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Second contribution to the knowledge of the click-beetles from the Socotra Island (Yemen) (Coleoptera Elateridae).

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Abstract: In this second contribution to the knowledge of the click-beetles from the Socotra Island, four new species belonging to the genera *Propsephus* Hyslop, 1921, *Cardiophorus* Eschscholtz, 1829 and *Dicronychus* Brullé, 1832, are described, *Propsephus brachypterus* **n. sp.**, *Cardiophorus kmenti* **n. sp.**, *Cardiophorus malenovskyi* **n. sp.** and *Dicronychus socotranus* **n. sp.**, being the number of species known from the island increased up to 23.
Key words: Coleoptera, Elateridae, new species, Socotra Island, Yemen.

Resumen: Segunda contribución al conocimiento de los elatéridos de la Isla de Socotra (Yemen) (Coleoptera Elateridae). En esta segunda contribución al conocimiento de los elatéridos de la Isla de Socotra se describen cuatro nuevas especies, *Propsephus brachypterus* **n. sp.**, *Cardiophorus kmenti* **n. sp.**, *Cardiophorus malenovskyi* **n. sp.** y *Dicronychus socotranus* **n. sp.**, pertenecientes a los géneros *Propsephus* Hyslop, 1921, *Cardiophorus* Eschscholtz, 1829 y *Dicronychus* Brullé, 1832, incrementándose a 23 el número de especies conocidas de la isla.
Palabras clave: Coleoptera, Elateridae, especies nuevas, Isla de Socotra, Yemen.

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Introduction

The examination of more click-beetles collected during the Prag Museum's expedition 2012 to the Socotra Island by the entomologists J. Bezdek, J. Hajek, V. Hula, P. Kment, I. Malenovsky, J. Niedobova & L. Purchart of the Prag Museum, gives me the opportunity to describe further four new species belonging to the genera *Propsephus* Hyslop, 1921, *Cardiophorus* Eschscholtz, 1829 and *Dicronychus* Brullé, 1832. Particularly interesting is the discovery of a second species of the genus *Propsephus*, easily distinguished for many characters and particularly for the reduced wings reaching only the three-quarters of the elytra and very probably not able to fly.

Material and methods

Measurements – Body length is measured along the midline from the anterior margin of frons to apex of the elytra; width is measured across the broadest part of the body. Pronotal length is measured along the midline; the width is at the broadest part, usually at hind angles.

Abbreviations – The names of institutions, museums and collections providing material for this study are abbreviated as follows: CPG, collection of G. Platia, Gatteo (Italy); NMPC Národní Muzeum, Praha, Czech Republic (Jiří Hájek).

The subfamilial and tribal placement of genera listed below follows Bouchard *et al.* (2011).

Results

Subfamily **Elaterinae** Leach, 1815

Tribe **Dicrepidiini** Thomson, 1858

Propsephus brachypterus n. sp.
(Figs. 3, 3a, 7, 7a, 10, 11, 15, 16)

Material examined. Holotype ♂ - **Yemen**, Socotra Isl., Hagher Mts., Scand Mt. env. (12°34.6'N, 54°01.5'E), 1450 m, 16-18.VI.2012, Socotra expedition 2012, J. Bezdek, J. Hajek, V. Hula, P. Kment, I. Malenovsky, J. Niedobova & L. Purchart (NMPC). 29 Paratypes (28♂♂, 1♀) – same data as HT (CPG; NMPC).

Diagnosis. Second species known from Socotra Island, it is immediately separated by the darker colour, second and third articles of antennae subequal in length and shape, reduced wings not able to fly.

Description.

Male. Moderately shiny; entirely dark-brown and generally with apices of posterior angles of pronotum, elytral suture, last elytral intervals, antennae and legs ferruginous; covered with moderate, short, yellow-fulvous pubescence.

Head with eyes as wide as the anterior margin of pronotum, frons flat between the eyes, not or just impressed before the anterior margin, this more or less regularly arcuate, shiny and slightly thickened, not protruding and at middle touching the clypeus; puncturation very broad with punctures umbilicate, contiguous or confluent.

Antennae exceeding by about 2,5 articles the apices of posterior angles of pronotum, serrated from fourth article on; second and third articles small, second subcylindrical, third subconical, subequal in length, with shiny surface, taken together 1,3x shorter than fourth; fourth-tenth subrectangular with sculptured surface, on average 2,3x longer than wide; last subellipsoidal, longer than penultimate, moderately constricted before the apex.

