

# The genus *Coptostethus* Wollaston from the Selvage Islands, with descriptions of two new species (Coleoptera: Elateridae)

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## Abstract

Two new species of the genus *Coptostethus*, *C. putzeri* n. sp., and *C. selvagensis* n. sp. from the Selvage Islands are described and illustrated. *Cardiophorus (Coptostethus) oromii* Cobos, 1978 is transferred to the genus *Coptostethus*; new data on this species are recorded.

**Key words:** Coleoptera, Elateridae, *Coptostethus*, Selvage Islands.

## Zusammenfassung

In der vorliegenden Arbeit werden zwei neue Arten der Gattung *Coptostethus*, *C. putzeri* n. sp. und *C. selvagensis* n. sp., von den Selvagen-Inseln beschrieben und abgebildet. *Cardiophorus (Coptostethus) oromii* Cobos, 1978 wird zur Gattung *Coptostethus* überstellt; neue Funddaten dieser Art werden mitgeteilt.

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## 1 Introduction

The Selvage Islands are located approximately 175 km north of the Canary Islands, and almost 290 km south of Madeira (ERBER & WEATHER 1987), and consist of three islands, the Great Salvage, Great Piton, and Piccolo Pitao. Since the very first excursion to the islands, the close relationship between Coleoptera of the Archipelago and those of the Canary Islands has been notorious (SERRANO 1983).

Twelve species of *Coptostethus* Wollaston, 1854 are known from the Canary Isles, Madeira and the Selvage Islands, several species are described from the Cape of Good Hope, and one species from North-America.

COBOS (1978) indicated taxonomical similarities between the species of *Coptostethus* living on the Canary Islands and on Madeira, and his newly described *Coptostethus oromii* from the Selvage Islands. At that time, *C. oromii* was the only species of the family Elateridae known from the Selvage Archipelago. SERRANO (1983) published data on Coleoptera (Carabidae, Hydraenidae, Staphylinidae, Scymnini, Anobiidae, Ptinidae, Oedemeridae, Mordellidae, Tenebrionidae, Chrysomelidae, and Curculionidae) collected during an expedition to this island. In that paper he did not list any Elateridae, but on page 770 he cited the paper of COBOS (1978) treating *C. oromii* from Great Salvage. ERBER & WEATHER (1987) provided a list of 61 species of Coleoptera from the Selvage Islands, including *Coptostethus oromii* Cobos, 1978.

Recently, in the years 2005, 2006, and 2007, and for the second time at all, specimens of the family Elateridae have been collected from Selvage Islands again. This material consists of *Coptostethus oromii* and two new additional species of the same genus. The new species are described and illustrated in the present paper, the new data on *C. oromii* are recorded.

Holotypes and most paratypes of the new species are preserved in the Museum für Naturkunde Stuttgart (SMNS), some paratypes are stored in the collection of the author (CSV).

## Acknowledgements

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## 2 Methods

The body length of the specimens is measured from apical margin of frons to apex of elytra, the body width at level of the middle of the elytra. The antennal length is set in ratio to the combined length of head and pronotum, with the length of the antennomeres as units of measure.

The English expressions for the islands are used in this paper (cf. ERBER & WEATHER 1987).

### 3 Taxonomy

*Coptostethus oromii* Cobos, 1978 **n. comb.** (Figs. 1–2)

*Cardiophorus (Coptostethus) oromii* Cobos, 1978: COBOS (1978: 147–149). Type locality: Selvage Islands: Selvagem Grande (Great Salvage).

*Cardiophorus (Coptostethus) oromii* Cobos, 1978: SERRANO (1983: 769–770).

*Cardiophorus oromii* Cobos, 1978: ERBER & WEATHER (1987: 164).

The characteristics of the species classify it to belong to *Coptostethus*. Accordingly it is here transferred to this genus.

**New material:** Selvage Islands: Selvagem Grande (Great Salvage), north-east of Pico de Inferno, 18.X.2005, 5 specimens (2 CSV, 3 SMNS), leg. D. PUTZER; Selvagem Grande, 5.–20.X.2005, 3 specimens (2 CSV, 1 SMNS), leg. D. PUTZER; same locality but 29.XI.2006, 7 specimens (1 CSV, 6 SMNS), leg. D. PUTZER.

#### Habitat

The specimens have been found on slightly wet, fine substrate under flat stones.

*Coptostethus putzeri* **n. sp.** (Figs. 3–10)

**H o l o t y p e** ♂ (SMNS): Selvage Islands: Selvagem Grande (Great Salvage), 5.–20.X.2005, leg. D. PUTZER.

**P a r a t y p e s** 6 ♂♂: Same data as holotype, 3 specimens (2 CSV, 1 SMNS), leg. D. PUTZER; same locality but 29.XI.2006, 3 specimens (SMNS), leg. D. PUTZER.

