



A new species of *Cephalochetus* Kraatz, 1859 (Coleoptera: Staphylinidae: Paederinae) from Mêdog, China

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Abstract

A new species of *Cephalochetus* Kraatz, 1859 from China is described: *Cephalochetus zhangguohuai* sp. nov. collected from Mêdog County, Xizang, China. Color plates of the habitus, maxillary palpi, abdomen with sternites and tergites of the males, as well as the aedeagal structures are provided.

Key words: taxonomy, Paederinae, *Cephalochetus*, new species, Mêdog

Introduction

The genus *Cephalochetus* Kraatz, 1859 was established with two species: *Cephalochetus elegans* Kraatz, 1859 and *C. indicus* Kraatz, 1859. The latter species was subsequently designated as the type species by Blackwelder (1939). Smetana (2004) classified the genus within the subtribe Cryptobiina Casey, 1905. However, Newton & Thayer (2005) immediately reassigned it to Echiasterina Casey, 1905, based on the extremely small apical maxillary palpomere and the procoxal cavities closed by a fusion of the dilated prosternum to the hypomere, which was countenanced by a molecular phylogenetic study (McKenna *et al.* 2015). Schomann & Solodovnikov (2017) moved it back to Cryptobiina, highlighting a combination of morphological traits: geniculate antennae, slim protarsi without adhesive setae underneath, and reduced parameres, which corroborated earlier placements by Smetana (2004) and Schülke & Smetana (2015).

Cephalochetus has only 27 species known worldwide at present (Newton 2025). The most recent new species was described nearly 30 years ago, while most species were published about 80 years ago, with very simple illustrations and descriptions. *Cephalochetus* species are known from Southeast Asia (12 species), the Afrotropical region (12 species), and the Australian region (4 species, one of which also occurs in Asia) (Cameron 1931; Last 1984; Li *et al.* 2019; Newton 2025). Only *C. indicus* is distributed in two regions (Oriental and Australian), although it was usually found in insular habitat. *Cephalochetus rufus* Cameron, 1918 occurs across the Oriental Region (Senda 2020; Nozaki 2020). The remaining 25 species are all restricted to their type localities (Newton 2025).

In China, only *C. rufus* has been recorded to date (Cameron 1931; Li *et al.* 2019). Fortunately, during a scientific expedition in Xizang (Tibet), we collected a single precious specimen representing a new species: *C. zhangguohuai* sp. nov. from Mêdog. This brings the total number of species in this group to 28.

Material and methods

The specimen used in this study has been well-preserved in ethanol since its collection. It was slightly rehydrated at 30°C in warm water for about half an hour before dissection. The extracted aedeagus was submerged in hot subsaturated solution of potassium hydroxide for 5 minutes to remove the attached muscles. The dissected parts were preserved in glycerin in a plastic microvial with stoppers and pinned together with labels and the mounting card where the main body remains were glued after all examination.

The observation, measurement, and imaging were carried out using a Nikon SMZ18 stereomicroscope equipped with a Nikon DS-Ri2 camera and the tethering software NIS-Elements D version 5.2.3. Adobe Photoshop was employed for digital post-processing of the color photographs.

The specimens listed in the present study are deposited in the zoological collection of Hebei Normal University, Shijiazhuang, Hebei, China (HBNU).

The following abbreviations are used in the description, and all measurements are given in millimeters:

BL body length (from anterior margin of labrum to end of abdomen);

FL forebody length (from anterior margin of labrum to posterior margin of elytra);

HL head length (from clypeal anterior margin to nuchal constriction);

HW head width (greatest width of head, including eyes);

AL antennal length (length of one antenna);

EYL eye length (longitudinal length of eye in dorsal view);

PL pronotum length (from anterior margin of pronotum to its posterior margin);

PW pronotum width (greatest width of pronotum);

EL elytra length (greatest length of elytra, from humeral angle to posterior end);

EW elytra width (greatest width of elytra);

ABW abdomen width (greatest width of abdomen).