Pronotum 1,12-1,14x wider than long, widest at the apices of posterior angles, strongly convex, abruptly sloping at sides and base with a clear mid-longitudinal furrow on the basal slope; sides moderately arcuate, from behind the middle gradually converging forwards, slightly sinuate before the posterior angles, the latter more or less divergent, truncate and with a feeble carina directed inside; lateral margin complete; puncturation very strong, uniformly distributed, punctures clearly umbilicate, of variable diameters, contiguous.

Scutellum shield-shaped, quadrangular, flat, with rough sculpture.

Elytra 2,75-2,85x longer than pronotum and as wide as it, convex; sides subparallel from base to behind the middle then gradually converging to the apices; striae punctured, interstriae flat to subconvex, densely and roughly punctured.

Wings reduced, just exceeding the middle of elytra and very probably not able to fly.

Aedeagus as in figs. 3, 3a (length 1,87 mm).

Female. Distinct for the shorter antennae not reaching the apices of posterior angles of pronotum with second and third articles, taken together, as long as fourth and sides of elytra moderately dilated in the posterior third.

Bursa copulatrix moderately sclerified and showing asymmetrical groups of thorns of different length (figs. 7, 7a).

Size. (♂), length: 10-12 mm; width: 2,62-3,5 mm; (♀), length: 12 mm, width: 3,8 mm.

Etymology. The name of the species is derived from the reduced wings not able to fly.

Ecological notes. Collected on montane evergreen woodland (figs. 1, 2) with very cold weather conditions, foggy/rainy and windy the whole two days spent on top of mountain (J. Hajek *in litteris*).

Subfamily **Cardiophorinae** Candèze, 1860

Cardiophorus kmenti n. sp.
(Figs. 4, 4a, 8, 8a, 12, 17).

Material examined. Holotype ♂ - **Yemen**, Socotra Isl., Hagher Mts., Scand Mt. env. (12°34.6'N, 54°01.5'E), 1450 m, 16-18.VI.2012, Socotra expedition 2012, J. Bezdek, J. Hajek, V. Hula, P. Kment, I. Malenovsky, J. Niedobova & L. Purchart (NMPC). 4 Paratypes (2♂♂, 2♀♀) – same data as HT; (1♂) - Hagher Mts., Wadi Madar (12°33.2'N, 54°00.4'E), 1170 m, 18.VI.2012 (CPG; NMPC).

Diagnosis. Among the known species from Socotra (Platia, 2012), the new species can be compared to *Cardiophorus niedobovae* Platia, 2012 for the bicoloured elytra but it is easily separated for the smaller size, the longer antennae and the genitalia.

Description.

Male. Colour rather variable; head and pronotum blackish with apices of anterior angles always yellowish, sometimes also the posterior angles; elytra blackish with only the base yellowish or from fifth intervals extended to the sides for all its length; antennae with two first articles lighter, reddish, darkened from third on; legs yellowish; covered with dense, yellowish, pubescence.

Head with eyes as wide as the anterior margin of pronotum, frons convex on the vertex, flat before the anterior margin, this arcuate, moderately thickened, directed downwards and just protruding above the clypeus; punctures variable in diameters, simple, with very short, variable intervals.

Antennae exceeding by two articles the apices of posterior angles of pronotum, slightly serrated from third article on; second article subcylindrical, twice longer than wide, third-tenth subtriangular, slender, on average 3x longer than wide; last as long as penultimate, subellipsoidal.

Pronotum slightly wider than long, widest at the anterior third, convex; sides from the anterior third nearly regularly converging to the posterior angles, the latter truncate, not divergent, shortly carinate; lateral suture-like apparent, obsolete only before the apex; puncturation fine, rather uniformly distributed; punctures simple with intervals on average equal to their own diameters.

Scutellum heart-shaped, as long as wide, slightly concave and finely punctured.

Elytra 2,8-2,9x longer than pronotum and just wider than it, convex; sides subparallel from base to behind the middle, further gradually converging to the apices; striae well marked and punctured, interstriae flat with finer puncturation.

Claws simple.

Aedeagus as in figs. 4, 4a (length: 0,8 mm).

Female. Very similar to the male, antennae just shorter.

Bursa copulatrix sclerified as in figs. 8, 8a.

Size. Length: 4,4-5,3 mm; width: 1,37-1,62 mm.