#### Etymology

Named in honour of the collector of the new species, Prof. Dr. D. PUTZER, Düsseldorf.

#### Diagnosis

Elongate, almost three times as long as wide (body length 3.2 mm, body width 1.1 mm); body conspicuously constricted between pronotum and elytra, slightly raised and shiny. Yellow; head, pronotum and a longitudinal strip along suture of elytra reddish-brown. Pubescence yellowish, short and fine, on head and elytra declined to apex, on pronotum declined in various directions.

#### Description

Head flat; frons almost rectangular and projecting the clypeus, slightly raised above the base of antennae and completely edged; puncture dense and flat, micro-reticulate, just visible, interstices of points half to once their

diameter; antennae elongate, surpassing the posterior angles of the pronotum by the last four antennomeres, the latter fusiform, second antennomere little longer than half of the length of third antennomere, last antennomere oval, sub-apically bevelled; antennae covered with short and bristly hairs.

Pronotum sub-globular, its disk a little smaller than that of elytra, along median line slightly longer than wide at middle; pronotum slightly raised, conspicuously arcuate on lateral sides, constricted at the base of posterior angles, the latter pointed backwards and acute at apex; lateral sides of pronotum smooth, without a carina or line; carina of the posterior angles very short and little raised; puncture dense and flat, micro-reticulate, just visible, interstices of points half their diameter; hairs short and bristly, declined in various directions.

Scutellum (Fig. 8) flat, cordiform, convex at base, laterally and apically arcuate; surface flat, puncture micro-reticulate, fine, just visible, interstices of points three to four times their diameter, pubescence fine and short, declined from base to apex.

Elytra sub-oval, little raised and little wider than pronotum, after middle narrowed to apex; apex arcuate, without an inner tooth; base as wide as that of pronotum, regularly edged and triangular, laterally with a conspicuous tooth and forming for the accommodation for the posterior excavations of the pronotum (Fig. 9); shoulder flat (wings reduced); striae of elytra with longitudinal rows of fine and oval, simple puncture, interstices of striae flat, finely micro-punctate and moderately shiny; pubescence short, bristly, declined to apex.

Pro-, meso- and metathorax with fine puncture, interstices of points flat and moderately shiny; pubescence short and fine.

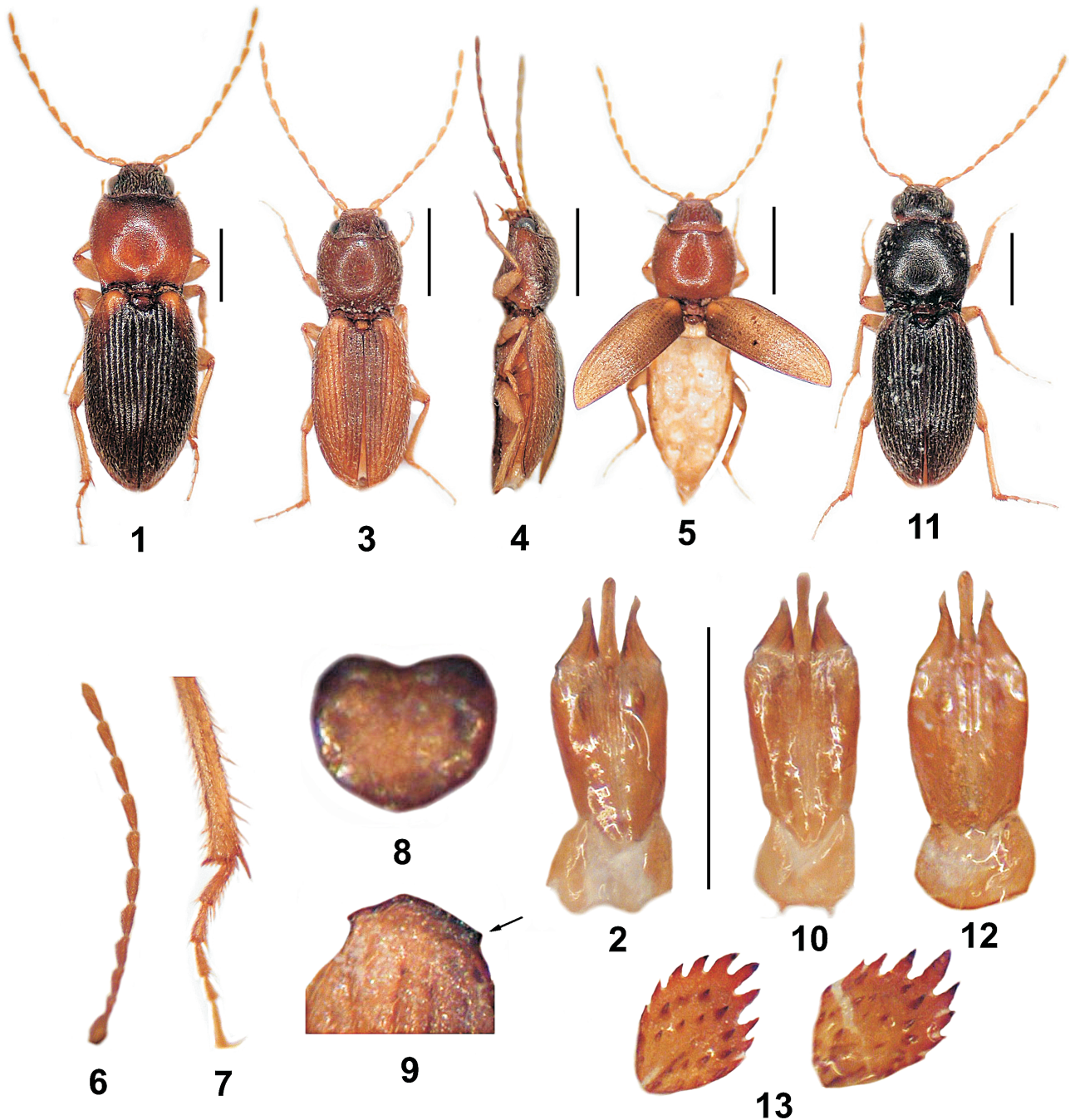
Legs slender, moderately long and thin; femora thickened at apex; lateral sides and apex of tibiae covered with conspicuously extended thorns; tarsus covered with long and fine, apically extended hairs; claws simple; tarso-meres up to claws of decreasing length.

