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Helophorus sinovillosus sp.n., an unexpected discovery in Qinghai Province, China (Coleoptera: Helophoridae)

R.B. ANGUS

Abstract

Helophorus sinovillosus sp.n. is described from three specimens taken in a saltmarsh of the Qaidam Basin (Qinghai Province, China). The new species appears to be most closely related to *H. villosus* DUFTSCHMID, 1805.

Key words: Coleoptera, Helophoridae, *Helophorus*, new species, taxonomy, China, Qinghai.

Introduction

In the course of their travels in the northern part of the Tibetan Plateau (Qinghai Province, China), Czech entomologists Jiří Hájek, David Král & Jan Růžička spent a day in the neighbourhood of the small city of Golmud, waiting for their next transport. The collecting environment was clearly both limited and challenging with specimens collected from under stones, in dung and on dry halophilous vegetation, as well as in drying-out saline pools (Fig. 11). Among the material were five specimens of *Helophorus* FABRICIUS, 1775, all heavily encrusted with dried silt. Cleaning revealed two *H. kerimi* GANGLBAUER, 1901, a species well-known in this area and environment, and three specimens of an unknown species bearing a totally unexpected resemblance to *H. villosus* DUFTSCHMID, 1805, a species typical of the rivers Rhine and Danube in Europe, but now also known from the river Tylihul near Odessa in Ukraine (SHATROVSKIY 2018).

Photography

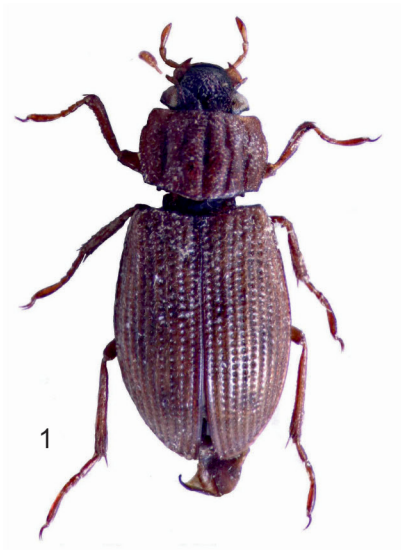
All the photographs of beetles were taken in the Sackler Bioimaging Laboratory of the Natural History Museum, London, U.K. External views (Figs. 1–4, 8–10) were taken using a Leica MZ125 stereomicroscope and aedeagi (Figs. 5–7) were mounted on slides in dimethyl hydantoin formaldehyde (DMHF) resin and photographed using a Zeiss Axioskop bright field compound microscope. Both microscopes were fitted with Cannon DSLR cameras controlled by Eos Utility programmes. Images were stacked using Helicon Focus. Further manipulation and arrangement of the images was done using Adobe Photoshop.

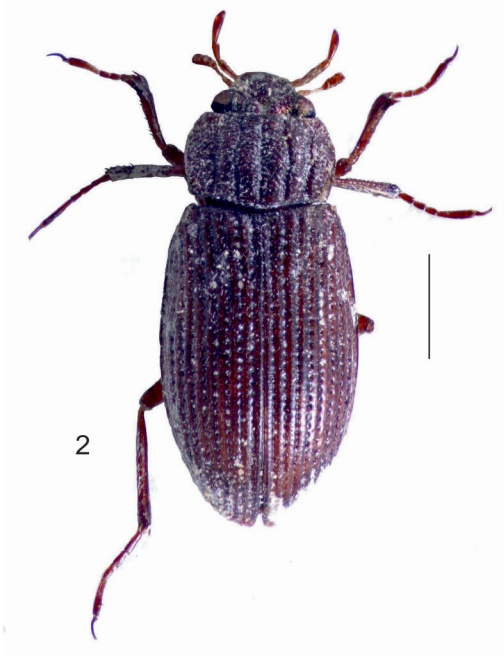
Helophorus sinovillosus sp.n.