Etymology. Dedicated to Petr Kment, specialist of Heteroptera of the National Prag Museum, one of the members of Socotra expedition 2012.

Ecological notes. Collected on montane evergreen woodland (4 exx.) and montane shrubland with *Cephalocroton socotranus* (1 ex.).

Cardiophorus malenovskyi n. sp.
(Figs. 5, 5a, 9, 13, 18, 19).

Material examined. Holotype ♂ - **Yemen**, Socotra Isl., Kaza Kazihon vill. env. (12°31'13"N, 53°55'36"E), 900 m, 5.VI.2012, V. Hula & J. Niedobova (NMPC). Paratype (1♀) – same data as HT (NMPC).

Diagnosis. A species that can be compared with *Cardiophorus purcharti* Platia, 2012 but it is separated for the size on average larger, for the body shinier with moderate pubescence and characters of genitalia in male and female.

Description.

Male. Entirely black with antennae and legs ferruginous; covered with fine and moderate yellow-fulvous pubescence.

Head with eyes just narrower than anterior margin of pronotum, frons moderately convex between the eyes, just impressed at the anterior margin, the latter regularly arcuate, directed downwards and just protruding above the clypeus; punctures variable in diameters, umbilicate with very short and variable intervals.

Antennae just exceeding the apices of posterior angles of pronotum, feebly serrate from third article on; second article subcylindrical, more than twice longer than wide, third-tenth subtriangular, slender, on average 2,6x longer than wide; last as long as penultimate, subellipsoidal.

Pronotum as long as wide, widest at middle, strongly convex; sides arcuate, from middle gradually and regularly converging to the posterior angles, the latter truncate, not divergent, shortly carinate; lateral suture-like well apparent, fine, obsolete before the anterior extremity; puncturation dense and uniformly distributed; punctures simple, approximately of the same size, with very short, shiny interstices.

Scutellum heart-shaped, as long as wide, impressed at middle, very fine punctured.

Elytra 2,5x longer than pronotum and as wide as it, convex; sides subparallel from base to behind the middle, gradually converging to the apices; striae regularly marked and punctured; interstriae convex at base then subconvex with very fine punctures.

Claws simple.

Aedeagus as in figs. 5, 5a (length: 1,21 mm).

Female. Identical to the male but with shorter antennae not reaching the apices of posterior angles of pronotum.

Bursa copulatrix sclerified as in fig. 9.

Size. Length: 8-8,2 mm; width: 2,5 mm.

Etymology. The species is dedicated to Igor Malenovsky, specialist of Hemiptera of the Moravian Museum of Brno, one of the members of Socotra expedition 2012.

Dicronychus socotranus n. sp.
(Figs. 6, 6a, 14, 20)

Material examined. Holotype ♂ - **Yemen**, Socotra Isl., Shibhon plateau, Eserhe (12°25.2'N, 53°56.6'E), 547 m, 13.VI.2012, Socotra expedition 2012, J. Bezdek, J. Hajek, V. Hula, P. Kment, I. Malenovsky, J. Niedobova & L. Purchart (NMPC).

Diagnosis. Third species of the genus known from Socotra, it is easily separated by the larger size and shorter antennae and less developed tooth on the claws.

Description.

Male. Entirely dark brown to blackish with antennae and legs ferruginous; covered with dense and yellow fulvous pubescence.

Head with eyes as wide as the anterior margin of pronotum; frons flat between the eyes, impressed before the anterior margin, the latter moderately thickened, regularly arcuate, directed downwards and just protruding above the clypeus; punctures coarse, umbilicate with very short, shiny intervals or contiguous.

Antennae exceeding by two articles the apices of posterior angles of pronotum, slightly serrated from third article on; second article subcylindrical, 2,5x longer than wide, third-tenth subtriangular, slender, on average 2,5x longer than wide.

Pronotum as long as wide, widest at middle, regularly convex; sides arcuate, from middle gradually converging to the posterior angles, the latter truncate, not divergent, shortly carinate; lateral suture-like apparent, fine, obsolete only before the extremity; puncturation uniformly distributed, punctures coarse, simple or slightly umbilicate, approximately of the same size, with very short intervals or contiguous.

Scutellum heart-shaped, as long as wide, emarginate at middle of base, impressed and finely punctured.

Elytra 2,6x longer than pronotum and wider than it, convex; sides subparallel from base to middle further gradually converging to the apices; striae well marked and punctured; interstriae subconvex with fine punctures.