Taxonomy

Genus *Cephalochetus* Kraatz, 1859

Type species: *Cephalochetus indicus* Kraatz, 1859, fixed by subsequent designation by Blackwelder 1939: 117.

Distribution. Southeast Asia, Australia, Africa.

Cephalochetus zhangguohuai sp. nov.

(Figs 1, 2)

Type material. HOLOTYPE: CHINA: ♂, Baibung Town [背崩乡], Mêdog County [墨脱县], Nyingchi City [林芝市], 29.2468772° N, 95.18382553° E, 1059 m, 23-VII-2019, sieved from litter in a bamboo grove, leg. Liang LÜ (HBNU).

Measurement. BL: 5.73 mm; FL: 3.397 mm; HL: 0.991 mm; AL: 2.150 mm; PL: 1.187 mm; EL: 1.122 mm; HW: 0.926 mm; PW: 1.051 mm; EW: 1.098 mm; ABW: 1.184 mm.

Description. Habitus as in Fig. 1A. Head and elytra black or blackish brown; pronotum, abdomen and antennomeres 1–6 dark brown; antennomeres 7–11 and legs slightly brown.

Head (Fig. 1A, C) dull, longer than wide ($HL/HW = 1.07$), broadest across eyes. Eyes small, round and prominent, shorter than 1/3 of head length ($HL/EYL = 3.64$). Gena slightly longer than eye and temple together (gena: eye: temple = 1:0.53: 0.39). Setae restricted to lateral margins. Vertex rough, with sparse small tubercles and slightly elongate-oval depression in middle, longitudinal carina present within fovea. Median area between antennae with triangular glabrous region. Posterior head between eyes with slightly convex and narrow arcuate region bearing punctures. Gena parallel-sided in dorsal view and temples short with both sides protruding laterally. Posterior area of head slightly convex and smooth with coarse punctures. Ventral surface rugose with irregular fine striations. Gular sutures broad in anterior 1/3, narrowed posteriorly and parallel and narrow in posterior 2/3.