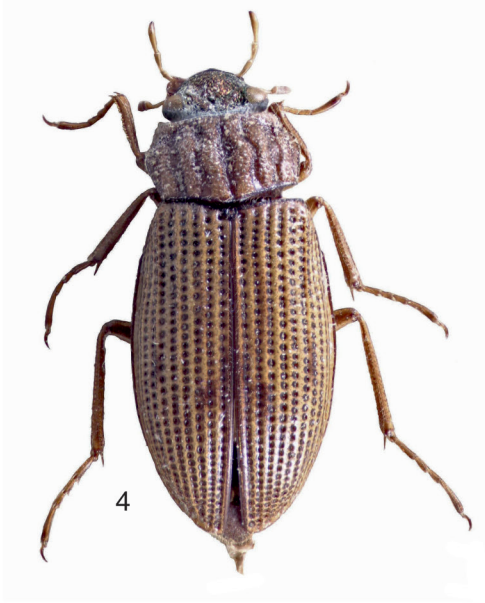
TYPE MATERIAL: **Holotype** ♂ (National Museum, Prague, Czechia): "CHINA: Qinghai province, \ 13.4 km NW of GOLMUD, 2800 m, \ 36°25.7'N 094°45.9'E, \ 8.VII.2005, \ J. Hájek, D. Král & J. Růžička leg. \\ individually in drying \ pools near village". **Paratypes**: 1 ♀ (National Museum, Prague, Czechia) and 1 ♂ (Natural History Museum, London, U.K.), with same data as holotype.

DESCRIPTION: Habitus as in Figs. 1–3. Length: 3.8–4.3 mm (♂), 4.8 mm (♀), breadth: 1.7–1.9 mm (♂), 2.1 mm (♀).

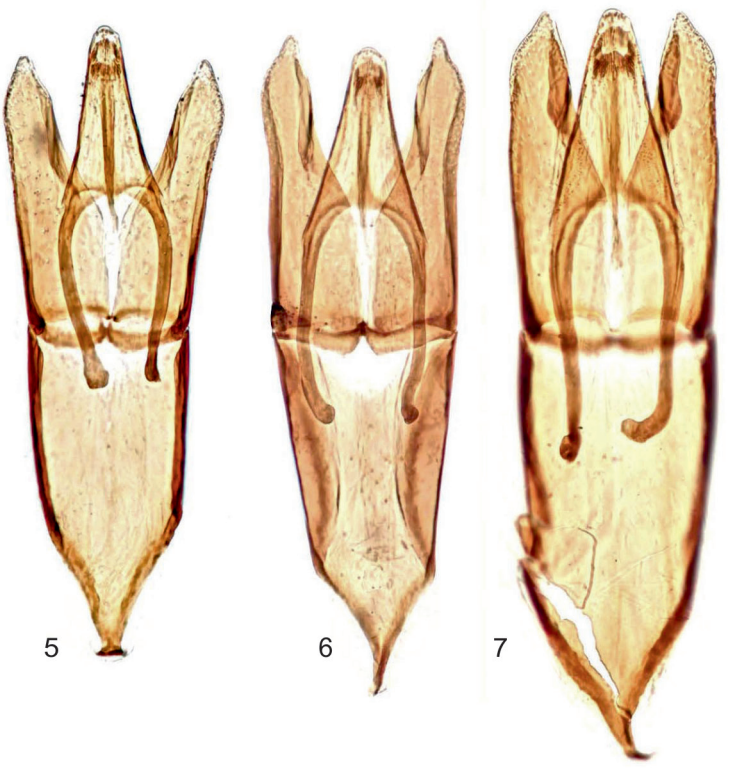
Head (Figs. 1–3, 8): Ground colour pitchy with bronze reflections. Y-groove deep, stem at base 2 × wider than the arms, expanded anteriorly, its floor rugulose, shining bronze-golden. Surface of head strongly granulate, granules sometimes sparser posteriorly. Antennae (Fig. 10) dull yellow, 8-segmented. Maxillary palpi (Fig. 10) dull yellow, long, apical segment asymmetrically pyriform.

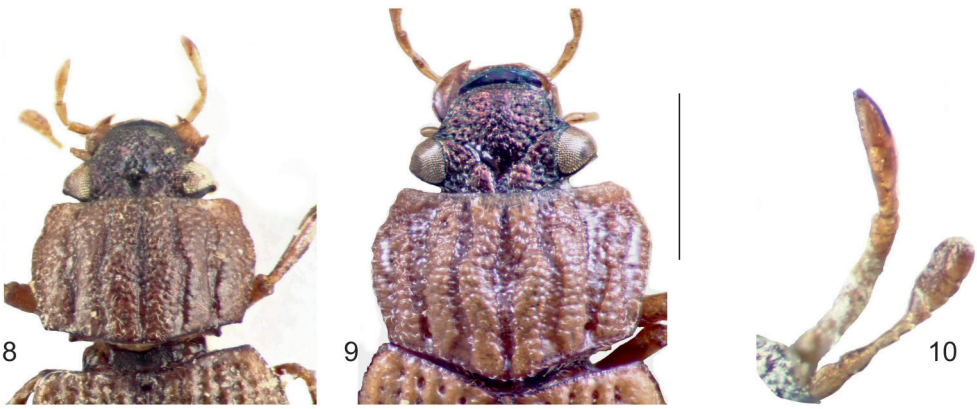






Figs. 1–4: Photographs of dorsal habitus of 1) *Helophorus sinovillosus*, holotype ♂, 2) same, male paratype, 3) same, female paratype, 4) *H. villosus* ♂, Deggendorf, Germany. Scale = 1 mm.





