



Description of the males of *Glolarnaca flata* Luo, Zhang & Bian, 2024 and *Glolarnaca carinata* Pang & Bian, 2023 for the first time (Gryllacrididae)

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Abstract

This paper describes the males of *Glolarnaca flata* Luo, Zhang & Bian, 2024 and *Glolarnaca carinata* Pang & Bian, 2023 for the first time. The species occur in Yunnan, China. Morphological illustrations of examined specimens are provided.

Key words: Gryllacrididae, *Glolarnaca flata*, *Glolarnaca carinata*, male, China

Introduction

Presently, the genus *Glolarnaca* Gorochoy, 2008 comprises 10 species, which are distributed in China, Vietnam and Cambodia. Six of those species occur in China (Hainan, Guangxi, and Yunnan), including *Glolarnaca carinata* Pang & Bian, 2023; *Glolarnaca flata* Luo, Zhang & Bian, 2024; *Glolarnaca hainanica* (Li, Liu & Li, 2016); *Glolarnaca kunyui* Yang, Lu & Bian, 2021; *Glolarnaca nigrimacula* Yang, Lu & Bian, 2021 and *Glolarnaca sinica* (Li, Liu & Li, 2016).

Materials and methods

The specimens were studied using a Nikon-SMZ-1500 stereomicroscope. Morphological images were taken using Leica M205A digital imaging system. The photos were edited using Adobe Photoshop CC 2019. Measurements of specimens were done using vernier calipers.

The following conventions were adopted: body length—distance from apex of fastigium verticis to posterior margin of ninth abdominal tergite in the midline; pronotum length—distance from anterior to posterior margins of pronotum in the midline; tegmen length—distance from base of tegmen to apex; hind femur length—distance from base of hind femur to apex of genicular lobe; ovipositor length—distance from base of subgenital plate to apex of ovipositor.

The nomenclature and abbreviations of tegminal venation follows Ingrisch (2018): R radius, RS radius sector (or radius posterior), M media, MA media anterior, MP media posterior, Cu cubitus, CuA cubitus anterior, CuP cubitus posterior.

Males of *Glolarnaca flata* Luo, Zhang & Bian, 2024 and *Glolarnaca carinata* Pang & Bian, 2023 are described for the first time in this paper, diagnostic photographs are presented. All specimens examined are deposited in the Museum of Hebei University, China.

Glolarnaca flata Luo, Zhang & Bian, 2024

(Fig. 1)

Glolarnaca flata Luo, Zhang & Bian, 2024, *Zootaxa*, 5538: 552.

Holotype: Female, type locality: Caiyanghe, Puer, Yunnan.

The original description of this species was based on a female specimen. Herein, we provide the first description of male characteristics.

Description. Male. Body small. *Head.* Face ovoid; fastigium verticis broader than antennal scape. Eyes ovoid, slightly protruding forward and outward; ocelli indistinct, oval and small (Fig. 1A–B). *Thorax.* Pronotum broad, anterior margin slightly protruding forward while posterior margin straight (Fig. 1B–C). Lateral areas of second and third abdominal tergites each with 2 rows of stridulatory pegs. *Tegmina and Wings.* Wings narrow, extending beyond abdominal apex but not reaching apex of stretched hind tibia. Tegmen: R releases Rs behind the two-thirds base, both forked near apical area; MA releases MP behind the third base; CuA releases CuA1 and CuA2 behind the third base; MP and CuA1 shortly fuse near the middle; CuP unbranched, free throughout; with 4 anal veins. Hind wing slightly longer than tegmen. *Abdomen.* Ninth abdominal tergite globular, apical third narrow, divided into two lobes, their apico-lateral angles rounded, apical areas with a pair of elongate posterior processes, which curved dorso-proximad, narrowing, apices rounded (Fig. 1D–F). Cerci long conical, slightly incurved, apices acute. Subgenital plate broad and short, basal margin slightly concave, lateral margins slightly convex, posterior margin with a nearly V-shaped notch, lateral lobes relatively broad. Styli cylindrical, apices rounded, inserted on lateral margins of apical area of subgenital plate (Fig. 1F).

