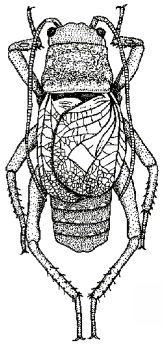

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NEW CAVERNICOLOUS SPECIES OF THE GENUS *CHALLIA* BURR, 1904 (DERMAPTERA: PYGIDICRANIDAE, CHALLIINAE) FROM CHINA

Z.-T. Chen

School of Grain Science and Technology, Jiangsu University of Science and Technology, Zhenjiang 212004, China. E-mail: chenzhiteng@just.edu.cn

Summary. A new species of the genus *Challia* Burr, 1904 (Dermaptera: Pygidicranidae, Challiinae), *Challia guilinensis* **sp. n.**, is described and illustrated based on male from a karst cave in China. The new species differs from the congeners by the morphology of forceps and genitalia. Holotype is deposited in the Insect Collection of Jiangsu University of Science and Technology, Jiangsu Province, China.

Key words: earwig, morphology; taxonomy, new species, karst cave, Guangxi, China.

Ж.-Т. Чен. Новый пещерный вид рода *Challia* Burr, 1904 (Dermaptera: Pygidicranidae, Challiinae) из Китая // Дальневосточный энтомолог. 2024. N 509. С. 1-6.

Резюме. Новый вид рода *Challia* Burr, 1904 (Dermaptera: Pygidicranidae, Challiinae), *Challia guilinensis* **sp. n.**, описан по самцу из карстовой пещеры в Китае. Новый вид отличается от других представителей рода морфологией клещей и гениталий. Голотип хранится в коллекции насекомых Цзянсуского университета науки и технологий, провинция Цзянсу, Китай.

INTRODUCTION

The genus *Challia* Burr, 1904 was established to accommodate the species *Challia fletcheri* Burr, 1904 in the subfamily Anataeliinae Burr, 1909 (= Anataelinae [sic] Burr, 1909) of the family Pygidicranidae. Steinmann (1973) established a new subfamily Challiinae (=Challinae [sic] Steinmann, 1973) based on *Challia* and distinguished Challiinae from Anataeliinae by the presence of arolium between claws and different distribution (Nishikawa, 2006). The genus *Challia* was revised by Nishikawa (2006), and the generic autapomorphy was considered as an ultimate tergite with four large swellings on the posterior margin (Anisyutkin, 2020).

To date, nine species of *Challia* have been recorded, including *C. fletcheri*, *C. kyusani* Moon et Kim, 1985, *C. australis* Anisyutkin, 1994, *C. phoenix* Anisyutkin et Gorochov, 1998, *C. taewooi* Nishikawa, 2006, *C. imamurai* Nishikawa, 2006, *C. gigantia* Nishikawa, 2006, *C. hongkongensis* Ho et Nishikawa, 2009, and *C. steineri* Anisyutkin, 2020. Among these *Challia* species, *C. fletcheri*, *C. gigantia*, and *C. hongkongensis* were recorded from China (Burr, 1904; Nishikawa, 2006; Ho & Nishikawa, 2009).

In this study, a new species of *Challia* is described from a karst cave from Guilin City, Guangxi Zhuang Autonomous Region, China. The male adult is described with clear illustrations. Morphological differences to distinguish the new species from all congeners are provided.

MATERIAL AND METHODS

The specimen examined in this study was hand-collected in a karst cave from Guangxi Zhuang Autonomous Region of China and preserved in 75% ethanol. The observation of specimen was conducted using an SDPTOP SZM45 stereo microscope, with color images captured using a Canon EOS 5DSR digital camera equipped with a Canon MP-E 65 mm 5X macro lens. All images were processed and compiled into plates using Adobe Photoshop (Beta). The holotype is deposited in the Insect Collection of Jiangsu University of Science and Technology (ICJUST), located in Jiangsu Province, China. Terminology follows that of Nishikawa (2006).

DESCRIPTION OF NEW SPECIES

Challia guilinensis **Chen, sp. n.**

https://zoobank.org/NomenclaturalActs/A5074E30-CF13-4808-9B17-15923CE55FAF

Figs 1–3

TYPE MATERIAL. Holotype – ♂, **China:** Guangxi Zhuang Autonomous Region, Guilin City, Guilin National Forest Park, unnamed karst cave, 25.22388207°N, 110.24833740°E, 12.IV 2024, leg. native collector (ICJUST).

