

**A contribution to the tribe Brachinini (Coleoptera: Carabidae) - IV.
Three new species of the genus *Pheropsophus* from Australian and African Regions**

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Abstract. Three new species, *Pheropsophus kabelkai* sp. nov. and *Pheropsophus jakli* sp. nov. from Indonesia and *Pheropsophus sonae* sp. nov. from Nigeria, are described and illustrated. Male genitalia of holotypes are illustrated.

INTRODUCTION

The last complete revision of the tribe Brachinini was published by Chaudoir (1876). A checklist with distribution of species from African and Australian Regions was published by Csiki (1932, 1933). A work aimed at the Australian Region was published later by Darlington (1968), Giachino (2003, 2005) and Baehr (2012). In the Australian Region the genus *Pheropsophus* Solier, 1833 is represented by 22 species, in African Region by 74 species (in Nigeria 2 species (Basilewsky, 1960) and (Ndam, Ogunwolu & Manggoel, 2012)).

MATERIAL AND METHODS

Type material was taken from author's collection. Photos of specimens used for the redescrptions were provided. Each paratype has its own number. Exact label data are cited for the type material, separate lines on labels are indicated by „/“, separate labels by „//“. Autor's remarks and comments are found in square brackets. [p] - the preceding data were printed; [hw] - the same was hand-written.

Measurements of body parts and corresponding abbreviations used in the text are as follows:

- TL total length - measured from the apex of left mandible (mandibles opened) to the apex of left elytron;
- DVH dorso-ventral height - maximal dorso-ventral height of body;
- HL length of head - measured from apex of clypeus to neck constriction;
- HW width of head - maximal width of head (including eyes);
- AL antennae length;
- MPL length of last maxillary palpomere;
- MPW width of last maxillary palpomere;
- PL pronotal length - length of pronotum measured along mid-line;
- PW1 pronotal width 1 - width of anterior margin of pronotum;

- PW2 pronotal width 2 - maximal width of pronotum;
 PW3 pronotal width 3 - minimal width of pronotum;
 PW4 pronotal width 4 - width of posterior margin of pronotum;
 EL elytral length - measured from the anterior margin of the scutellum to the posterior margin of the elytra;
 EW elytral width - maximal width of both elytra combined.

TAXONOMY

Pheropsophus kabelkai sp. nov.

(Figs. 1-2, 7)

Type material. Holotype (♂) labelled: „INDONESIA / (Tanimbar Isls.), / YAMDENA ISL., / Lorulun vill. env. // (20 km NE of Saumlaki), / 150 m alt., / 25.XI. – 24.XII.2006 / lgt. St. Jakl [p, white label] // HOLOTYPE / *Pheropsophus kabelkai* / sp. n. / det. Jan Hrdlička, 2014 [p, red label]. Paratype: (1 ♂) (no. 1): the same data as holotype. Holotype is deposited in author's collection, paratype in coll. Stanislav Jákł (Prague, Czech Republic).

Description of the male holotype. Habitus (Fig. 7). A medium sized *Pheropsophus* (TL 14.60 mm); 2.54 times longer than wide (TL/EW). Body flat (TL/DVH 3.65). Body largely black. Head yellow-brown with black frontal U-shaped spot. Mandibles, clypeus, temples and dorsal part of neck blackish. Maxillary and labial palpi, antennae, legs, coxae, middle and hind trochanter, episterna of metathorax, posterior margin of elytra, epipleura and thin line on outside edges of the elytra (interrupted at the end of the first quarter of elytra) yellow-brown.

Head longer than wide (HL/HW 1.07), narrower than pronotum (HW/PW2 0.89). Eyes large. Head shiny, neck wrinkled, temples with 2-3 setiferous punctures. Mandibles in side-view with unisetose scrobe. Antennae long, narrow (TL/AL 1.67). Last article of maxillary palpus truncate apically (MPL/MPW 2.17).

Pronotum strongly transverse (PL/PW2 0.87). PL 2.90 mm, PW1 2.40 mm, PW2 (at the end of first third of pronotum) 3.35 mm, PW3 (at the end of third quarter of pronotum) 2.60 mm, PW4 2.65 mm. Disc convex, shiny, covered with sparse impressed setiferous punctures. Lateral groove poorly obvious with one setiferous puncture at about half. Posterior angles of pronotum acute, corners strongly rounded. Episterna of prothorax smooth and shiny.