Female. Appearance is similar to that of male. Seventh abdominal sternite subrectangular, posterior margin with a small process in the middle. Base of subgenital plate slightly broad, other area narrowing, with several transverse folds, posterior margin slightly concave (Fig. 1G). Ovipositor falcate, subbasal area stout, other area regularly upcurved and narrowing; tip subacute (Fig. 1H).

Coloration. Body yellowish-brown. Fastigium verticis with 4 black spots, face with 8 black spots, occiput with 2 oblique black stripes, antenna brown (Fig. 1A–C). Eyes black (Fig. 1A). Disc of pronotum with 3 pairs of black spots (Fig. 1B–C). Tegmina and hind wings transparent, veins dark brown. Apical areas of femora black, basal and apical areas of tibiae blackish-brown, spines and spurs on fore and middle tibiae brown; apices of spines and spurs on hind femur and hind tibia brown. Eighth and ninth of male abdomen with abdominal tergites black, apices of processes of ninth abdominal tergite black (Fig. 1D–F).

Specimens examined. 1♂, Jiucheng, Yingjiang, Yunnan, 20 May, 2025, coll. Jie Su; 1♀, Yongde, Lincang, Yunnan, 1 July, 2025, coll. Jie Su.

Measurements (mm). Body: ♂18.6, ♀23.0; pronotum: ♂4.0, ♀4.5; tegmen: ♂19.5, ♀18.3; hind femur: ♂8.1, ♀8.1; ovipositor: 7.3.

Discussion. The species was described by Luo *et al.* in 2024 based on a single female specimen. We examined a female specimen collected from Lincang, Yunnan, reveals identical external morphology to the original description, except for spots on pronotum. Based on this female specimen and a male collected from Yingjiang, Yunnan, we conclude that all examined specimens belong to *Glolarnaca flata* Luo, Zhang & Bian, 2024, the difference in spots is attributed to variation among intraspecific populations.

Distribution. China (Yunnan).

Glolarnaca carinata Pang & Bian, 2023

(Fig. 2)

Glolarnaca carinata Pang & Bian, 2023, *Zootaxa*, 5389: 140.

Holotype: Female, type locality: Menglun, Mengla, Yunnan.

The original description of this species was based on female specimen. Herein, we provide the first description of male characteristics.

Description. Male. *Tegmina and Wings.* Wings narrow, extending beyond abdominal apex but not reaching apex of stretched hind tibia. Tegmen: R releases Rs behind the two-thirds base, both forked near apical area; MA releases

MP behind the third base; CuA releases CuA1 and CuA2 behind the third base; MP and CuA1 shortly fuse near the middle; CuP unbranched, free throughout; with 4 anal veins. Hind wing slightly longer than tegmen. *Abdomen*. Ninth abdominal tergite globular, apical quarter narrow, divided into two lobes, their apico-lateral angles rounded, apical areas with a pair of short posterior processes, which curved dorso-proximad, narrowing, apices slightly acute (Fig. 2D–F). Cerci long conical, slightly incurved, apices acute. Subgenital plate broad and short, basal margin slightly concave, lateral margins slightly convex, posterior margin with an arc-shaped concavity, lateral lobes broad. Styli cylindrical, apices rounded, inserted on lateral margins of apical area of subgenital plate (Fig. 2F).

Specimens examined. 1♂1♀, Mengyang, Jinghong, Yunnan, 22 July, 2012, coll. Zhe Zhao; 1♀, Meizihu, Simao, Yunnan, 5 August, 2022, coll. Jie Su; 1♂, Guomenshan, Menghai, Yunnan, 11 August, 2023, coll. Jie Su; Mengsuolongtan, Ximeng, Yunnan, 6 June, 2024, coll. Yejie Lin.