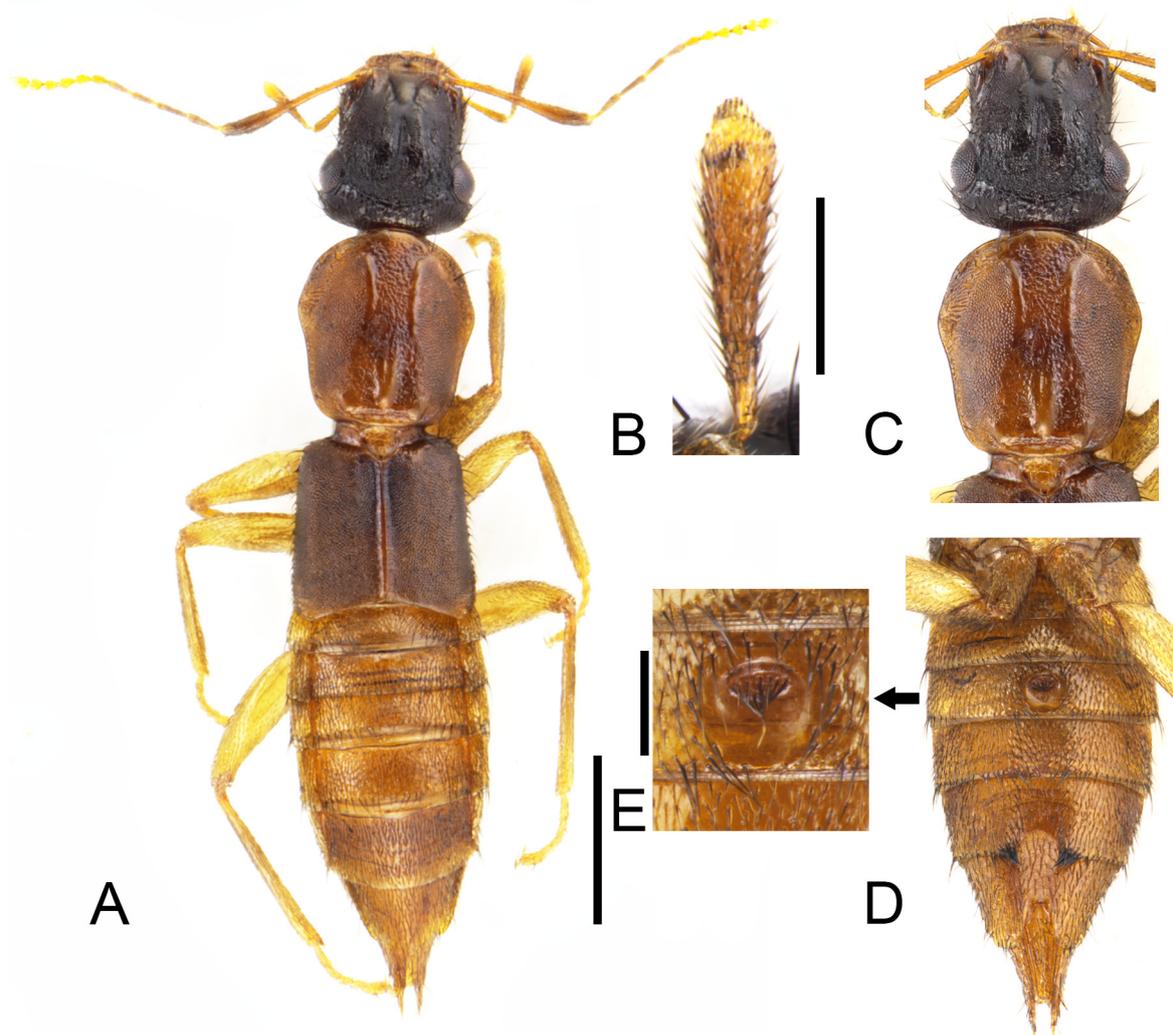


FIGURE 1. *Cephalochetus zhangguohuai* sp. nov. **A.** Habitus. **B.** Maxillary palpomere 3. **C.** Head and pronotum. **D.** Sternite III–IX. **E.** Specialized structure of the abdomen (umbilicus). Scale bars: A = 1 mm; B, E = 0.2 mm, C, D = 1 mm.

Antennae (Fig. 1A) elongate and slender with antennomere 1 equal to length of 2–8, antennomeres 2–5 distinctly elongate, 6–8 slightly longer than wide, 9–10 subcircular, and 11 elongate drop-shaped. Maxillary palpi (Fig. 1B) long, with palpomere 1 short, 2–3 subequal, and 4 small and tuberculate.

Pronotum (Fig. 1C) slightly longer than wide (PL/PW = 1.13), rough and glabrous; broadest approximately at apical 1/3, gradually narrowing anteriorly forming semicircular shape, and gradually tapering posteriorly into trapezoidal shape. Margins and broader median area depressed and corrugated, remaining lateral areas shoe-shaped, and slightly convex with punctures small, circular, and dense. Posteromedian area near base with smooth longitudinal elevation approximately 1/3 as long as pronotum, and deep median sulcus approximately 1/3 as wide as pronotum and deep circular fovea on both sides.

Elytra dull, slightly longer than wide (average EL/EW = 1.02); humeri well-developed, slightly expanding posteriorly, with regular lateral margins. Dorsal surface covered with dense, small and circular punctures. Basal portion of the anterior margin glabrous and impunctate; posterolateral angles rugose. Hind wings short, each approximately 1/3 as large as elytron, flightless.

Abdomen broad and wider than forebody, widest at segment V. Lateral tergites broad; pleurites and tergites fused. Segments III–VII gradually narrowed distally. All tergites with dense setiferous punctation; posterior margins with black setae (Fig. 1A). Tergite VII (Fig. 2B) broad and short, apex truncate; tergite VIII (Fig. 2D) slightly longer than wide, with apex triangular; tergite IX (Fig. 2E) slender and separate, with apex elongate and acute.