Elytra 1.48 times longer than wide (EL/EW), rectangular. Maximal width at the beginning of last third. Elytral disc flatter, dull, with expressive microsculpture. Each elytron with 8 distinct, rounded and bare costae. Elytra sparsely pubescent by short yellow setae (between costae). Humeri distinct. Posterior margin of elytra with very short setae (approximately 0.07 mm).

Male genitalia (Figs. 1-2). Aedeagus robust and conical, with pointed tip. Apical half flattish dorso-ventrally.

Variability. TL 13.65-14.60 (aver. 14.13) mm. PL/PW2 0.84-0.87 (aver. 0.86). EL/EW 1.42-1.48 (aver. 1.45). Measured 2 specimens.

Differential diagnosis. *Pheropsophus kabelkai* sp. nov. is similar to *Pheropsophus baehri* Giachino, 2005 from Irian Jaya. *P. kabelkai* differs from this species by a black frontal U-shaped spot, rectangular elytra and short pubescence of elytra.

Distribution. Indonesia, Yamdena Isl.

Biology. Unknown.

Name derivation. Dedicated to Associate Professor MUDr. Zdeněk Kabelka, Ph.D. (December 15, 1951, Prague - March 21, 2014, Prague) was a Czech doctor, pediatrician and otorhinolaryngologist. In the Czech Republic, he launched a program of cochlear implantation, enabling children with congenital or acquired hearing impairments to hear again. Since 1978, he worked in the children's department of otorhinolaryngology, 2nd Medical School, Charles University and University Hospital, and was in the position of the head of this department since 1998 until his death. He died suddenly at his age of 62 years.

***Pheropsophus jakli* sp. nov.**

(Figs. 3-4, 8)

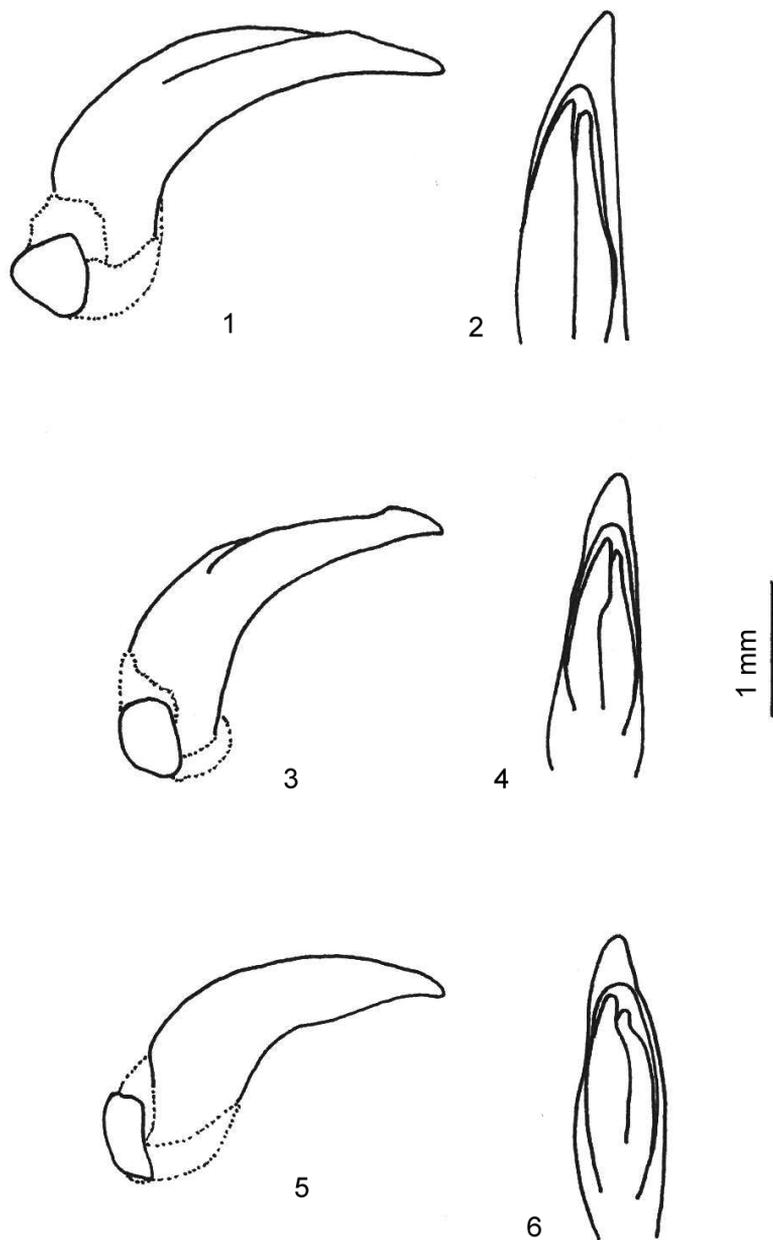
Type material. Holotype (♂) labelled: „INDONESIA, TANIMBAR / Isls., YAMDENA Isl., / 21 km NE SAUMLAKI, / MAM'S vill., 27.11.- / 11.xii.2005, St. Jakl lgt. [p, white label] // HOLOTYPE / *Pheropsophus jakli* / sp. n. / det. Jan Hrdlička, 2014 [p, red label]. Paratypes: (3 ♂♂) (no. 1-3), (3 ♀♀) (no. 4-6): the same data as holotype; (1 ♂) (no. 7), (2 ♀♀) (no. 8-9) labelled: „INDONESIA / (Tanimbar Isls.), / YAMDENA ISL., / Lorulun vill. env. // (20 km NE of Saumlaki), / 150 m alt., / 25.XII.2006 – 10.I.2007 / lgt. St. Jakl [p, white label]. Holotype and paratype (no. 1) is deposited in author's collection, paratypes (no. 2 - 9) in coll. Stanislav Jákl (Prague, Czech Republic).