Aedeagus trilobate, with a median lobe just surpassing the apices of the parameres, the latter without lateral edge, just slightly arcuate, and with a long, uncinat bristle at apex.

Female unknown.

#### Differential diagnosis

The new species, *C. putzeri* n. sp., is closely allied to *C. oromii* Cobos, 1978, but can easily be separated from this species by the smaller body, the lighter colour, the longer antenna (antenna of *C. oromii* surpassing the posterior angles of the pronotum by the last three antennomeres) (Figs. 1, 3–5), and the parallel median lobe of the aedeagus (slightly thickened apically in *C. oromii*) (Figs. 2, 10).



**Figs. 1–13.** *Coptostethus* spp. – 1–2. *Coptostethus oromii*. 1 Habitus. 2. Aedeagus. – 3–10. *C. putzeri* n. sp. 3. Habitus, dorsal view. 4. Habitus, lateral view. 5. Habitus, open elytra. 6. Right antenna. 7. Tibia and tarsus. 8. Scutellum. 9. Base of elytra with lateral tooth (arrow). 10. Aedeagus. – 11–13. *C. selvagensis* n. sp. 11. Habitus. 12. Aedeagus. 13. Bursa copulatrix. – Scales: 1 mm (1, 3–5, 11), 0.5 mm (2, 10, 12–13).

#### Variability

The specimens are only slightly variable in their dimensions (body length 3.2–3.6 mm) and characteristics. Two of the paratypes have yellowish heads and pronota.

#### Habitat

The specimen have been found on slightly wet, fine substrate under flat stones.

*Coptostethus selvagensis* n. sp. (Figs. 11–13)

**H o l o t y p e** ♂ (SMNS): Selvage Islands: Selvagem Grande (Great Salvage), 5.–20.X.2005, leg. D. PUTZER.

**P a r a t y p e s** 5 ♂♂, 3 ♀♀: Same data as holotype, 3 specimens (2 CSV, 1 SMNS), leg. D. PUTZER; same locality but 29.XI.2006, 5 specimens (SMNS), leg. D. PUTZER; Selvagem Grande, north-east of Pico de Inferno, 18.X.2005, 1 specimen (CSV), leg. D. PUTZER.

## Etymology

Named after the locus typicus.

## Diagnosis

Elongate, three times as long as wide (body length 4.2 mm, body width 1.4 mm); body conspicuously constricted between pronotum and elytra, slightly raised, shiny. Chestnut-brown, legs and antennae yellowish, ventral side and basal angles of elytra, as well as disk of scutellum reddish-brown. Pubescence yellowish, short and fine, on head and elytra declined to apex, on pronotum declined in various directions.

## Description

Head flat; frons almost rectangular and projecting the clypeus, slightly raised above the base of antennae and completely edged; puncture dense and flat, micro-reticulate, just visible, interstices of points half to once their diameter; antennae elongate, surpassing the posterior angles of the pronotum by the last four antennomeres, the latter fusiform, second antennomere two-thirds of the length of third antennomere, last antennomere oval, subapically bevelled; antennae covered with short and bristly hairs.

