

A new species of the genus *Corticeus* (Coleoptera: Tenebrionidae) from Socotra Island*

Luboš PURCHART¹⁾ & Wolfgang SCHAWALLER²⁾

¹⁾Mendel University, Department of Forest Ecology, Zemědělská 3, CZ- 613 00 Brno, Czech Republic; e-mail: lubos.purchart@post.cz; lubos.purchart@mendelu.cz

²⁾Museum of Natural History, Rosenstein 1, D-70191 Stuttgart, Germany; e-mail: wolfgang.schawaller@smns-bw.de

Abstract. Based on the material collected during biodiversity research of insects on Socotra Island, the new species *Corticeus socotranus* sp. nov. is described and figured. The new species belongs to the *C. longicollis*-group and differs in the shape of genae and pronotum, and in the colour of body.

Key words. Coleoptera, Tenebrionidae, Hypophlaeini, *Corticeus*, new species, Yemen, Socotra

Introduction

In the past decade several zoological expeditions to Socotra Island (Yemen) were realized by various research institutions to study the plant and animal biodiversity of the island. This led to discovery of many species new to science, e.g. new bark beetles (KNÍŽEK 2010), new jewel beetles (ZABRANSKY 2004; BÍLÝ 2005; VOLKOVITSH 2012), new leaf beetles (BEZDĚK 2012a,b; ZOIA 2012), new spider beetles (BELLÉS 2005, 2009, 2012) and others. Many new species of the family Tenebrionidae have also been described recently based on the material from these expeditions (SCHAWALLER 2004, 2006; NOVÁK 2007; PURCHART 2009, 2011; LO CASCIO & GRITA 2011).

In 2009 and 2010 a research team of Mendel University in Brno (Czech Republic) in collaboration with the Environmental Protection Authority of Yemen launched two projects to study insect diversity of Yemen with particular interest in the fauna of Socotra Island. This research resulted in the discovery of additional species new to science, including members of the family Tenebrionidae (Coleoptera), which are with specialists and being described at present. This paper brings a part of these results and is a follow-up to an earlier contribution (PURCHART 2012). It focuses on the genus *Corticeus* Piller & Mitterpacher, 1783 (Coleoptera:

* Results of the biodiversity research of darkling beetles on Socotra Island. Part IV.

Tenebrionidae) and presents the description of a new species. Further new species of darkling beetles will be described in subsequent papers under preparation.

The genus *Corticeus* is a worldwide distributed genus which has been revised in the Afrotropical region (formerly Ethiopian region) (BREMER 1985, 1987, 1995), South Africa (SCHAWALLER 2010), North America (TRIPLEHORN 1990), Latin America (BREMER & TRIPLEHORN 1999), Oriental Region (BREMER 1998, 1999, 2010) and partly in the Australasian region with special emphasis on the Papuan area (BREMER 1992, 1993; LILLIG 2002). So far, the genus has been unknown from the Socotra Archipelago.

Corticeus longicollis (Wollaston, 1867) was the first and only member of the genus from the Arabian Peninsula reported from Yemen by SCHAWALLER (2007). It belongs to the *Corticeus longicollis*-group defined by BREMER (1995) which currently contains 14 species and 5 subspecies distributed in southern, western, central and eastern Africa. The group is characterized mainly by the strongly narrowed base of pronotum; the ratio between the broadest part of pronotum and the posterior corners of the pronotum is higher than 1.25. The new species discovered on Socotra Island and described below belongs to the same group, as it possesses a similar character. Besides *C. longicollis*, the closest occurrence of the *C. longicollis*-group's member is in Kenya and Uganda. Based on BREMER's (1995) detailed description of all members of the group and figured mostly by SCHAWALLER (2010), we found that the new species is clearly different from all members of the *longicollis*-group. The most similar and perhaps the closest related species is *C. longicollis*. Therefore, we compared the specimens of the new species with specimens collected in Yemen and reported by SCHAWALLER (2007) and with specimens identified by Bremer during his revision of the Afrotropical *Corticeus* species, and we found distinct differences (see differential diagnoses below).