Aedeagus as in figs. 6, 6a (length: 0,97 mm).

Claws with a short tooth not giving to it an apical bifid appearance.

Female unknown.

Size. Length: 6,5 mm; width: 2,12 mm.

Etymology. The name is derived from Socotra Island where the species was collected.

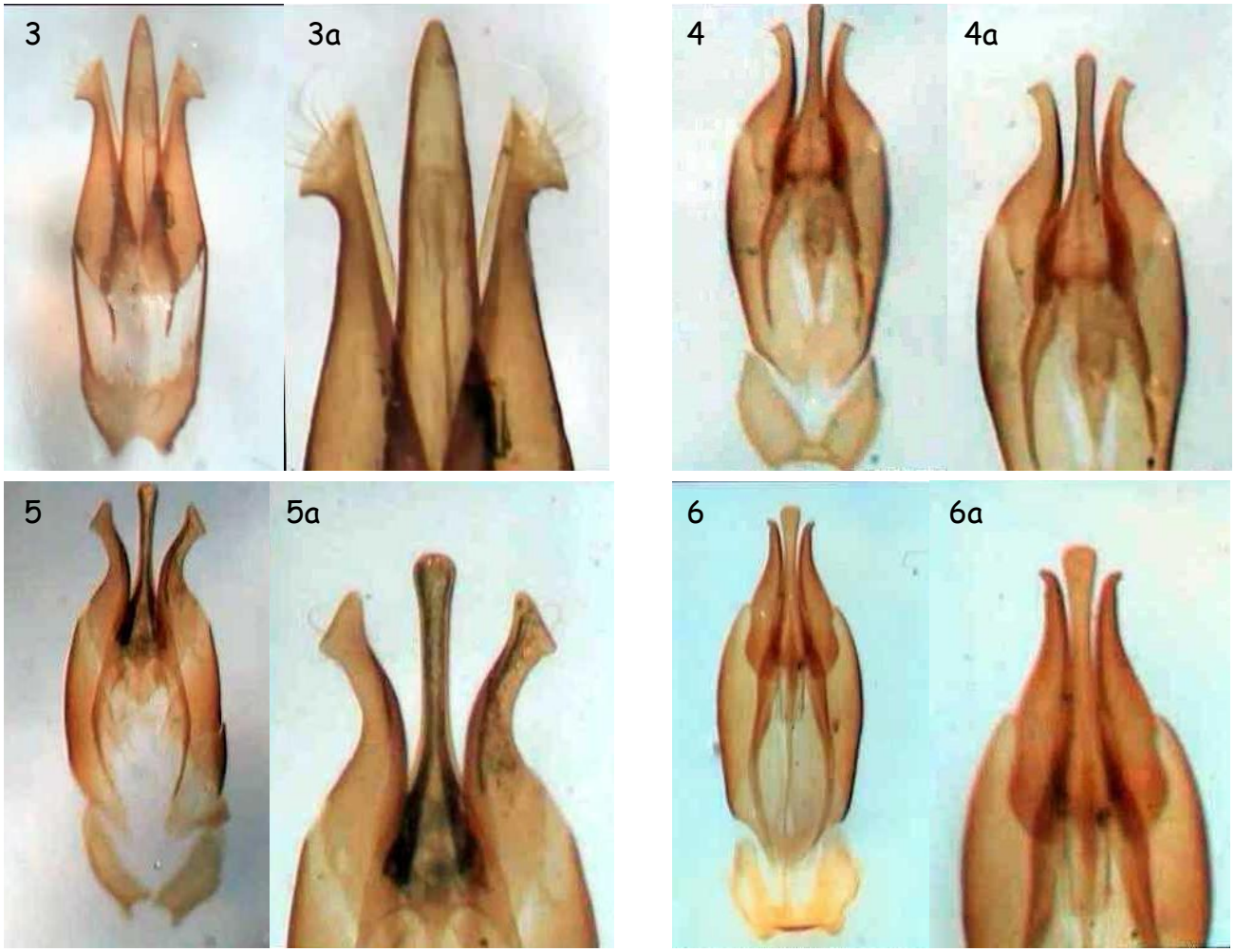
Ecological notes. *Croton socotranus* shrublands.

