

INSECTA MUNDI

A Journal of World Insect Systematics

0429

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from northern Tanzania (Coleoptera: Scarabaeidae: Scarabaeinae)

Svatopluk Pokorný
Prague, Czech Republic

Jiri Zidek
Prague, Czech Republic

Date of Issue: July 10, 2015

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Insecta Mundi 0429: 1–7

ZooBank Registered: urn:lsid:zoobank.org:pub:6A21D9CF-97CD-4B64-9701-D691AB9FE3BE

Published in 2015 by

Center for Systematic Entomology, Inc.
P. O. Box 141874
Gainesville, FL 32614-1874 USA
<http://centerforsystematicentomology.org/>

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Layout Editor for this article: Eugenio H. Nearn

Checklist of *Kheper* Janssens and description of a new species from northern Tanzania (Coleoptera: Scarabaeidae: Scarabaeinae)

Svatopluk Pokorný
Prague, Czech Republic
pokornys@upcmail.cz

Jiri Zidek
Prague, Czech Republic
jrzidek@gmail.com

Abstract. All species-group names of the genus *Kheper* Janssens (Coleoptera: Scarabaeidae: Scarabaeinae) are presented in a checklist and *Kheper rolciki* **sp. n.** from northern Tanzania is described. The new species belongs to the cupreus group, whose species are illustrated and a key to them is provided.

Key Words. Checklist, new species, key to cupreus group of *Kheper*, Tanzania.

Introduction

The genus *Kheper* was established by Janssens (1940) and currently includes over 20 species, only two of them described subsequent to Janssens' 1940 revision – *K. zurstrasseni* Davis, 1986 and *K. kalaharicus* Davis, Deschodt and Scholtz, 2011. Three species are south- to southeastern Palearctic to Oriental (*K. devotus*, *K. erichsoni*, *K. sanctus*), one (*K. aegyptiorum*) inhabits the southern Palearctic / Afrotropical transition zone, and all other species are confined to the Afrotropical region. Most infra-specific taxa are varieties not governed by the International Code of Zoological Nomenclature (ICZN 1999), only Moretto (1998) regards his three taxa as subspecies (of *K. festivus*). Forgie et al. (2005, 2006), Davis et al. (2008) and Deschodt et al. (2011) regarded *Kheper* as a subgenus of *Scarabaeus* Linné and gave the number of its valid species as 24, whereas we concur with Ziani and Gudenzi (2012) in regarding *Kheper* as a genus and doubt that the number of species can be presently determined with certainty. This is because Ferreira's (1972) account is merely a reiteration of Janssens (1940), some of whose taxonomic decisions need to be re-examined (e.g. the validity of *K. paganus*, *K. purpurascens* or *K. vanderkelleni*). However, it is beyond the scope of this study and has no bearing on the species introduced below, which is distinctive enough to be safely described as new.

Checklist

***Kheper* Janssens, 1940: 14, 59**

For type repositories see Janssens (1940).

Type species: *Ateuchus aegyptiorum* Latreille, 1827, by subsequent designation in Janssens (1940).

aegyptiorum (Latreille, 1827: 9) (*Ateuchus*); Egypt to Kenya.

a. var. cuprescens (Gillet, 1907: 592) (*Scarabaeus*).

a. var. fulgidus (Gillet, 1907: 592) (*Scarabaeus*).

a. var. nigricans (Gillet, 1907: 592) (*Scarabaeus*).

a. var. purpurascens (Gerstaecker, 1871: 48) (*Ateuchus*). [syn. in Janssens 1940 and Ferreira 1972]
aeratus (Gerstaecker, 1871: 48) (*Ateuchus*); e. Africa.

a. var. transversorugosus (Kolbe, 1897: 133) (*Scarabaeus*). [described as a species]

–*aeruginosus* (Klug, 1855: 650) (*Ateuchus*); = *cupreus*

asceticus (Gillet, 1907: 590) (*Scarabaeus*); Somalia.