DESCRIPTION. MALE. Body elongated, cylindrical, apterous (Fig. 1). Head, pronotum, mesonotum, metanotum and abdominal tergites I-III dull, covered with

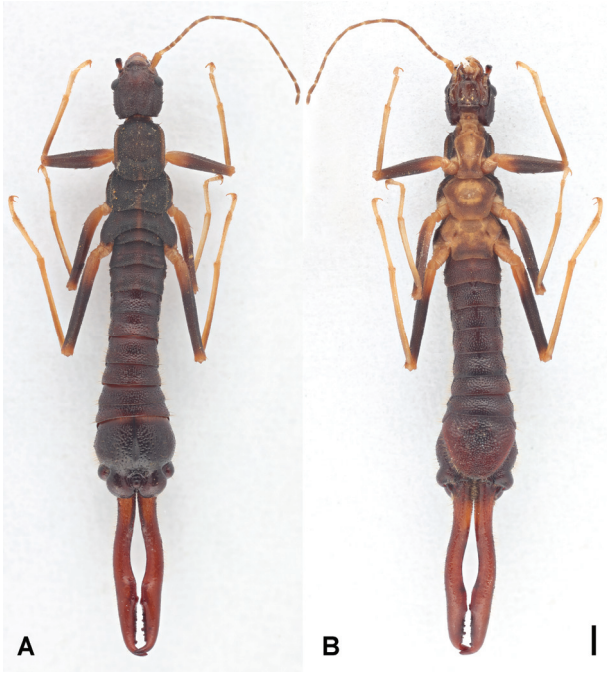

Fig. 1. *Challia guilinensis* sp. n., holotype male, habitus. A – dorsal view; B – ventral view. Scale bar: 1 mm.

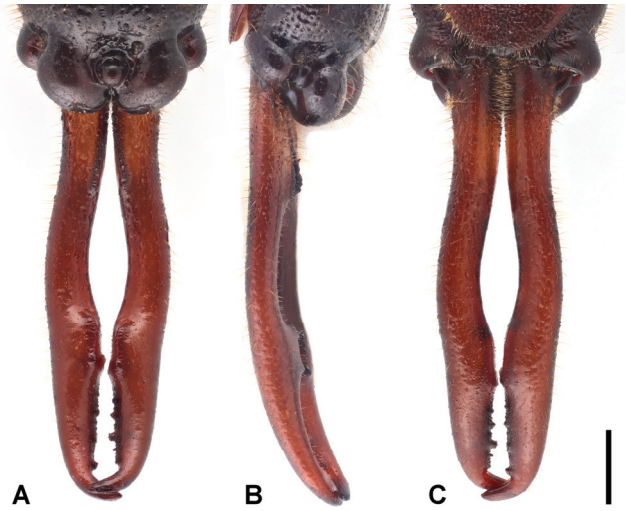

Fig. 2. *Challia guilinensis* sp. n., holotype male, forceps. A – dorsal view; B – lateral view; C – ventral view. Scale bar: 1 mm.

dense short setae; remaining abdominal tergites and forceps polish, strongly punctured. Colour yellow to dark brown; head dark brown, with mouthparts and antennae yellowish brown; pronotum dark brown, with yellowish brown lateral margins; mesonotum dark brown, posteromedian portion yellowish brown; metanotum dark brown, central axis yellowish brown; abdominal tergites dark brown; femora mostly dark brown, basal parts yellowish; tibiae and tarsi yellowish; forceps reddish brown.

Head flattened, much longer than wide, with post-ocular region weakly rounded (Fig. 1); caudal margin concave; post-ocular carinae weak; frontal suture invisible; coronal suture indistinct. Eyes small, about one-third the length of post-ocular region. Antennae 17 (+?) segmented; 1st segment much shorter than distance between antennal bases, nearly as long as 2nd to 4th combined; 2nd minute, near half of 3rd in length; 3rd much longer than 4th and slightly shorter than 5th segment.

Fig. 3. *Challia guilinensis* sp. n., holotype male, genitalia. A – dorsal view; B – ventral view. Scale bar: 0.5 mm.

Pronotum much longer than wide, almost as wide as head (Fig. 1); lateral margins near parallel; posterior margin weakly sinuate medially; median longitudinal furrow indistinct. Mesonotum with posterior margin slightly concave, median longitudinal furrow indistinct. Metanotum with posterior margin strongly concave.

Abdomen slightly expanded to tergite II, thence contracted to tergite V, thence gradually expanded to ultimate tergite (Fig. 1). Ultimate tergite with median longitudinal furrow distinct. Penultimate sternite strongly punctured; posterior margin broadly rounded, truncate medially (Figs 1–2).