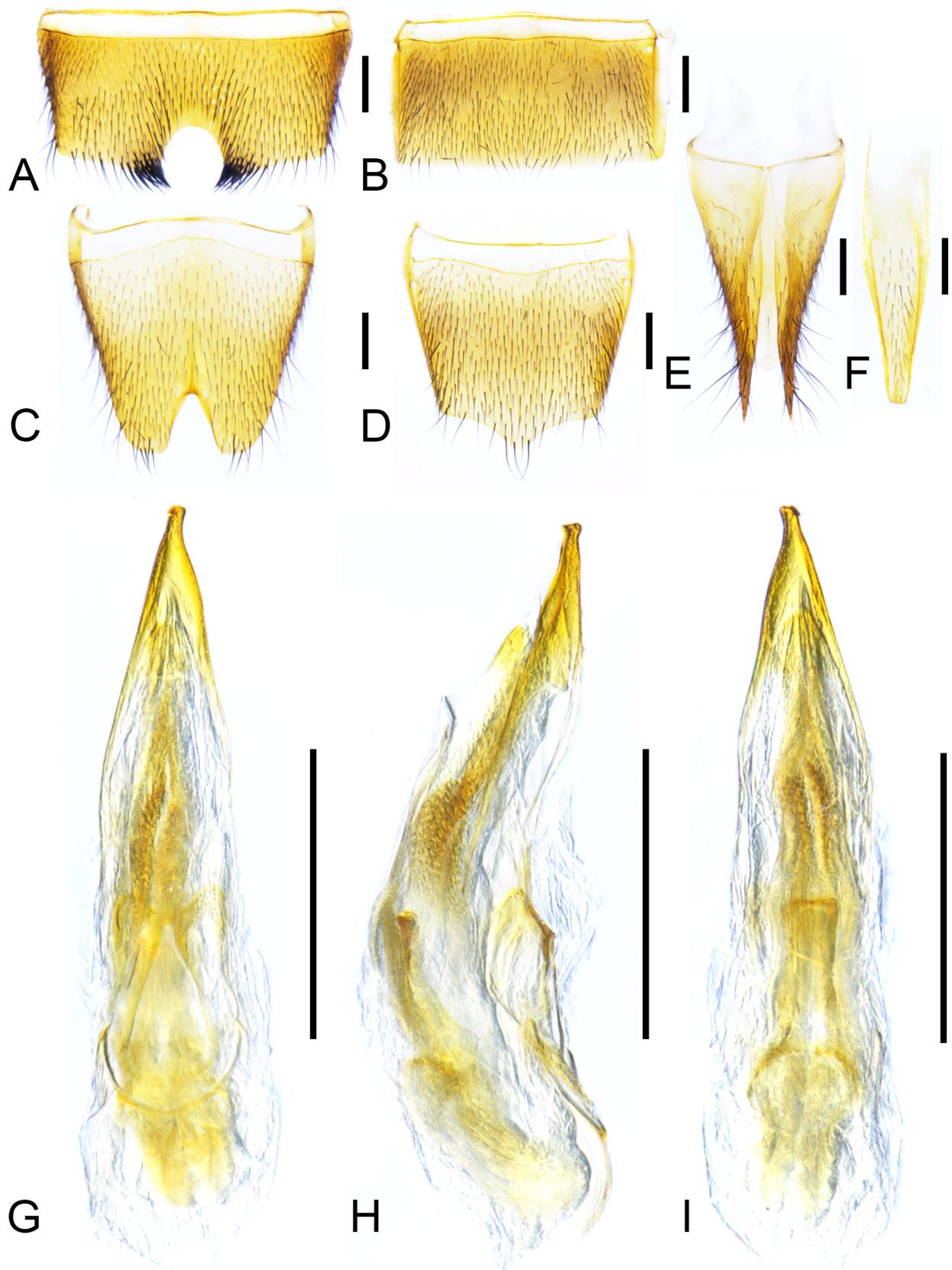


FIGURE 2. *Cephalochetus zhangguohuai* sp. nov. **A.** Sternite VII. **B.** Tergite VII. **C.** Sternite VIII. **D.** Tergite VIII. **E.** Tergite IX. **F.** Sternite IX. **G.** Aedeagus in ventral view. **H.** Aedeagus in lateral view. **I.** Aedeagus in dorsal view. Scale bars: A–F = 0.2 mm, G–I = 0.5 mm.