- bettoni* (Waterhouse, 1897: 553) (*Scarabaeus*); = *laevistriatus*
bonellii (MacLeay, 1821: 498) (*Scarabaeus*); RSA (w. Cape).
clericus (Boheman, 1857: 167) (*Ateuchus*); RSA (Natal, Transvaal). [redescribed by Davis 1986: 374]
–*corinthius* (Fairmaire, 1887: 102) (*Scarabaeus*); = *aegyptiorum*
–*cribricollis* (Waterhouse, 1885: 231) (*Ateuchus*); = *pustulosus*
cupreus (Castelnau, 1840: 65) (*Ateuchus*); DRC, Mozambique, Namibia, RSA, Zimbabwe.
 c. var. atroviridis Janssens, 1940: 68.
cuvieri (MacLeay, 1821: 499) (*Scarabaeus*); Senegal.
devotus (Redtenbacher, 1844: 515) (*Ateuchus*); India (W. Bengal), se. Afghanistan, Pakistan.
erichsoni (Harold, 1867: 94) (*Ateuchus*); India, Sri Lanka.
festivus (Harold, 1868: 79) (*Scarabaeus*); Angola, Benin, DRC, Nigeria, Togo, Zimbabwe.
 f. ssp. nicolasi Moretto, 1998: 31; Cameroon.
 f. ssp. simoni Moretto, 1998: 32; CAR, DRC.
 f. ssp. wellsii Moretto, 1998: 33; Burundi, Tanzania.
–*infernalis* (Klug, 1855: 650) (*Ateuchus*); = *lamarcki*
intermedius (Gillet, 1909: 194) (*Scarabaeus*); Angola, DRC. [described as a var. of *nigroaeneus*]
kalaharicus Davis, Deschodt and Scholtz, 2011: 284 (*in* Deschodt et al. 2011) (*Scarabaeus* (*Kheper*));
 Botswana, RSA. **Stat. n.**
laevistriatus (Fairmaire, 1893: 147) (*Scarabaeus*); Somalia, Kenya.
lamarcki (MacLeay, 1821: 499) (*Scarabaeus*); DRC, Mozambique, RSA (Natal, Transvaal), Zimbabwe.
–*mashuanus* (Péringuey, 1901: 28, 32) (*Scarabaeus*); = *vanderkelleni* [= *festivus* in Janssens 1940]
–*metallicus* (Boheman, 1857: 164) (*Ateuchus*); = *cupreus*
–*namibicus* Krajcik, 2006: 21; = *cupreus* [syn. by Deschodt et al. 2011]
nigroaeneus (Boheman, 1857: 165) (*Ateuchus*); Mozambique, RSA, Zimbabwe.
 n. var. usurpator (Gillet, 1907: 593) (*Scarabaeus*); RSA (Cape).
paganus (Harold, 1878: 101) (*Scarabaeus*); Zimbabwe. [= *festivus* in Janssens 1940]
platynotus (Bates, 1888: 201) (*Scarabaeus*); Mozambique.
porosus (Bates, 1888: 202) (*Scarabaeus*); e. Africa.
prodigiosus (Erichson, 1843: 23) (*Ateuchus*); DRC, Mozambique, Namibia, Zimbabwe.
–*pubiventris* (Lansberge, 1874: 5) (*Scarabaeus*); = *prodigiosus*
pustulosus (Gerstaecker, 1871: 48) (*Ateuchus*); DRC, Tanzania.
rolciki **sp. n.**; Tanzania.
sanctus (Fabricius, 1798: 34) (*Copris*); India, Sri Lanka.
–*stigmaticus* (Fairmaire, 1887: 102) (*Scarabaeus*); = *aegyptiorum*
subaeneus (Harold, 1869: 56) (*Scarabaeus*); DRC, Senegal.
 s. var. angolensis Janssens, 1940: 72; Angola.
 s. var. atratus (Gillet, 1911: 309) (*Scarabaeus*); e. Africa.
 s. var. orientalis (Gillet, 1907: 587) (*Scarabaeus*); Mozambique, RSA.
–*thomsoni* (Waterhouse, 1885: 377) (*Scarabaeus*); = *aegyptiorum*
vanderkelleni (Lansberge, 1886: 70) (*Scarabaeus*); Angola. [= *festivus* in Janssens 1940]
venerabilis (Harold, 1871: 2) (*Scarabaeus*); Ethiopia.
zurstrasseni Davis, 1986: 376; RSA (Transvaal).