Forceps weakly curved upwards in lateral view (Fig. 2); basal one-quarter almost straight, with a row of small denticles extending from inner margin to upper inner margin; inner margin from basal one-quarter sinuate posteriad; apical one-third widened basally, inner margin dentate both dorsally and ventrally, with a thick-sliced upper tooth, thence with a series of teeth interspersed with minute denticles terminating before abruptly incurved apex.

Genitalia are characterized by metaparamere narrow and long, weakly angulate apically, with a sclerotized, blunt inner process; genital lobe with conical formation covered with setae; virga sclerotized, long, slender, sinuous, apical portion expanded, covered with dense scales (Fig. 3).

Female unknown.

MEASUREMENTS. Holotype male: body length (from anterior of head to posterior of forceps) 20.9 mm; forceps length 5.6 mm.

DIAGNOSIS. The new species differs from *C. fletcheri* in the much longer head; the shape of forceps: inner margin of basal half almost straight (angled in *C. fletcheri*), apical one-third widened basally (unmodified in *C. fletcheri*), inner margin dentate both dorsally and ventrally (unmodified in *C. fletcheri*), with a thick-sliced upper tooth (absent in *C. fletcheri*); much simpler accessory structures (Nishikawa, 2006; Ho & Nishikawa, 2009). It is easy recognizable from *C. kyusani* in a simple, non-bifurcate inner process of metaparamere (Moon & Kim, 1985). New species differs from *C. australis* in the 3rd antennal segment much longer than 4th (subequal in *C. australis*); pronotum longer than wide (almost as long as wide in *C. australis*); the shape of forceps: basal one-quarter with small denticles extending from inner margin to upper inner margin, inner margin of apical one-third with a thick-sliced upper tooth (absent in *C. australis*) (Anisyutkin, 1994). It differs from *C. phoenix* in the completely different body colour pattern; absence of sutures on head and thorax (distinct in *C. phoenix*); relatively shorter pronotum; the shape of forceps: apical one-third widened basally, inner margin dentate both dorsally and ventrally, with a thick-sliced upper tooth (with a subtriangular tooth in *C. phoenix*) (Anisyutkin & Gorokhov, 1998). New species is easy recognizable from *C. taewooi* in the much longer head; pronotum longer than wide (almost as long as wide in *C. taewooi*); posterior margin of penultimate sternite truncate medially (rounded in *C. taewooi*); apical one-third of forceps basally with a thick-sliced upper tooth (absent in *C. taewooi*); inner process of metaparamere distant from apex (near apex in *C. taewooi*) (Nishikawa, 2006). It differs from *C. imamurai* in the much longer head; absence of sutures on head and thorax (distinct in *C. imamurai*); pronotum longer than wide (almost as long as wide in *C. imamurai*); posterior margin of penultimate sternite truncate medially (rounded in *C. imamurai*); the shape of forceps: widest near the middle (widest near apex in *C. imamurai*), apical one-third basally with a thick-sliced upper tooth (absent in *C. imamurai*); much longer genitalia with inner process of metaparamere distant from apex (near apex in *C. imamurai*) (Nishikawa, 2006).

It differs from *C. gigantia* in the much longer head; pronotum longer than wide (almost as long as wide in *C. gigantia*); the shape of forceps: thicker branches, widest near the middle (widest near apex in *C. gigantia*), apical one-third basally with a thick-sliced upper tooth (absent in *C. gigantia*); inner process of metaparamere distant from apex (near apex in *C. gigantia*) (Nishikawa, 2006 New species is easy recognizable from *C. hongkongensis* in different body colour; the indistinct sutures on head and thorax (distinct in *C. hongkongensis*); apical one-third of forceps basally with a thick-sliced upper tooth (absent in *C. hongkongensis*); distal part of virga with different shapes (Ho & Nishikawa, 2009). New species differs from *C. steineri* completely different body colour pattern; the shape of forceps: apical one-third widened basally (unmodified in *C. steineri*), with a thick-sliced upper tooth (absent in *C. steineri*); genital lobes with conical formation covered with setae (absent in *C. steineri*); virga sinuous, apically expanded (virga heliciform, with simple apex in *C. steineri*) (Anisyutkin, 2020).

REMARKS. The species was collected from a karst cave, but its dark body coloration and well-developed eyes suggest that it might not be a troglobiont, which is similar to the situation in *C. phoenix* and *C. steineri* (Anisyutkin, 2020).

DISTRIBUTION. The new species is known from Guangxi Zhuang Autonomous Region of China.

ETYMOLOGY. The specific epithet refers to its type locality in Guilin City.

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