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● New discoveries of the tribe Ozaenini Hope, 1838 (Coleoptera, Carabidae, Paussinae) from China

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Abstract: Three genera of the tribe Ozaenini Hope, 1838 are reported: *Anentmetus* Andrewes, 1924 is firstly found from China (Jianfengling, Hainan), new provincial records of *Pseudozaena* Laporte, 1834 and *Itamus* Loew, 1849 are provided. A species checklist and an updated key of Chinese genera of Ozaenini Hope, 1838 are provided.

Keywords: China, flanged bombardier beetles, new record, taxonomy

● 中国折缘步甲族（鞘翅目，步甲科，棒角甲亚科）之新发现

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摘要：本文报道了折缘步甲族的三个属：中国新记录的棒身步甲属 *Anentmetus* 发现于海南尖峰岭，提供了赝折缘步甲属 *Pseudozaena* 和伊塔步甲属 *Itamus* 的省级新记录。文章还提供了中国折缘步甲族的名录及分属检索表。

关键词：中国，棒角甲，新记录，分类学

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● Introduction

The carabid tribe Ozaenini Hope, 1838 currently contains 23 genera worldwide, among which three are known to occur in China: *Eustra* Schmidt-Gobel, 1846, *Itamus* Loew, 1849 and *Pseudozaena* Laporte, 1834 (Zhao & Tian 2003; Nagel *et al.* 2017; Song *et al.* 2018). Thereinto, the monotypic genus *Pseudozaena* is widely distributed in Southeast Asia and its surrounding area, while in China, it was only found from Taiwan previously (Darlington 1962, 1970; Inoue 2021), and the genus *Itamus* contains four species among which two are distributed in southern China.

Some ozaenine specimens were obtained by the authors in recent years. After a detailed study, it was confirmed that there are several new discoveries, which will improve the knowledge regarding taxonomy and distribution of this tribe. As a result, genera *Anentmetus* Andrewes, 1924 and *Pseudozaena* are firstly reported from Chinese mainland in this paper, the genus *Itamus* is newly found in three provinces. An updated species checklist and a key to Chinese genera of Ozaenini Hope, 1838 are also provided.

● Material and methods

Specimens examined in this study were deposited in the private collection of Mao-Zhou Xu, Sichuan, China (CXMZ), the private collection of Yu-Zhou Huang, Hunan, China (CHYZ) and the Collection of Forestry Entomology Laboratory, Beijing Forestry University, Beijing, China (BJFU). Labels of type material are cited verbatim. Detail information of each label is listed in quotation marks (“”). Individual labels are separated by double slashes (/). Authors' notes are in bracket ([]). The habitus photographs were taken using a Nikon D7100 camera with Laowa CF 60 mm f/2.8 2X Super Macro lens. Images of male genitalia characters were taken by a Nikon SMZ-18 stereoscopic dissecting microscope fitted with a Nikon D7500 camera. For each final image, several photographs were taken at different focal planes and combined with Zerene Stacker to get one synthesized photograph. The distribution map was made with QGIS 3.28. All images were finally modified and arranged into plates by Adobe Photoshop CC 2019.

● Taxonomy

Checklist of tribe Ozaenini Hope, 1838 from China

Tribe Ozaenini Hope, 1838 [折缘步甲族]

Genus *Anentmetus* Andrewes, 1924 [棒身步甲属]

A. spissicornis (Fairmaire, 1888) [粗角棒身步甲] CHINA: Hainan; LAOS

Genus *Eustra* Schmidt-Gobel, 1846 [双斑粗角步甲属]

E. chinensis Bänninger, 1949 [中华双斑粗角步甲] CHINA: Shanghai, Taiwan, Zhejiang; JAPAN

E. petrovi Guéorguiev, 2014 [盲双斑粗角步甲] CHINA: Yunnan

E. shanghaiensis Song, 2018 [上海双斑粗角步甲] CHINA: Shanghai

E. taiwanica Deuve, 2001 [台湾双斑粗角步甲] CHINA: Taiwan

E. yinggelingsensis Jiang, Wang & Wang, 2019 [鹦哥岭粗角步甲] CHINA: Hainan

Genus *Itamus* Loew, 1849 [伊塔步甲属]