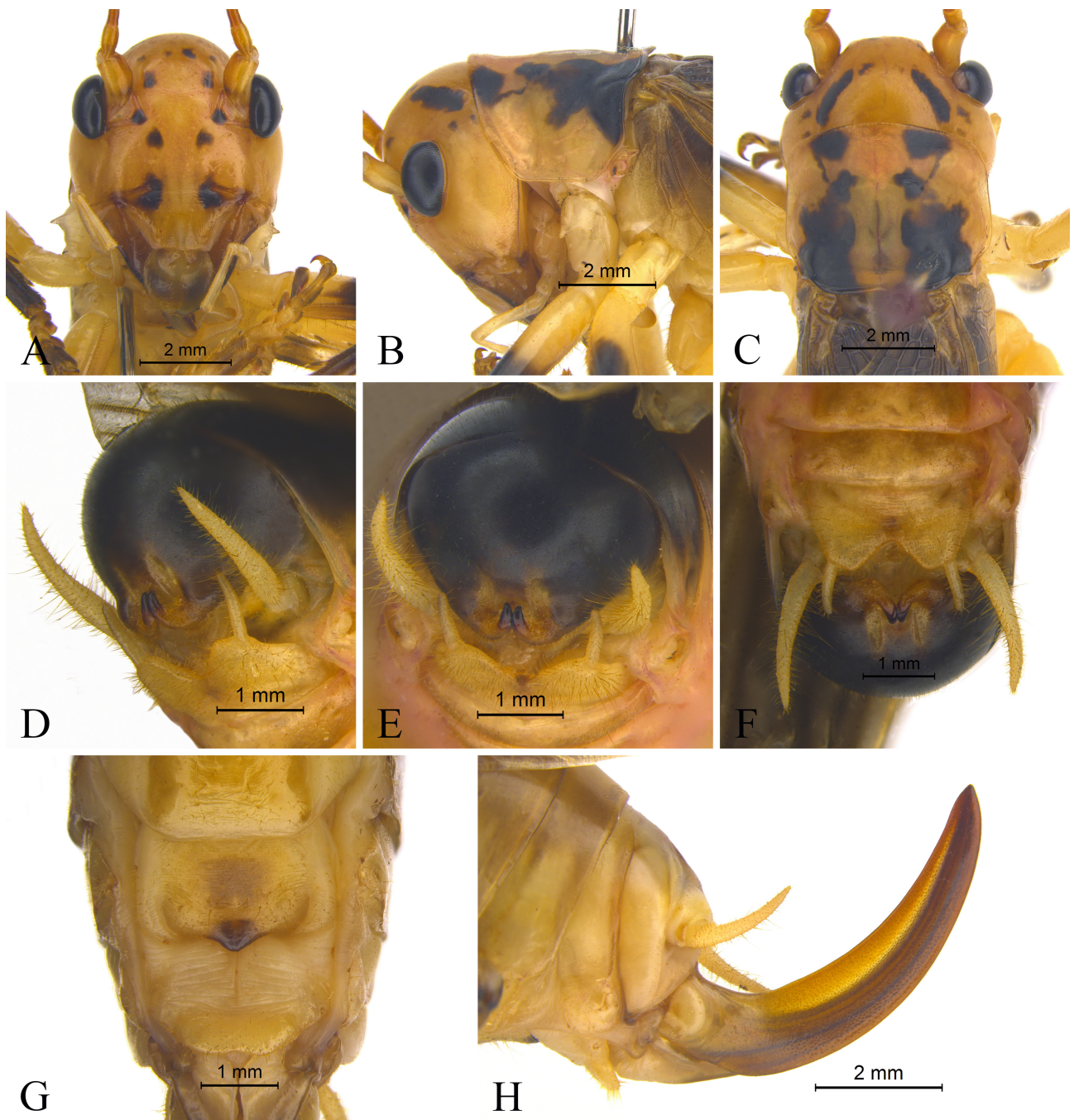


FIGURE 1. *Glolarnaca flata* Luo, Zhang & Bian, 2024, male: **A**. face; **B–C**. head and pronotum: **B**. lateral view; **C**. dorsal view; **D–F**. apex of abdomen: **D**. apico-lateral view; **E**. apical view; **F**. subgenital plate; female: **G**. seventh abdominal sternite and subgenital plate; **H**. ovipositor in lateral view.