***Kheper rolciki* sp. n.**

(Figures 2, 5, 8)

Type Series. Holotype male and five paratypes (two males and three females) from Tanzania, Arusha distr., Naberera env., 4.1997, Jakub Rolcík lgt.; two paratypes (male and female) from Tanzania, 6.12.2006, Iringa reg., 912 m, Ruaha Nat. Parc, local collector; one paratype (male) from N. Tanzania, Ndutu Camp, 18.11.-4.12.1994, leg. M. Homolác. All type specimens bear labels printed in black on red paper. The holotype male is deposited at the National Museum, Prague (NMPC), two paratype males are in S. Pokorný's collection, Prague, and six paratypes (two males and four females) are in V. Malý's collection, Prague.

Description of Holotype. Length 33 mm (from tip of clypeus to tip of elytra). Black, head and pronotum glossy with weak metallic hue, elytra semi-matte, finely shagreened. Head and pronotum with dense cover of short rusty-colored hairs, elytral hairs sparse. Venter and legs also with rusty pubescence.

Clypeus quadridentate, excisions between teeth broadly V-shaped. Genae separated from clypeus by narrow and deep incision. Clypeus with shallow, longitudinally arranged punctures, frons sparsely granulated and medially weakly convex. Occiput sparsely granulated.

Pronotum transverse, strongly convex, with all margins complete and laterally serrate. Front angles briefly pointed and directed anterolaterally, hind angles evenly rounded. Much of surface covered by medium-sized granules of diameters smaller than distances between them, near lateral margins granules diminish in size and become less distinct. Smooth sagittal line narrow, reaching from base to midlength.

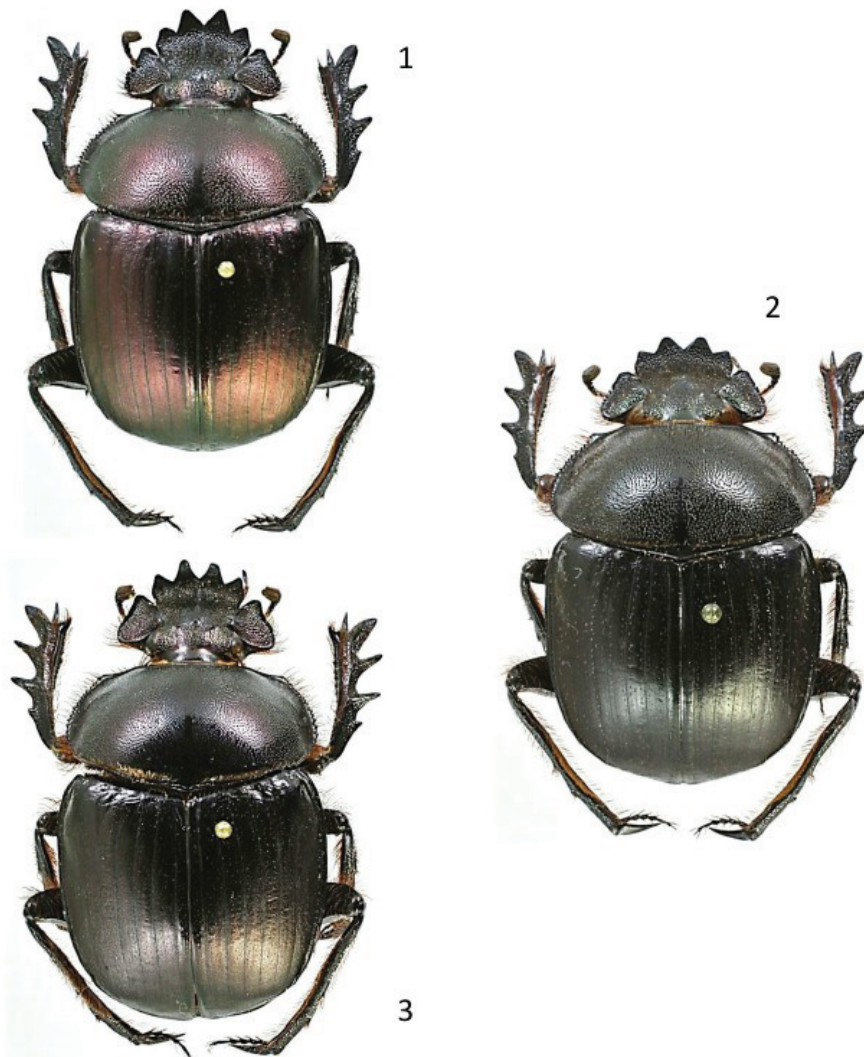
Scutellum not visible.