I. castaneus Schmidt-Goebel, 1846 [栗伊塔步甲] CHINA: Fujian, Guangdong, Shanghai, Yunnan, Zhejiang; MYANMAR; LAOS; SRI LANKA; THAILAND; PAKISTAN; NEPAL

I. dentatus Andrewes, 1919 [齿伊塔步甲] CHINA: Guangxi; VIETNAM; SRI LANKA

Genus *Pseudozaena* Laporte, 1834 [膺折缘步甲属]

P. orientalis (Klug, 1834) [东方膺折缘步甲] CHINA: Taiwan, Yunnan; INDONESIA; PAPUA NEW GUINEA; MALAYSIA; PALAU; PHILIPPINES; JAPAN

Key to known Chinese genera of the tribe Ozaenini Hope, 1838

- 1 Labrum and clypeus without setae.....*Pseudozaena*
- Setae on labrum and clypeus (at least labrum) present.....2
- 2 Terminal antennomere short, as long as antennomere I at most; elytra elongated with lateral margins nearly straight.....3
- Terminal antennomere quite long, as long as antennomeres VIII–X combined; elytra short with lateral margins distinctly curved.....*Eustra*
- 3 Mandible developed, almost as long as head; clypeus with four setae; protibia curved.....*Itamus*
- Mandible normal, distinctly shorter than head; clypeus glabrous; protibia straight.....*Anentmetus*

New distributional records

Anentmetus spissicornis (Fairmaire, 1888) 粗角棒身步甲

Figs 1A, 4

Material examined. 1♀ (BJFU), “CHNA: Hainan, Ledong, Mt. Jianfengling, Mingfenggu [in Chinese] N18.740257° E108.84366°, 2022.7.5. 1026m, Quanyu Ji leg.”.

Distribution. China: Hainan (new record); Laos.

Itamus castaneus Schmidt-Goebel, 1846 栗伊塔步甲

Figs 1B, 4

Material examined. 1♀ (BJFU), “CHNA: Hainan, Mt. Wuzhishan, Guanjingtai [in Chinese], N18.86306° E109.69274°, 2022.7.14–15, 701m, Quanyu Ji leg.”; 1♀ (BJFU), “CHNA: Hainan, Qiongzong, Mt. Limushan, at night, N19.17165° E109.74483°, 2022.6.22. 850m Quanyu Ji leg.”; 1♀ (CHYZ), “Hunan, Changsha, Yuhua District, Dongtang Street, 2024.6.15. Yuzhou HUANG leg.” [in Chinese]; 1♀ (BJFU), “Jiangxi, Ganzhou, Bafengtai, 2022.11” [in Chinese].

Distribution. China: Hainan (new record), Hunan (new record), Jiangxi (new record), Shanghai, Zhejiang, Fujian, Guangdong, Yunnan; Myanmar; Laos; Sri Lanka; Thailand.

Pseudozaena orientalis (Klug, 1834) 东方履折缘步甲

Figs 1C, 2–4

Material examined. 2♂♂, 3♀♀ (CXMZ), “CHINA: Yunnan Prov., Xishuangbanna, Mengla, Menglun town, 544m, E101.27108° N21.92405°” // “2024.XI.24.; roadside at night; leg. Maozhou XU; in Banna Botanical Garden at night [in Chinese]”.

Genital diagnosis. Male. Median lobe of aedeagus stubby; apical lamella thick and short, end in an obtuse tip in lateral view (Fig. 2B); both right and left parameres obtusely triangular shape, the lower margin of right paramere with 30–35 setae (Fig. 2C, D); endophallus with a large cloud-shaped sclerite (Fig. 2B). **Female.** Apex of gonopod IX obliquely truncated; gonopod IX with 3–4 acervate nematiform setae near ventral apex (Fig. 2E), with 4 ensiform setae at inner margin (Fig. 2F) and 6–8 at venter (Fig. 2E).

Biological notes. All adults were collected on the ground at night; no association with ants detected.

Distribution. China: Yunnan (new record) and Taiwan; Indonesia; Papua New Guinea; Malaysia; Palau; Philippines; Japan.