Figs. 5–7: Aedeagus of 5) *Helophorus sinovillosus*, holotype ♂, 6) same, paratype, 7) *H. villosus*, Deggendorf, Germany. Scale = 0.5 mm.

Figs. 8–10: Head and pronotum (8–9), and antenna and maxillary palpus (10): 8) *Helophorus sinovillosus*, holotype, 9) *H. villosus*, Deggendorf, Germany, 10) *H. sinovillosus*, paratype ♂. Scale = 1 mm (Figs. 8–9), Fig. 10 not to scale.

Fig. 11: Collection site of *Helophorus sinovillosus*, China, Qinghai Province, NW of Golmud, 2800 m a.s.l.

Pronotum (Figs. 1–3, 8): Highly and evenly arched, widest medially, sides evenly curved to both anterior and posterior corners. Ground colour dull orange or darker, perhaps darkened as a result of partial decomposition. All intervals strongly and closely granulate. Mid groove straight, tapered to a point just before the anterior margin, narrowed posteriorly but open to the base, its floor with scattered smaller granules. Submedian grooves curved or bluntly angled outwards medially, straighter towards the ends, stopping just short of the anterior margin. Submarginals slightly divergent anteriorly, widened over anterior half. Marginal grooves dull yellow-brown, narrowed at ends, their floors shining, smooth but with small sparse granules.

Elytra (Figs. 1–3): Widest at about their middle, sides rounded, apex tapered. Ground colour dull yellowish brown or darker, again possibly as a result of partial decomposition. The palest specimen (holotype) with hints of a darker Λ-mark across the suture medially and a pair of darker spots either side of this. Strongly striate, striae about half of the width of the convex interstices, strial punctures separated by about half the diameter of a puncture.

Legs (Figs. 1–3): Dull yellow-brown, long, especially the apical tarsal segments and claws. Swimming-setae only moderately developed.

Aedeagus (Figs. 5–6): Outer margins of the parameres more of less straight, parallel to one another over the basal two thirds of their length, then weakly deflexed outwards before being strongly turned inwards to the pointed apex, over the apical quarter. Tube slightly shorter than the struts, phallobase slightly longer than the parameres.

DIFFERENTIAL DIAGNOSIS: In its eight-segmented antennae and general form and sculpture closely resembling *H. villosus* (Figs. 4, 9), but smaller (length 3.8–4.8 mm as against 4.5–6.2 mm in *H. villosus*), darker than the latter, mid to dark brown as against pale yellowish brown, though the colour of the Chinese specimens may be unnaturally darker because of partial

decomposition. The aedeagus (Figs. 5–6) is similar in shape and proportions to that of *H. villosus* (Fig. 7), but smaller, length 0.70–0.78 mm as against about 0.90–0.95 mm in *H. villosus*.

DISCUSSION: As already mentioned, the discovery of *H. sinovillosus*, a species closely resembling, and almost certainly related to *H. villosus*, confined to edges and abandoned meanders of the rivers Rhine and Danube in Europe, is totally unexpected and serves as reminder of how much still remains to be discovered about patterns of distribution and their origins. *Helophorus villosus* has conspicuously large tarsal claws, surely an adaptation for clinging to riverine vegetation, but the tarsal swimming-setae are only moderately developed. *Helophorus sinovillosus* has similar large tarsal claws, but the partial decomposition of the material may have resulted in the loss of the tarsal swimming-setae. It seems possible that the new species inhabits larger riverine habitats, and its presence in the rather small drying out pools resulted from dispersal by flight.

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Reference

SHATROVSKIY, O.G. 2018: First record of *Helophorus villosus* Duftschmid, 1805 (Coleoptera: Hydrophiloidea: Helophoridae) in Ukraine. – Kharkov Entomological Society Gazette 26 (2): 5–7.

Dr. Robert B. ANGUS
Division of Life Sciences (Insects), Natural History Museum, Cromwell Road, London SW7 5BD, United Kingdom
(r.angus@rhul.ac.uk)