridges, and elytral tubercles moderately prominent. Due to the very similar male genitalia, *A. satorui*, known from the Republic of South Africa (KAWAI 2006) and Ivory Coast (KAWAI 2009), seems to be the closest relative to the new species, which is allied, though to a lesser degree, also to the species of *A. melancholicus* (Fåhræus, 1858) group *sensu* PITTINO (2011). *Afromorgus reitterorum* sp. nov., several populations of *A. squalidus* which inhabit arid areas, and the members of *A. melancholicus* species group all exhibit irregularly spaced black shiny areas on elytra. The new species can be separated from them mainly by dorsal laminae of median lobe of the aedeagus which are simple, only weakly elevated (not complicatedly prolonged – see PITTINO 2011). For detailed differentiation of *A. frater*, *A. reitterorum* sp. nov., *A. satorui* and *A. squalidus* from each other see Table 1.

Collecting circumstances. Specimens of the type series were captured at light (Homhil and Wadi Esgego), from under a stone (Wadi Ayhaft) and from soil under remains of chickens

(mainly dry bones and feathers) in dump on the outskirts of the village (Wadi Deneghen).

Etymology. Patronymic; named in honour of the Reiter's family, long-time friends of DK and renowned biologists, spouses Lenka and Antonín and their three daughters (Daniela, Hana and Lucie). Additionally, Antonín is one of the collectors of the new species.

Distribution. Endemic to the Socotra Island.

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