References

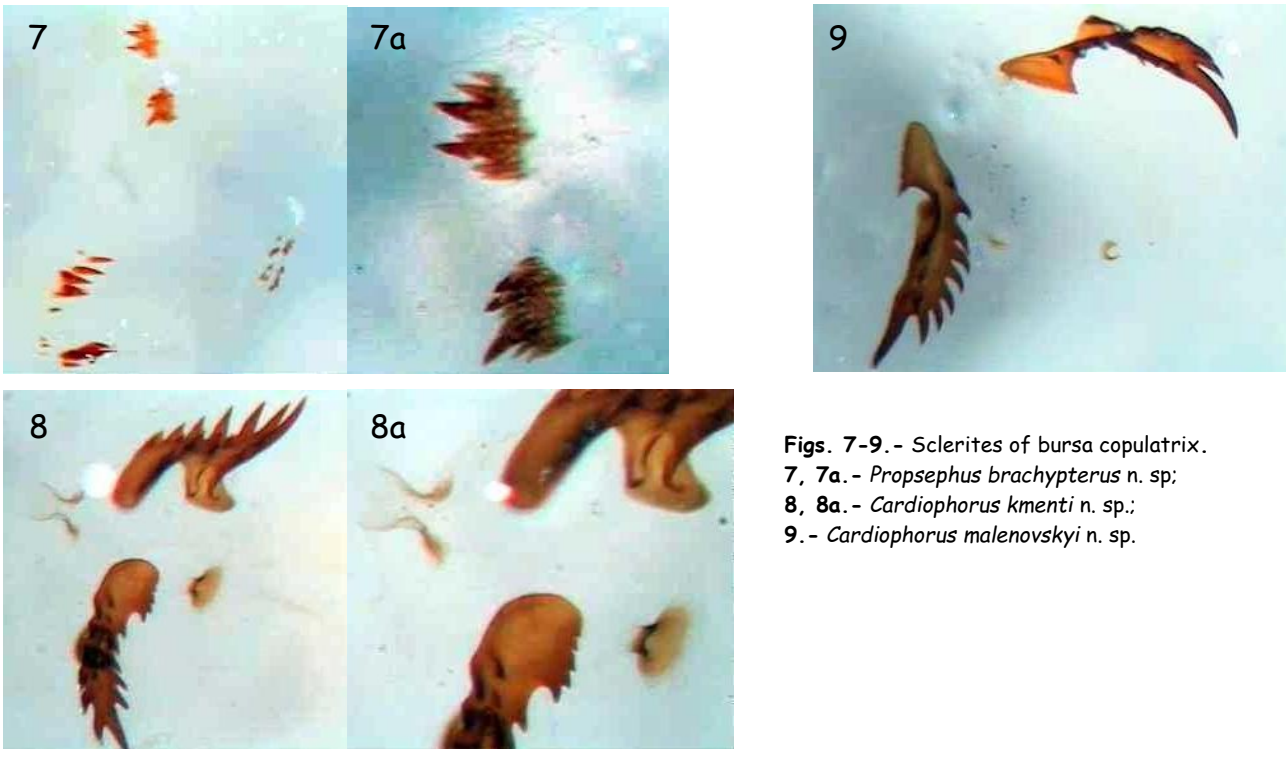
Bouchard, P.; Bousquet, Y.; Davies, A.E.; Alonso-Zarazaga, M.A.; Lawrence, J.F.; Lyal, C.H.C.; Newton, A.F.; Reid, C.A.M.; Schmitt, M.; Ślipiński, S.A. & Smith, A.B.T. 2011. Family-group names in Coleoptera (Insecta). *ZooKeys* **88**: 1-972.

Platia, G. 2012. Contribution to the knowledge of the click-beetles from the Socotra Island (Yemen) (Coleoptera Elateridae). *Arquivos Entomoloxicos*, **7**: 129-153.