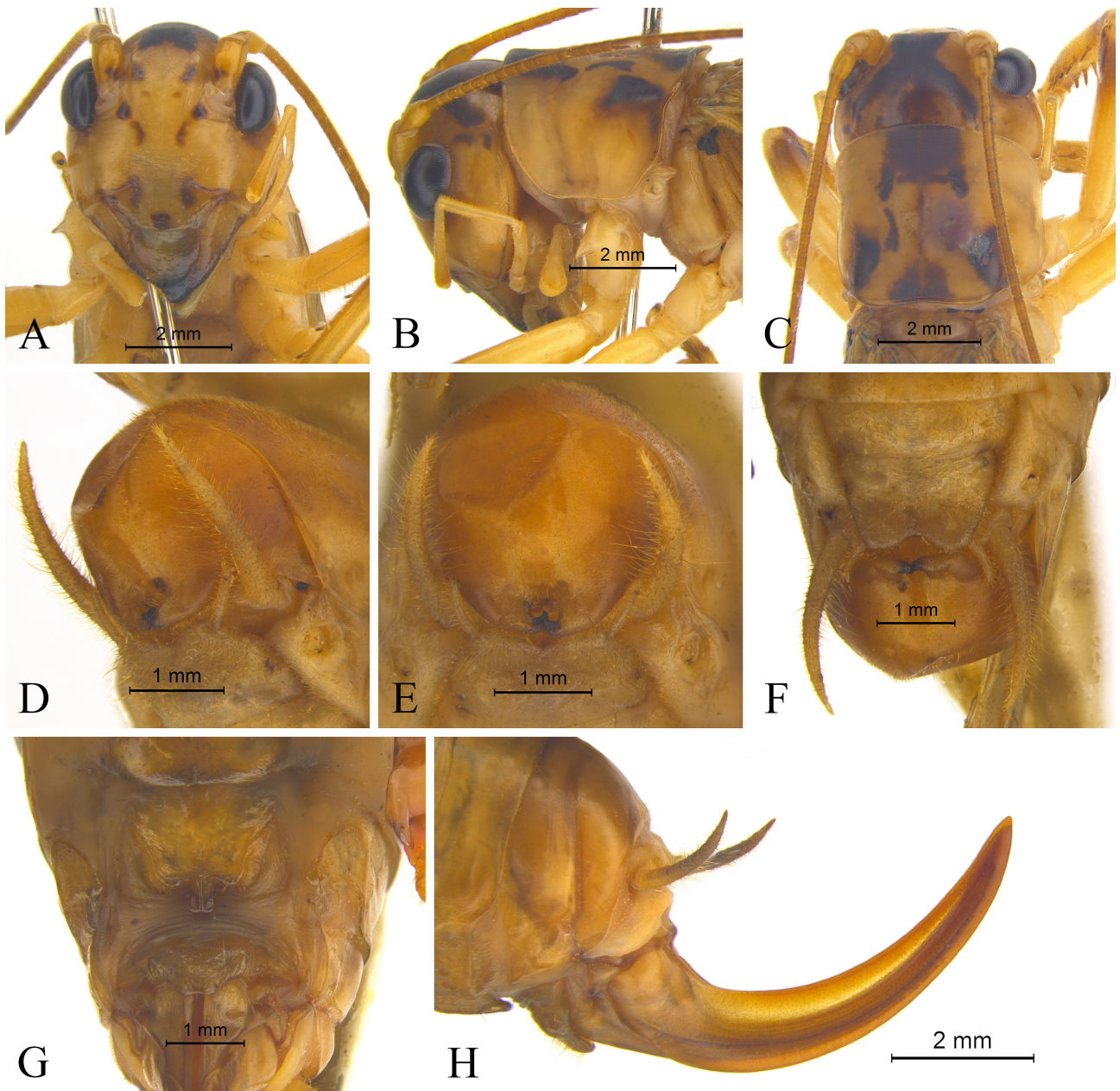


FIGURE 2. *Glolarnaca carinata* Pang & Bian, 2023, male: **A.** face; **B–C.** head and pronotum: **B.** lateral view; **C.** dorsal view; **D–F.** apex of abdomen: **D.** apico-lateral view; **E.** apical view; **F.** subgenital plate; female: **G.** seventh abdominal sternite and subgenital plate; **H.** ovipositor in lateral view.

Measurements (mm). Body: ♂20.4–20.7, ♀19.7–20.2; pronotum: ♂4.2–4.4, ♀3.8–4.1; tegmen: ♂18.1–18.4, ♀18.3–18.4; hind femur: ♂8.2–8.4, ♀8.2–8.4; ovipositor: ♀6.3–6.4.

Distribution. China (Yunnan).

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