Pronotum sub-globular, its disk a little smaller than that of elytra, along median line slightly longer than wide at middle; pronotum slightly raised, conspicuously arcuate on lateral sides, constricted at the base of posterior angles, the latter pointed backwards, and being acute at apex; lateral sides of pronotum smooth, without a carina or line; carina of the posterior angles very short and just little raised; puncture dense and flat, micro-reticulate, just visible, interstices of points half their diameter; hairs short and bristly, declined in various directions.

Scutellum flat, cordiform, convex at base, laterally and apically arcuate; surface flat, puncture micro-reticulate, fine, just visible, interstices of points three to four times their diameter, pubescence fine and short, declined from base to apex.

Elytra sub-oval, little raised and little wider than pronotum, after middle narrowed to apex; apex arcuate, without an inner tooth; base as wide as that of pronotum, regularly edged and triangular, laterally with a conspicuous tooth and forming for the accommodation for the posterior excavations of the pronotum; shoulder flat (wings reduced); striae of elytra with longitudinal rows of fine and

oval, simple puncture, interstices of striae flat, finely micro-punctate and moderately shiny; pubescence short, bristly, declined to apex.

Pro-, meso- and metathorax with fine puncture, interstices of points flat and moderately shiny; pubescence short and fine.

Legs slender, moderately long and thin; femora thickened at apex; lateral sides and apex of tibiae covered with conspicuously extended thorns; tarsus covered with long and fine, apically extended hairs; claws simple; tarsomeres up to claws of decreasing length.

Aedeagus trilobate, with a median lobe just surpassing the apices of the parameres, the latter without lateral edge, just slightly arcuate, and with two long, uncinat bristles at apex.

The female has a larger, laterally more arcuate, conspicuously raised body (length/width ratio 5.7 : 2.2). Bursa copulatrix see Fig. 13.

## Differential diagnosis

The new species, *C. selvagensis* n. sp., is closely allied to *C. femoratus* Wollaston, 1854 from Madeira, but can easily be separated from the latter by the darker colour of the body and the form of the aedeagus (Fig. 12). The median lobe of *C. femoratus* is conspicuously thin and sharp apically, see COBOS (1978).

## Variability

The specimens are only slightly variable in their dimensions (body length of males 3.7–4.3 mm, of females 5.7–6.0 mm), characteristics and colour.

## Habitat

The specimens have been found on slightly wet, fine substrate under flat stones.

## 4 Discussion

The absence of wings is a reductive characteristic of all species of the genus, as well as in other Elateridae living on small islands like the Selvages. This is a quite interesting fact, as the next relatives of *Coptostethus*, the species of the genus *Cardiophorus*, which are living on the continent, possess intact wings and flying muscles, and move mostly by flying. The evolutionary benefit for *Cardiophorus* and *Coptostethus*, either with or without wings seems to be strictly dependent of the place where the species live, either on the continent or on a small island. Within the Elateridae this characteristic is often discussed as convergence, as the reduction of wings in various groups undoubtedly has been evolved independently.

The constriction between pronotum and elytra in the

species of *Coptostethus* is very probably based on a functional necessity too. As the species of the genus *Coptostethus* have lost their wings, they move exclusively with their legs. Therefore, this constriction undoubtedly has to be interpreted as a reduction to accommodate the knees of the fore and middle legs while moving. In most of the species of the genus *Cardiophorus* the pronotal and elytral bases are wider, and the space between these parts is only slightly constricted. It seems, that there is no need for these species to have open space between the pronotal and elytral bases to accommodate the knees while moving. Hence, the constriction between pronotal and elytral bases in *Coptostethus* is connected with the reduction of the wings.

The triangular base of the elytra, which possess a conspicuous tooth at the lateral end, fits perfectly into the opposite excavation of the pronotal base, and may present a functional characteristic too. The tooth and the edged base undoubtedly stabilize the pronotum while the speci-

men is preparing for jumping. The constitution of the base of the elytra of *Coptostethus* together with the excavation of the pronotal base represent a part of the mechanism, which includes primary the prosternal apophysis and the mesosternal cavity for the jumping behaviour.

## 5 References

- COBOS, A. (1978): Sobre *Cardiophorus* atlánticos extracanários del subgénero *Coptostethus* (Coleoptera, Elateridae). – Contribución al estudio de la historia natural de las Islas Salvajes. Resultados de la expedición científica “Agamemnon 76” (23 de febrero – 3 de marzo de 1976), pp. 145–150; Santa Cruz de Tenerife (Museo de Ciencias Naturales).
- ERBER, D. & WEATHER, C. P. (1987): The Coleoptera of the Selvagem Islands, including a catalogue of the specimens in the Museo Municipal do Funchal. – Boletim do Museu Municipal do Funchal **39** (193): 156–187.
- SERRANO, A. R. M. (1983): Os coleópteros do Arquipélago das Selvagens. – Actas del I Congreso ibérico de Entomología **2**: 759–776.

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