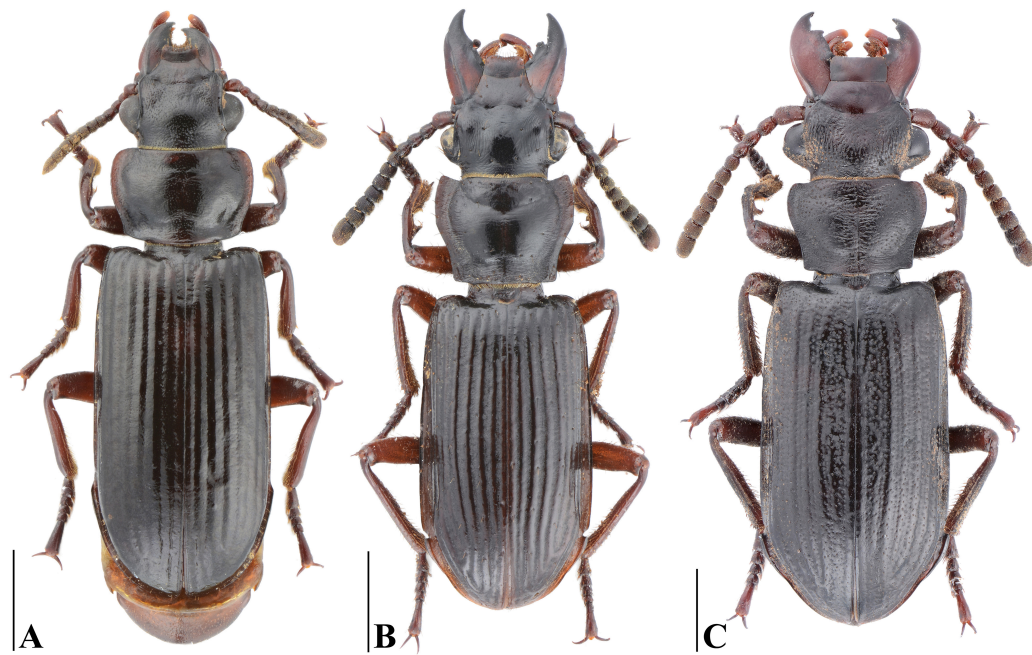


FIGURE 1. Habitus of Ozaenini spp.: **A** *Anentmetus spissicornis* (Fairmaire, 1888) **B** *Itamus castaneus* Schmidt-Göebel, 1846 **C** *Pseudozaena orientalis* (Klug, 1834). Scale bars = 2.0 mm.