Elytra finely striate, intervals flat, finely shagreened and sparsely punctate.

Pygidium densely covered by asperate punctures in basal half and nearly smooth around apex.

Metasternum with front margin evenly rounded, without median keel.

Profemora without teeth or tubercles. Protibiae laterally quadridentate, proximal tooth vestigial, lateral edge between teeth smooth, median edge distinctly serrate in distal half, dorsomedial carina



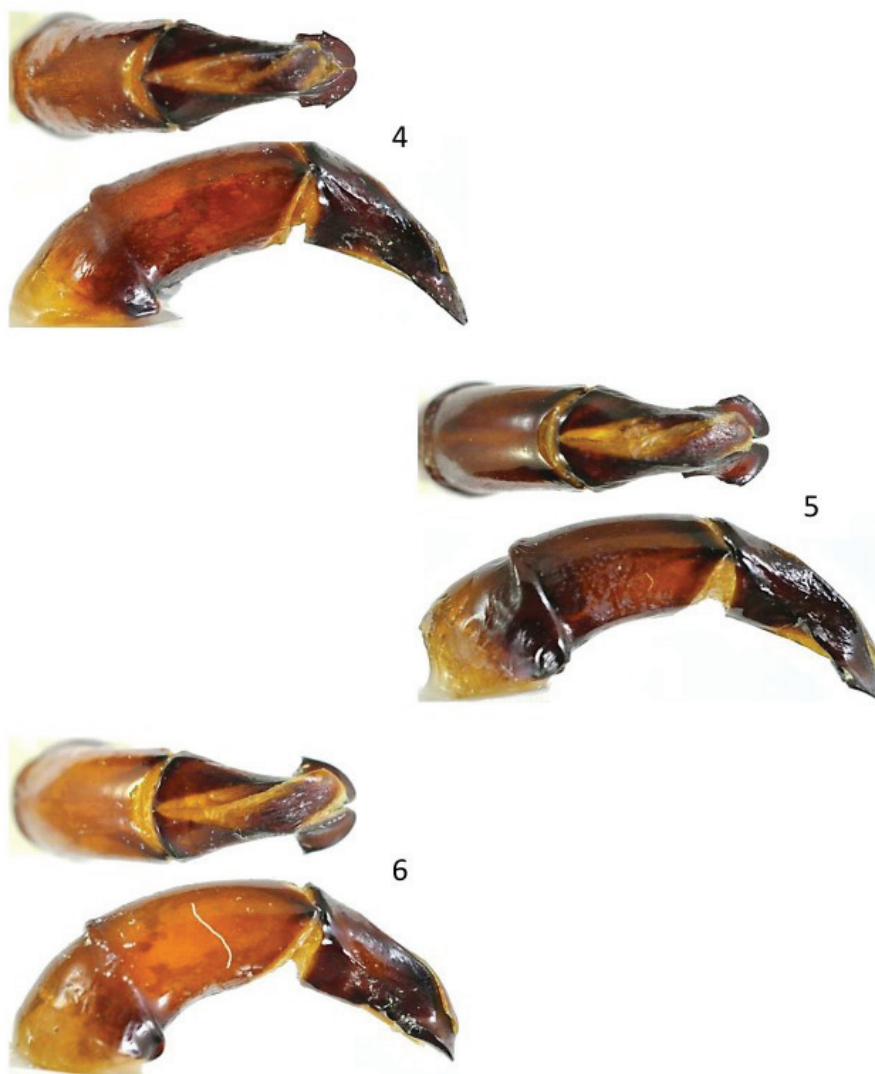
Figures 1–3. Cupreus group of *Kheper*, dorsal habitus of male. 1) *K. cupreus* (Castelnau), 35 mm. 2) *K. rolciki* sp. n., 33 mm. 3) *K. venerabilis* (Harold), 35 mm.

without any tubercles at bases of lateral teeth. Metatibiae with dense medial brush of rusty-colored hairs.