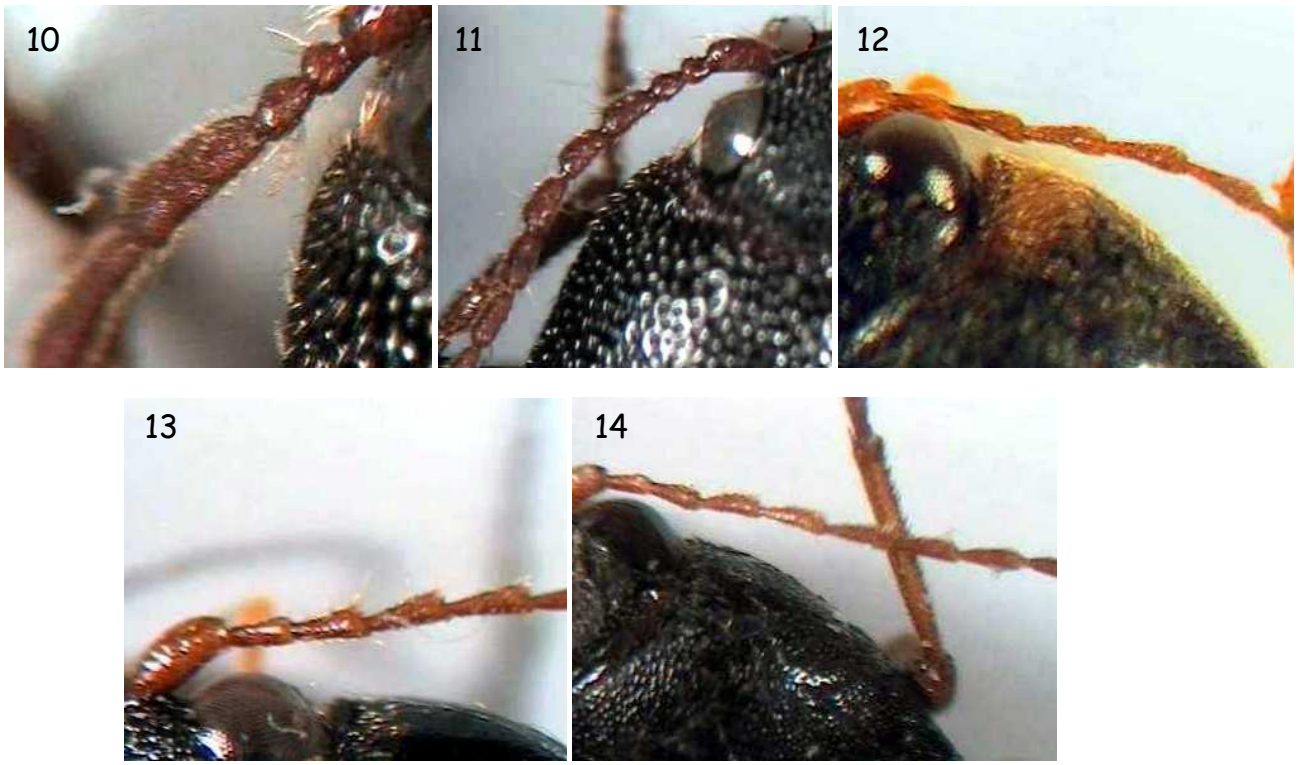
Figs. 1-2.- Pictures of Mt. Scand (Socotra Isl.). **1.-** Landscape for *Propsephus brachypterus* n. sp. & *Cardiophorus kmenti* n. sp., VI.2012 (photo by J. Niedobova). **2.-** X.2010 (photo by J. Hajek).