Material and methods

The habitus photograph was prepared using a Leica DFC 480 digital camera on a Leica MZ16 APO microscope, and the digital photograph was subsequently processed using Leica LAS software.

Stated lengths and widths represent the maximum values of the measured parts. Body length is the distance from the clypeus to the elytral apex with the head in its natural position. Width of the elytra is the combined maximum width of both elytra.

Label data are given verbatim. Authors' remarks are given in brackets. All specimens of the species described as new bear one printed red label: 'HOLOTYPUS [PARATYPUS], *Corticeus socotranus* sp. nov., det. L. Purchart & W. Schawaller 2011'.

The material studied is deposited in the following collections:

- BMNH – The Natural History Museum, London, United Kingdom (Maxwell V.L. Barclay);
- JBCP – Jan Batelka collection, Prague, Czech Republic;
- CULS – Faculty of Forestry, Czech University of Life Sciences, Prague, Czech Republic (Jan Farkač);
- HNHM – Hungarian Natural History Museum, Budapest, Hungary (Otto Merkl);
- LPCB – Luboš Purchart collection, Brno, Czech Republic;
- NMPC – National Museum, Prague, Czech Republic (Jiří Hájek);
- SMNS – Staatliches Museum für Naturkunde, Stuttgart, Germany (Wolfgang Schawaller);
- ZSM – Zoologische Staatssammlung, München, Germany (Michael Balke).

Taxonomy

Genus *Corticeus* Piller & Mitterpacher, 1783

Corticeus Piller & Mitterpacher, 1783: 87. Type species: *Corticeus unicolor* Piller & Mitterpacher, 1783: 87 (by monotypy).

Hypophlaeus Fabricius, 1790: 222 (synonymized by CROTCH 1870).

Syncohydium Kolbe, 1898: 110 (synonymized by BREMER 1995).

Corticeus socotranus sp. nov.

(Figs. 1–2)

Type locality. Yemen, Socotra Island, Firmihin.