Aedeagus (Fig. 5). Phallobase and parameres of equal length. Parameres weakly asymmetrical, distally taper and then expand into dorso-ventrally flattened crescent-shaped apex proximally with narrow ventrolateral carina that terminates about one-third distance toward base in dorsally visible angularity (minor tooth) more pronounced on left paramere. Dorsal diagonal lamina crosses from left paramere to tip of right paramere .

Sexual Dimorphism and Variation. Dimorphism minor, female differs from male only in less distinct medial serration of protibia and absence of medial brush of hairs on metatibia. Irrespective of sex, variation is apparent only in size, with specimens ranging between 30 and 35 mm in length.

Etymology. The new species is named for the Czech entomologist Jakub Rolcík, who collected most of the type series.



Figures 4–6. Cupreus group of *Kheper*, aedeagi in dorsal and left lateral views. 4) *K. cupreus* (Castelnau). 5) *K. rolciki* sp. n. 6) *K. venerabilis* (Harold).

Comments. *Kheper rolciki* sp. n. belongs to the cupreus group, which is characterized by: 1) Profemur ventrally smooth, without teeth or tubercles. 2) Protibial dorsomedial crista without any tubercles at bases of lateral teeth. 3) Scutellum invisible, entirely covered by elytra. 4) Front margin of metasternum rounded, terminally blunt. The group includes *Kheper cupreus* (Castelnau) (Fig. 1, 4, 7), *Kheper rolciki* sp. n. (Fig. 2, 5, 8) and *Kheper venerabilis* (Harold) (Fig. 3, 6, 9), which can be separated as follows:

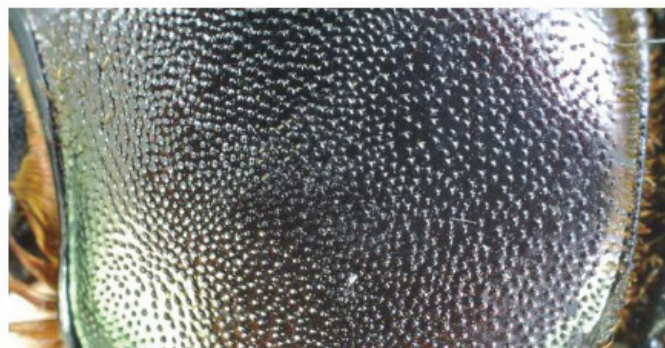
1. Pronotum without hairs (Fig. 7, 9) **2**
 — Pronotum with short rusty hairs (Fig. 8). Parameres see Fig. 5 ***K. rolciki* sp. n.**
2. Dorsum black, often with metallic hue. Frons with well-developed median tubercle. Granulation of pronotum asperate near base. Parameres see Fig. 6 ***K. venerabilis* (Harold)**
 — Dorsum metallic, bronze or rarely dark bronze. Frons with median tubercle absent or barely indicated. Granulation of pronotum coarse, including base. Parameres see Fig. 4
 ***K. cupreus* (Castelnau)**



7



8



9

Figures 7–9. Cupreus group of *Kheper*, oblique partial enlargements of pronota to show sculpture. Anterior margins are to the left. **7)** *K. cupreus* (Castelnau). **8)** *K. rolciki* sp. n. **9)** *K. venerabilis* (Harold).

Acknowledgments

We are grateful to Vladislav Malý (Prague, Czech Republic) for lending us specimens of the new species, and Ales Bezdek (Czech Academy of Sciences, České Budejovice, Czech Republic) and Darren Mann (Oxford University Museum of Natural History, UK) for critically reading and improving the manuscript.

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Received April 5, 2015; Accepted June 26, 2015.

Review Editor Paul Skelley.