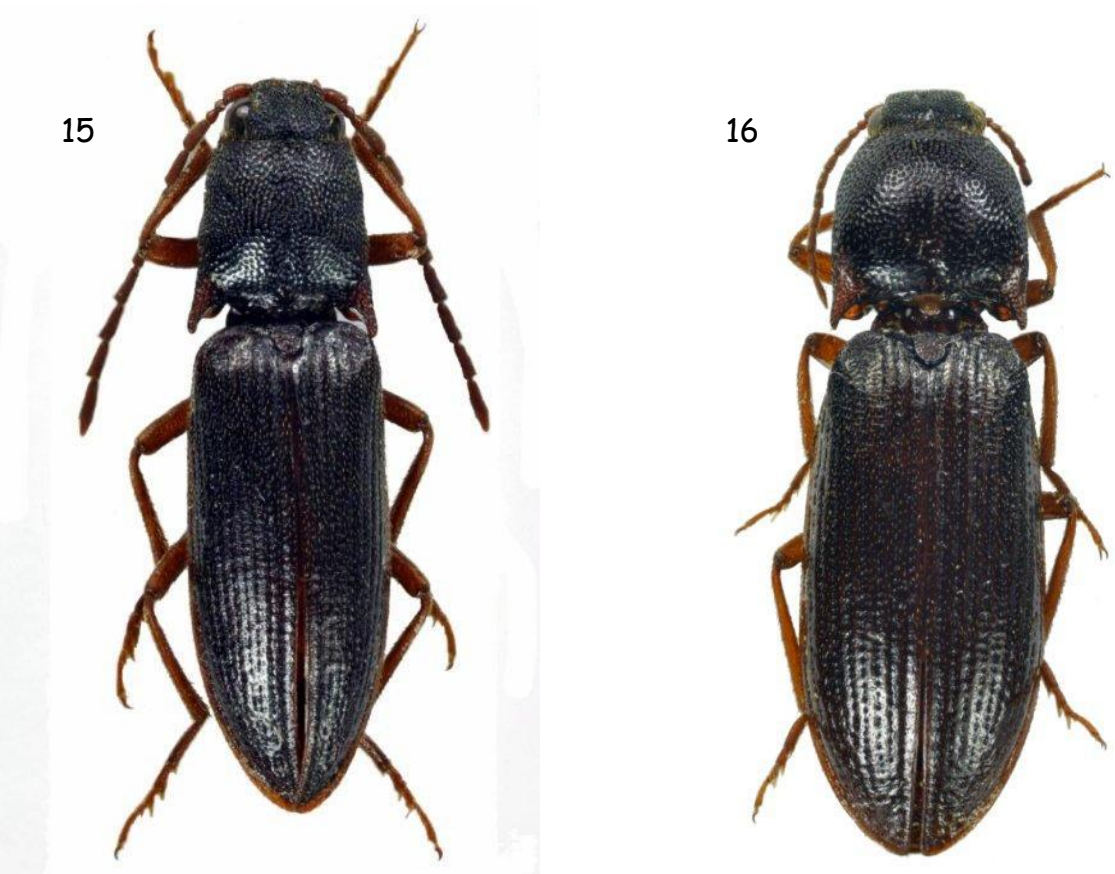
Figs. 3-6.- Male genitalia in dorsal view. **3, 3a.-** *Propsephus brachypterus* n. sp.; **4, 4a.-** *Cardiophorus kmenti* n. sp.; **5, 5a.-** *Cardiophorus malenovskyi* n. sp.; **6, 6a.-** *Dicronychus socotranus* n. sp.



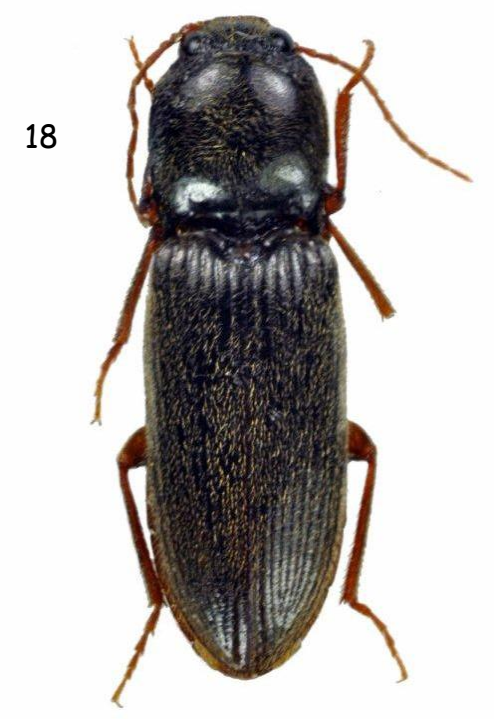
Figs. 7-9.- Sclerites of bursa copulatrix. **7, 7a.-** *Propsephus brachypterus* n. sp; **8, 8a.-** *Cardiophorus kmenti* n. sp.; **9.-** *Cardiophorus malenovskyi* n. sp.



Figs. 10-14.- First articles of antennae. **10.-** *Propsephus brachypterus* n. sp. ♂; **11.-** *Propsephus brachypterus* n. sp. ♀; **12.-** *Cardiophorus kmenti* n. sp. ♂; **13.-***Cardiophorus malenovskyi* n. sp. ♀; **14.-** *Dicronychus socotranus* n. sp. ♂.



Figs. 15-16.- Habitus. **15.-** *Propsephus brachypterus* n. sp. ♂ (11,5 mm); **16.-** *Propsephus brachypterus* n. sp. ♀ (12 mm).



Figs. 17-20.- Habitus. **17.-** *Cardiophorus kmenti* n. sp. ♂ (5,3 mm); **18.-** *Cardiophorus malenovskyi* n. sp. ♂ (8 mm); **19.-** *Cardiophorus malenovskyi* n. sp. ♀ (8,2 mm); **20.-** *Dicronychus socotranus* n. sp. ♂ (6,5 mm). (photos by G. Fiumi).