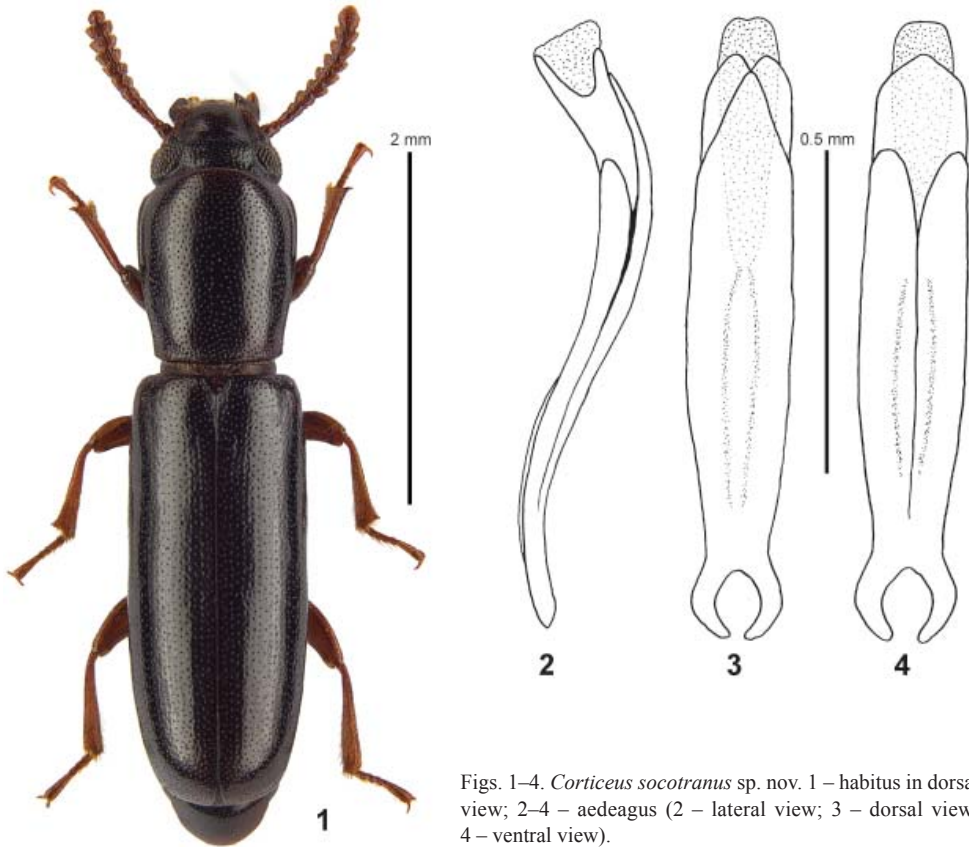
Type material. HOLOTYPE [unsexed] (NMPC), labelled: YEMEN, SOCOTRA Island, Dixam plateau, Firmihin (*Dracaena* forest), 12°28.6'N, 54°01.1'E, 490 m, Jiří Hájek leg., 15-16.xi.2010. PARATYPES. (11 specimens NMPC, 2 SMNS, 1 LPCB): same data as holotype; (1 NMPC): same data as holotype, P. Hlaváč leg.; (6 JBCP): same data as holotype, Jan Batelka leg.; (6 LPCB, 2 SMNS): YEMEN, SOCOTRA Island, Firmihin, 400-500 m, N 12°28'27"E 54°0'54", 22.-25. vi. 2009, L. Purchart lgt.; (2 LPCB): YEMEN, SOCOTRA Island, Wadi Zirik, 650-670 m, N 12°29'35"E 53°59'28", 16. vi. 2009, L. Purchart lgt.; (1 LPCB): YEMEN, SOCOTRA Island, Al Haghier Mts., Scant Mt. env., 1300-1500 m, 12°34.6'N, 54°01.5'E, 31.i.-1.ii.2010, L. Purchart lgt.; (1 CULS): Yemen: Soqotra Is., 2.-3.xii.2003, Dixam plateau, WADI ESGEGO, N 12°28'09" E 54°00'36", 300 m [GPS]; Jan Farkač lgt., YEMEN - SOQOTRA 2003 Expedition; Jan Farkač, Petr Kabátek & David Král; (6 LPCB, 3 SMNS): YEMEN, SOCOTRA Island, Alooove area, ALOOOVE vill. env., *Jatropha unicostata* shrubland with *Boswellia elongata* trees, 19.-20.vi.2012, 12°31.2'N, 54°07.4'E, 221 m, SOCOTRA expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg.; (1 BMNH, 1 HNHM, 8 LPCB, 2 SMNS, 1 ZSM): YEMEN, SOCOTRA Island, Dixam plateau 14.-15.vi.2012, FIRMIHIN, *Dracaena* woodland, 12°28.6'N, 54°01.1'E, 490 m, SOCOTRA expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg.; (3 BMNH, 3 HNHM, 14 LPCB, 5 NMPC, 6 SMNS, 3 ZSM): YEMEN, SOCOTRA Island, Dixam plateau, wadi ZERIG, pools, *Juncus* marsh; *Dracaena* trees; cave, 13.-14.vi.2012, 12°29.6'N, 53°59.5'E, 655 m, SOCOTRA expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg.; (2 LPCB): YEMEN, SOCOTRA Island, HOMHIL protected area, open woodland with *Boswellia* & *Dracaena* trees; 10.-11.vi.2012, 12°34.5'N, 54°18.5'E, 360-500 m, SOCOTRA expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg.

Description. Small, body narrow and parallel. Dorsal as well as ventral side of body dark brown with labrum, antennae, and legs pale brown.

Measurements. Body length: 3.1–4.1 mm (holotype 3.1 mm); width: 0.8–1.0 mm (holotype 0.8 mm). Ratios: Pronotal width/length 0.81. Elytral length/width 2.25–2.40; elytral length/pronotal length 2.14–2.15; elytral width/pronotal width 1.08–1.18. Width of frons/width of one eye 2.00–2.23. Length of antenna/width of head 1.17–1.29.

Head with large eyes, glabrous, entire surface punctate. Narrower than widest part of pronotum. Genae with longitudinal depression along the outer margin. Frontoclypeal suture indicated by transverse depression. In dorsal view, distance between eyes twice as wide as their diameter. Antennae relatively short, shorter than pronotum in ratio 1.16; claviform, serrate and covered with short yellow setae. Antennomeres I, II and IV as wide as long. Antennomere III distinctly longer than broad. Antennomeres V–X club-like widened, strongly transverse, trapezoid. Apical antennomere globose.