Description of the male holotype. Habitus (Fig. 8). A medium sized *Pheropsophus* (TL 12.40 mm); 2.56 times longer its width (TL/EW). Body flat (TL/DVH 4.13). Body largely black. Head yellow-brown with black frontal U-shaped spot. Mandibles, clypeus and temples blackish. Maxillary and labial palpi, antennae, legs, coxae, middle and hind trochanters, episterna of metathorax, metathorax, central part of pronotum, posterior margin of elytra and anterior half of epipleura yellow-brown.

Head longer than wide (HL/HW 1.22), narrower than pronotum (HW/PW2 0.92). Eyes large. Head shiny, neck wrinkled, temples with many setiferous punctures. Mandibles in side-view with unisetose scrobe. Antennae long, narrow (TL/AL 1.65). Last article of maxillary palpus truncate apically (MPL/MPW 2.20).

Pronotum cordiform (PL/PW2 1.00). PL 2.65 mm, PW1 2.00 mm, PW2 (at the end of first third of pronotum) 2.65 mm, PW3 (in the last fifth of pronotum) 2.00 mm, PW4 2.00 mm. Disc convex, shiny, covered with sparse impressed setiferous punctures. Lateral groove poorly obvious, with one setiferous puncture at about half. Posterior angles of pronotum rectangular, corners rounded. Episterna of prothorax smooth and shiny.

Elytra 1.39 times longer than wide (EL/EW). Maximal width at the beginning of last third. Elytral disc convex, dull, with expressive microsculpture. Each elytron with 8 distinct, rounded and bare costae. Elytra sparsely pubescent by long and very long yellow setae (between costae). Humeri absent. Posterior margin of elytra with very short setae (approximately 0.21 mm).



Figs. 1-6: Aedeagus: 1-2- *Pheropsophus kabelkai* sp. nov.; 3-4- *Pheropsophus jakli* sp. nov.; 5-6- *Pheropsophus sonae* sp. nov. (1, 3, 5 - lateral view, 2, 4, 6 - dorsal view).



Figs. 7-9. Holotypes: 7- *Pheropsophus kabelkai* sp. nov.; 8- *Pheropsophus jakli* sp. nov.; 9- *Pheropsophus sonae* sp. nov.

Male genitalia (Figs. 3-4). Aedeagus robust and conical. Apical half flattish dorso-ventrally. The tip is pointed.

Variability. TL 11.40-14.95 (aver. 13.34) mm. PL/PW2 0.94-1.00 (aver. 0.96). EL/EW 1.28-1.58 (aver. 1.45). Ten specimens were measured. Anterior half of epipleura dark brown.