Abdominal sternites IV–VI with median area slightly depressed with black setae. Sternite IV (Fig. 1D) with posterior margin slightly emarginated. Sternite V with circular “umbilicus” with cluster of black setae (Fig. 1D, E). Sternite VII (Fig. 2A) broad and short, with apex truncate, median area with semicircular emargination, densely setiferous on both sides. Sternite VIII (Fig. 2C) with deep triangular emargination in middle. Sternite IX (Fig. 2F) slender, weakly sclerotized at base, gradually tapering distally, with apex truncate.

Aedeagus (Fig. 2G–I) weakly sclerotized, slender and symmetrical, length-to-width ratio = 3.74. Dorsal plate small with median lobe partly unprotected. Ventral plate relatively broad, gradually tapering distally, with apex hooked. Internal sac formless, without obvious sclerites, densely covered with small spines.

Female. Unknown.

Distribution. Currently only known from the type locality. The type specimen was sieved from the leaf litter in a bamboo grove in Baibung Town, Mêdog County, Xizang Autonomous Region, Southwest of China, at altitude of 1059m.

Etymology. The specific epithet honors General *Guohua Zhang* [张国华], whose sacrifice and contribution, along with that of his men in 1962, made our expedition, as well as any kind of threat-free activities, to the region possible.

Diagnosis and notes. *Cephalochetus zhangguohuai* **sp. nov.** was found in close geographic proximity to several congeners, including *C. kraatzi* (Fauvel, 1895), *C. aspericollis* (Fauvel, 1895), *C. brunneus* (Motschulsky, 1858), *C. rufus*, *C. apterus* Bernhauer, 1928, *C. indicus* Kraatz, 1859, *C. elegans* Kraatz, 1859, and *C. myrmecocephalus* (Lea, 1904). Examination of the original descriptions shows that the posterior margin of sternite VII (often referred to as sternite VI in most works, but as sternite V in Lea 1904) exhibits an emargination of different shapes in *C. apterus*, *C. elegans*, and *C. myrmecocephalus*. In contrast, this feature is absent in *C. aspericollis*, *C. brunneus*, *C. rufus*, and *C. indicus* (Bernhauer 1928; Fauvel 1895; Kraatz 1859; Lea 1904; Motschulsky 1858). Importantly, none of these species display the distinctive umbilicus-like modification on sternite V that characterizes *C. zhangguohuai* **sp. nov.**, despite the fact that their abdominal sternites were carefully illustrated in the original descriptions. Furthermore, *C. kraatzi* was described only from female specimens, but its reported body size (7 mm) is considerably larger than *C. zhangguohuai* **sp. nov.** (Fauvel 1895).

The new species can be recognized by the combination of following characteristics: a weakly sclerotized aedeagus with notable internal structures, the highly reduced hind wings which limit its ability for long-distance dispersal, and the presence of an “umbilicus” on sternite V (Fig. 1E). We tentatively hypothesize that this structure may be male-specific and could function either as a glandular opening or as a tuft of sensory setae, though its exact role requires further confirmation once female individuals are available.

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西藏墨脱殊胸隐翅虫属*Cephalochetus*一新种（鞘翅目：隐翅虫科：毒隐翅虫亚科）

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摘要: 描述西藏墨脱县殊胸隐翅虫属*Cephalochetus*一新种, 即张氏殊胸隐翅虫*C.zhangguohuai***sp.nov.**; 提供了新种的整体形态、下颚须、腹板整体图、第五节腹板特化图、生殖节片所有背、腹板及阳茎三视观察图。

关键词: 分类, 毒隐翅虫亚科, 殊胸隐翅虫属, 新种, 墨脱