Pronotum glabrous, smooth, much longer than broad, strongly widened towards anterior margin. Broadest in anterior third. Entire surface of pronotum simply and densely punctate.



Figs. 1–4. *Corticeus socotranus* sp. nov. 1 – habitus in dorsal view; 2–4 – aedeagus (2 – lateral view; 3 – dorsal view; 4 – ventral view).

Space between those punctures approximately as large as eye facet. Pronotum completely rimmed, obliterated only in middle of anterior margin. Prothoracic hypomeron glabrous, smooth and finely punctate, similarly to surface of pronotum.

Elytra smooth, glabrous, parallel-sided and in dorsal view with slightly narrowed apex. Entire surface simply, finely and regularly punctate with punctures arranged in rows. Scutellum small with several small shiny granules. Elytral suture shallowly but conspicuously depressed behind scutellum. Shoulders strongly developed, rectangular.

Pygidium rounded, densely punctate, covered with short yellow setae.

Ventral part. Prosternum glabrous, shagreened, finely punctate. Prosternal process narrow between coxae, distinctly broadened and bent upward behind coxae. Mesoventrite glabrous, shagreened and roughly punctate. Metaventrite glabrous, inconspicuously shagreened and very finely and scarcely punctate. Abdominal ventrites 1–4 glabrous, finely and scarcely punctate with laterally situated groove on each side. Apical ventrite densely punctate, laterally without grooves and with several yellow erected setae apically.

Table 1. Measurements for easier separation of related species. Ratios adopted from BREMER (1995). * - usual ratio.

	pronotum length / pronotum width	elytra length / pronotum length
<i>C. socotranus</i> sp. nov.	1.23	2.14–2.15
<i>C. constrictus</i> (Gebien, 1921)	1.44–1.53	1.88–1.99
<i>C. glabratus</i> (Kolbe, 1898)	1.33–1.43	1.88–2.13 (2.00–2.10)*
<i>C. longicollis</i> (Wollaston, 1867)	1.30–1.39	1.94–2.05

Legs short. Apical half of tibiae covered with yellow setae. Pro- and mesotibia with sharp edge terminating latero-apically with small and acute spine-like tooth.

Aedeagus see Fig. 2.

Differential diagnosis. *Corticeus socotranus* **sp. nov.** is a member of the *C. longicollis*-group and can be distinguished as follows: from *Corticeus voluptuosus* Bremer, 1995 it differs in the absence of colour spots on elytra (red-yellow spots on elytra in the latter species). With *C. longicollis*, *C. constrictus* (Gebien, 1921) and *C. glabratus* (Kolbe, 1898) it shares punctate, micro-reticulated (and therefore dull) and, in contrast to genae, raised clypeus. This feature separates the new species together with the latter three species from the remaining members of the *longicollis*-group, where the clypeus is flat (not raised) and shiny. From *C. longicollis* it differs in its constantly dark brown body and shorter pronotum (for ratios see Tab. 1). In *C. longicollis* the pronotum is longer, body yellow, brown or often with dark-brown to black frons, pronotum and pygidium, and with yellow elytra. With *C. constrictus* and *C. glabratus* it shares uniformly coloured body, which is black to black-brown in the latter two species. Besides, these two species possess much longer pronotum (Tab. 1). For comparison see also figures of the mentioned species (except *C. constrictus*) in SCHAWALLER (2010).

Etymology. The name refers to the island's name Socotra where the new species occurs.

Biology. Most specimens of the new species were found under the bark of fallen Dragon Blood Tree – *Dracaena cinnabari* Balf. f. (family Asparagaceae), usually in a wet layer and in the company of *Cossonus* sp. weevils (Curculionidae). Several specimens (Aloove area) were found during the night walking on the bark of fallen *Boswellia elongata* Balf. f. (family Burseraceae) trees together with large amount of Scolytinae beetles. *Corticeus* beetles together with their larvae are usually feeding on the exuding sap and detritus under bark in the galleries of bark beetles (Curculionidae: Scolytinae).