Differential diagnosis. *Pheropsophus jakli* sp. nov. is similar to *Pheropsophus aptinomorphus* Heller, 1910 from Papua New Guinea. *P. jakli* sp. nov. is larger (11.40-14.95 mm versus 8.50-12.50 mm), head, central part of pronotum, posterior margin of elytra and anterior half of epipleura yellow-brown. Humeri more evident, 4-th costa not shortened, elytra pubescent by long and very long setae.

Distribution. Indonesia, Yamdena Isl.

Biology. Unknown.

Name derivation. This species is dedicated to its collector, Stanislav Jákl (Prague, Czech Republic), a well-known specialist in Scarabaeidae: Cetoniinae.

***Pheropsophus sonae* sp. nov.**

(Figs. 5-6, 9-12)

Type material. Holotype (♂) labelled: „NIGERIA, 13.-14.V.2011, / 25 km E of ABUJA, / 400 m, 09°05'32,67''N, / 07°45'14,82''E, / V. Kremitovský leg. [p, white label] // HOLOTYPE / *Pheropsophus sonae* / sp. n. / det. Jan Hrdlička, 2014 [p, red label]. Paratypes: (10 ♂♂, 20 ♀♀) (nos. 1-30): the same data as holotype; (1 ♂, 1 ♀) (nos. 31-32) labelled: „NIGERIA, 5.VI.2010, / 25 km E of ABUJA, / 400 m, 09°05'32,67''N, / 07°45'14,82''E, / V. Kremitovský leg. [p, white label]. Holotype is deposited in coll. National Museum of Prague, paratypes (nos. 1, 11, 17, 21, 22, 30) in author's collection, (nos. 2-10, 12-16, 18-20, 23-29, 32) in coll. Vladimír Kremitovský (Brno, Czech Republic), (no. 31) in coll. Rudolf Kmeco (Olomouc, Czech Republic).

Description of the male holotype. Habitus (Fig. 9). A medium sized *Pheropsophus* (TL 15.40 mm); 2.57 times longer than wide (TL/EW). Body convex (TL/DVH 3.24). Body largely yellow-reddish. Epimeron of metathorax and visible abdominal segments brown. Drawing on the elytra black.

Head longer than wide (HL/HW 1.30), narrower than pronotum (HW/PW2 0.95). Eyes large. Head shiny, neck wrinkled. Mandibles in side-view with unisetose scrobe. Antennae long, narrow (TL/AL 1.49). Last article of maxillary palpus truncate apically (MPL/MPW 2.29).

Pronotum a little longer than wide (PL/PW2 1.03). PL 3.20 mm, PW1 2.35 mm, PW2 (at the end of first quarter of pronotum) 3.10 mm, PW3 (in the last fifth of pronotum) 2.20 mm, PW4 2.20 mm. Disc convex, shiny, without pubescence. Lateral groove poorly obvious, with one setiferous puncture at about half. Posterior angles of pronotum rectangular, corners pointed. Episterna of prothorax smooth and shiny.

Elytra 1.39 times longer than wide (EL/EW). Maximal width at the beginning of last third. Elytral disc convex, dull, with expressive microsculpture. Each elytron with 8 distinct, rounded and bare costae. Elytra sparsely pubescent by short yellow setae (between costae). Humeri absent. Posterior margin of elytra with short setae (approximately 0.015 mm).

Male genitalia (Figs. 5-6). Aedeagus robust and conical. Apical half flattish dorso-ventrally. The tip is rounded.

Variability. TL 13.05-16.60 (aver. 14.96) mm. PL/PW2 1.00-1.10 (aver. 1.05). EL/EW 1.32-1.46 (aver. 1.41).