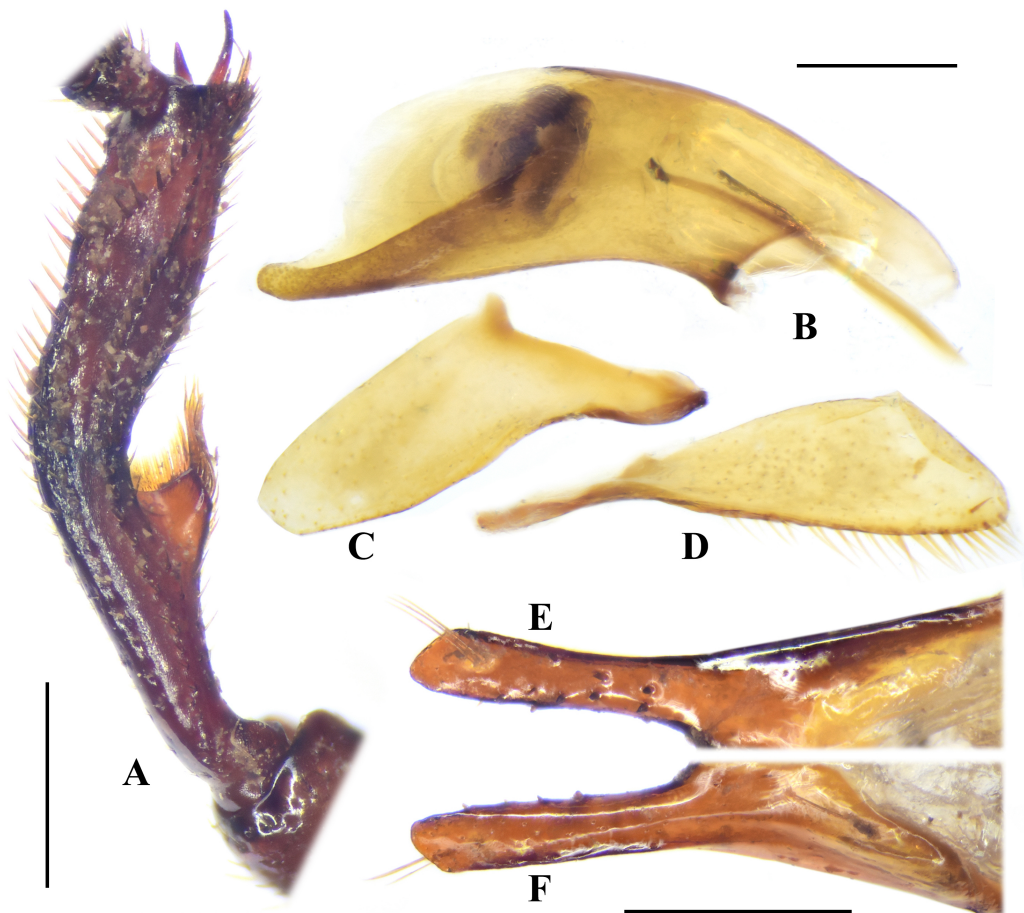


FIGURE 2. *Pseudozaena orientalis* (Klug, 1834): **A** protibia **B** median lobe of aedeagus in right lateral view **C** left paramere **D** right paramere **E** gonopod IX in ventral view **F** gonopod IX in dorsal view. Scale bar = 1.0 mm for A, = 0.5 mm for C–F.



FIGURE 3. *Pseudozaena orientalis* (Klug, 1834): **A** habitat of *Pseudozaena orientalis* (Klug, 1834) **B–C** photographs of living adults.

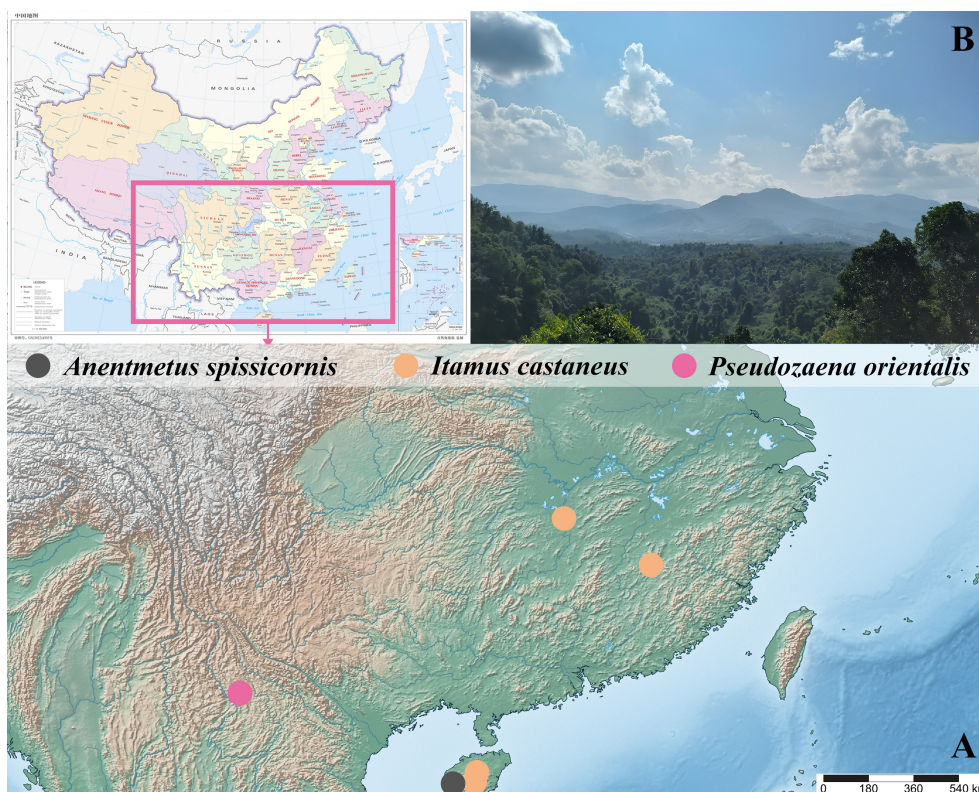


FIGURE 4. Distribution of newly recorded Ozaenini spp. in the paper: **A** map of Ozaenini spp. **B** habitat for the pink circle.

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● Additional information

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