Distribution. Yemen, Socotra Island.

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References

- BELLÉS X. 2005: A synopsis of the genus *Silisoptinus* Pic, 1917 (Coleoptera, Ptinidae), with the description of a new species from Socotra Island. *Elytron* **19**: 77–82.
- BELLÉS X. 2009: Spider beetles (Coleoptera, Ptinidae) from the Socotra Archipelago *Fauna of Arabia* **24**: 145–154.
- BELLÉS X. 2012: *Ptinus bertranpetiti*, a new species of spider beetle from Socotra Island (Coleoptera: Ptinidae). Pp. 219–222. In: HÁJEK J. & BEZDĚK J. (eds.): Insect biodiversity of the Socotra Archipelago. *Acta Entomologica Musei Nationalis Pragae* **52 (supplementum 2)**: i–vi + 1–557.
- BEZDĚK J. 2012a: Galerucinae (Coleoptera: Chrysomelidae) of Socotra Island, with a review of taxa recorded from Yemen. Pp. 403–428. In: HÁJEK J. & BEZDĚK J. (eds.): Insect biodiversity of the Socotra Archipelago. *Acta Entomologica Musei Nationalis Pragae* **52 (supplementum 2)**: i–vi + 1–557.
- BEZDĚK J. 2012b: *Tituboea purcharti* sp. nov., the first representative of Clytrini from Socotra Island (Coleoptera: Chrysomelidae: Cryptocephalinae). Pp. 395–401. In: HÁJEK J. & BEZDĚK J. (eds.): Insect biodiversity of the Socotra Archipelago. *Acta Entomologica Musei Nationalis Pragae* **52 (supplementum 2)**: i–vi + 1–557.
- BÍLÝ S. 2005: Two new species of *Anthaxia* from Yemen (Coleoptera: Buprestidae). *Acta Entomologica Musei Nationalis Pragae* **45**: 65–70.
- BREMER H. J. 1985: Revision der Hypophloeini der aethiopischen Region (Coleoptera, Tenebrionidae). I. Die Corticeus-Arten der madagassischen Subregion. *Entomologische Arbeiten aus dem Museum G. Frey* **33/34**: 231–290.
- BREMER H. J. 1987: Revision der Hypophloeini der aethiopischen Region (Coleoptera, Tenebrionidae). II. Anmerkungen zu und Neubeschreibungen von Corticeus-Arten der madagassischen Subregion. *Mitteilungen der Münchner Entomologischen Gesellschaft* **77**: 33–49.
- BREMER H. J. 1992: Neue Arten des Genus *Corticeus* Piller et Mitterpacher, 1783, aus der papuanischen Region, I. Mitteilung (Coleoptera, Tenebrionidae, Hypophloeini). *Entomofauna* **13**: 445–464.
- BREMER H. J. 1993: Neue Arten des Genus *Corticeus* Piller et Mitterpacher, 1783, aus der papuanisch-melanesischen Region, II. Mitteilung (Coleoptera, Tenebrionidae, Hypophloeini). *Entomofauna* **14**: 509–528.
- BREMER H. J. 1995: Revision der Hypophloeini der aethiopischen Region Pars III: Die Arten des Genus *Corticeus* Piller et Mitterpacher, 1783, der subsaharischen Region sowie Beschreibung einer neuen Corticeus-Art aus Madagascar (Coleoptera: Tenebrionidae). *Entomofauna, Supplementum* **7**: 1–288.
- BREMER H. J. 1998: Revision der orientalischen Corticeus-Arten (Col., Tenebrionidae, Hypophloeini). I. Teil. *Acta Coleopterologica* **14**: 3–32.
- BREMER H. J. 1999: Revision der orientalischen Corticeus-Arten (Col., Tenebrionidae, Hypophloeini). II. Teil. *Acta Coleopterologica* **15**: 31–92.
- BREMER H. J. 2010: Two new species of *Corticeus* Piller & Mitterpacher from the Oriental region (Coleoptera, Tenebrionidae, Hypophloeini). *Spixiana* **33**: 69–72.
- BREMER H. J. & TRIPLEHORN C. 1999: The Latin American species of the genus *Corticeus* Piller et Mitterpacher (Coleoptera, Hypophloeini). Part I. The species described by Reitter and Pic, and description of two new species. *The Coleopterists Bulletin* **53**: 56–63.
- CROTCH G. R. 1870: The genera of Coleoptera studied chronologically (1735–1801). *Transactions of the Entomological Society of London* **48**: 41–52.
- KNÍŽEK M. 2010: Five new species of Triotemnus (Coleoptera, Curculionidae, Scolytinae) from Morocco and Yemen. In: COGNATO A. I. & KNÍŽEK M. (eds.): Sixty years of discovering scolytine and platypodine diversity: A tribute to Stephen L. Wood. *ZooKeys* **56**: 191–206.