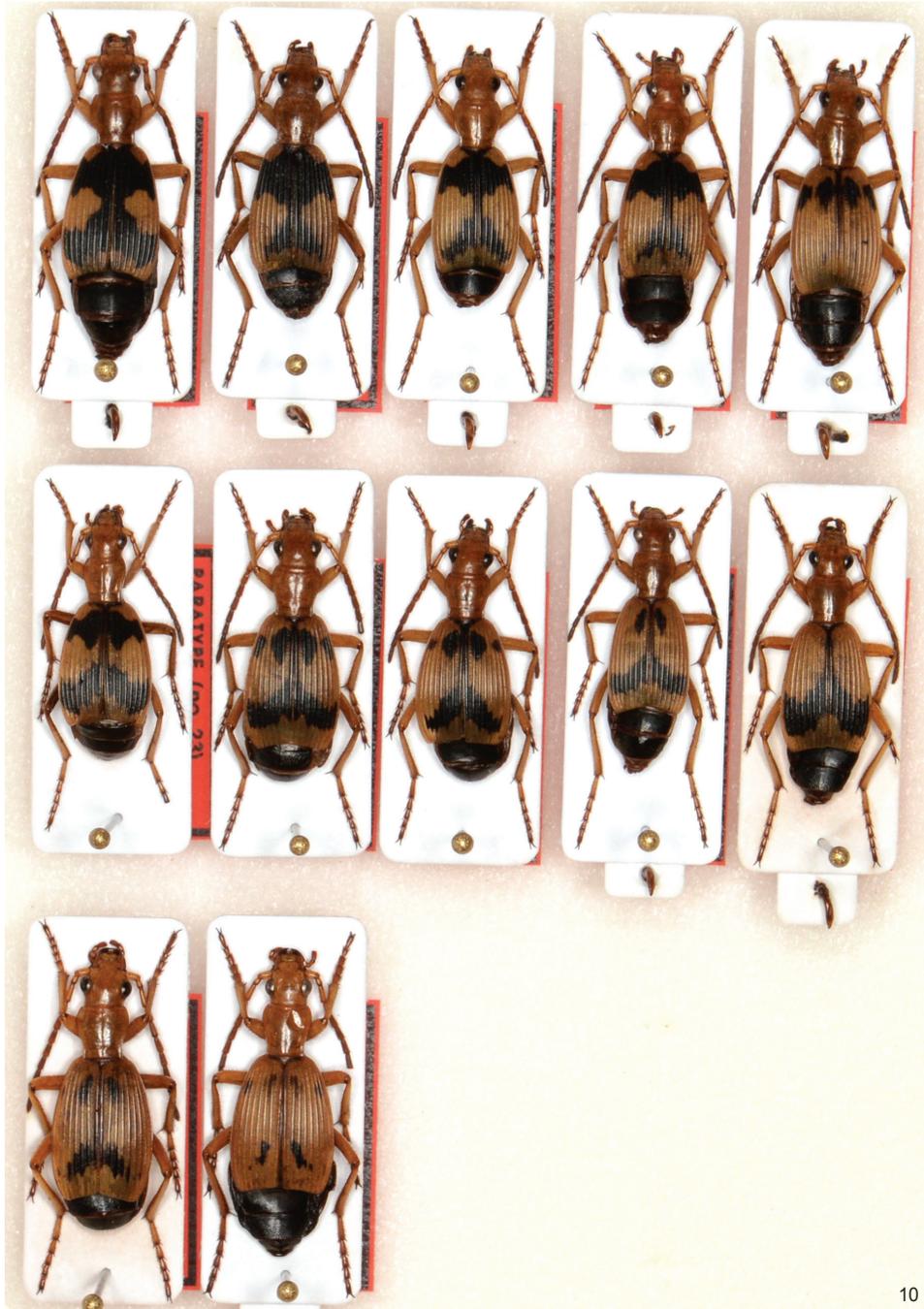
Measured 33 specimens. Drawing on the elytra is very variable. Reduction of drawing predominant in posterior half (first line of Fig. 10) or anterior half (second line of Fig. 10), rarely in both halves of elytra (third line of Fig. 10).

Differential diagnosis. *Pheropsophus sonae* sp. nov. is similar to *Pheropsophus gracilis* Arrow, 1901 from Lamu Is. *P. sonae* sp. nov. differs from this by yellow-brown episternum and epimeron of mesothorax. The tip of aedeagus less rounded.

Distribution. C. Nigeria, environs of Abuja.

Biology. The flat landscape, 400 m alt. Between fields, under stones and pieces of wood.

Name derivation. The species is dedicated to Soňa Kremitovská, a daughter of Vladimír Kremitovský (finder of this species).



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Figs. 10. Colour variability of *Pheropsophus sonae* sp. nov.

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