- LILLIG M. 2002: Zwei neue Arten des Genus *Corticeus* Piller & Mitterpacher, 1783 aus Irian Jaya und von den Molukken (Coleoptera, Tenebrionidae, Hypophloeini). *Veröffentlichungen des Naturkundemuseums Erfurt* **21**: 183–187.
- LO CASCIO P. & GRITA F. 2011: A new *Trachyscelis* from the Socotra Archipelago (Yemen) (Coleoptera Tenebrionidae). *Bollettino della Società Entomologica Italiana* **143**: 85–92.
- NOVÁK V. 2007: A new genus and three new species of Alleculinae (Coleoptera: Tenebrionidae) from Socotra Island, Yemen. *Fauna of Arabia* **23**: 319–334.
- PURCHART L. 2009: Review of the genus *Adelostoma* Duponchel, 1827 (Coleoptera: Tenebrionidae: Adelostomini) from the Socotra Archipelago, with description of a new species. *African Entomology* **17**: 23–27.
- PURCHART L. 2012: Biodiversity research of darkling beetles on Socotra Island. Part I. – The genus *Deretus* Gahan, 1900 (Coleoptera: Tenebrionidae). *Zootaxa* **3153**: 57–68.
- SCHAWALLER W. 2004: New species and records of Tenebrionidae (Coleoptera) from the Socotra Archipelago. *Fauna of Arabia* **20**: 439–458.
- SCHAWALLER W. 2006: First record of the subfamily Cossyphodinae (Coleoptera: Tenebrionidae) from the Socotra Archipelago. *Fauna of Arabia* **21**: 247–250.
- SCHAWALLER W. 2007: A new species of *Heterotarsus* Latreille and other records of arboreal Tenebrionidae (Coleoptera) from Yemen. *Carolinea* **65**: 179–181.
- SCHAWALLER W. 2010: The genus *Corticeus* Piller & Mitterpacher (Coleoptera: Tenebrionidae) in arboreal habitats of South Africa. *Stuttgarter Beiträge zur Naturkunde A, Neue Serie* **3**: 269–275.
- TRIPLEHORN C. 1990: Review of the genus *Corticeus* (Coleoptera: Tenebrionidae) of America north of Mexico. *Annals of the Entomological Society of America* **83**: 287–306.
- VOLKOVITSH M. G. 2012: Polycestinae (Coleoptera: Buprestidae) of Socotra Island. Pp. 195–208. In: HÁJEK J. & BEZDĚK J. (eds.): Insect biodiversity of the Socotra Archipelago. *Acta Entomologica Musei Nationalis Pragae* **52 (supplementum 2)**: i–vi + 1–557.
- ZABRANSKY P. 2004: Ein neuer Prachtkäfer aus der Unterfamilie Polycestinae: Strigoptera (Svatacesta subgen. n.) *socotra* sp. n. (Coleoptera: Buprestidae). *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen* **56**: 115–123.
- ZOIA S. 2012: Eumolpinae (Coleoptera: Chrysomelidae) of Socotra Island. Pp. 449–501. In: HÁJEK J. & BEZDĚK J. (eds.): Insect biodiversity of the Socotra Archipelago. *Acta Entomologica Musei Nationalis Pragae* **52 (supplementum 2)**: i–vi + 1–557.

