Four new species of the subfamily Gryllacridinae (Orthoptera: Gryllacrididae) from China

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Abstract

A taxonomic study of the subfamily Gryllacridinae is presented. Four new species belonging to two genera are described: Larnaca sinica sp. nov., Larnaca hainanica sp. nov.; Prosopogryllacris chinensis sp. nov., Prosopogryllacris incisa sp. nov.. A revised key and distributional data are given.

Key words: Gryllacrididae, Gryllacridinae, new species, Raspy Crickets, China

Introduction

According to the Orthoptera Species Online (2016), the subfamily Gryllacridinae (Raspy Crickets) comprises about 80 species in China. We have described some new species in the genera Ocellarnaca, Phryganogryllacris, Marthogryllacris Apotrechu and Furcilarnaca (Li et al., 2014–2015). In this paper, four new species from Larnaca and Prosopogryllacris are described.

Larnaca was proposed by Walker (1869) with Larnaca fasciata as the type species; Karny (1937) listed 8 described species for the genus; Gorochov (2003) redefined the genus and subdivided it two subgenera: Larnaca and Paralarnaca Gorochov. Bian, Guo & Shi (2015) first record Larnaca in the Chinese literature and described one new species, Larnaca emarginata. So far, the genus includes 13 species (Eades et al., 2016). Most species are recorded from Indonesia and Malaysia. This paper adds 2 new species under the names L. sinica sp. nov. and L. hainanica sp. nov..

Prosopogryllacris was proposed by Karny (1937) with Gryllacris personata (Serville, 1931) the type species and listed 13 species for the genus. Vickery et Kevan (1999) discovered 3 new species in the Caroline islands; Ichikawa (2001) also found 3 new species in Japan; Gorochov (2002?2005) described 1 new species from Japan and Philippines. This paper proposes 2 new species: P. chinensis sp. nov. and P. incisa sp. nov..

All type specimens recorded here are deposited in the Shanghai Entomology Museum, the Chinese Academy of Sciences.

Larnaca Walker, 1869
Type species. Larnaca fasciata Walker, 1869
**Key to species of the genus *Larnaca* from China**

1  Labrum with black stripes; the spine-like processes of 10th abdominal tergite straight .......................... *L. sinica* sp. nov.
- Labrum without black stripes; the spine-like processes of 10th abdominal tergite curved .......................... *L. hainanica* sp. nov.

1. *Larnaca sinica* sp. nov.
(Figs. 1–5)
http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:477213

**Description.** Male. Body small-sized. Head small, fastigium of vertex arched, about 2.5 times as broad as scape; eyes elongate-oval, prominent; frons smooth. Fore margin and hind margins of pronotum almost parallel. Tegmina almost reaching the apex of abdomen; tegmen with M vein not united with R vein, R vein without branch, transverse veins weak and indistinct. Wings slightly extending beyond tegmina. Fore and mid tibiae with 5 pairs of spurs on ventral surface, and mid tibia with an inter apical spur on dorsal surface. Hind femur with 11–14 inner and outer spines on ventral surface; hind tibia on dorsal surface with 6–7 outer spines and inner spines. Hind margin of male 10th abdominal tergite bearing 2 spine-like processes on ventral surface, curved inwards (Figs. 3–4). Hind margin of subgenital plate slight concave in the middle, styli short.

Female. Subgenital plate with deeply notched hind margin. Ovipositor sickle-shape, rather curved upwards (Fig. 5).

**Coloration.** Body pale yellowish-brown. Fastigium of vertex and frons with darkish spots (Fig. 1). Pronotum with 6 blackish brown spots in the middle, hind and lateral margin with wider black bands (Fig. 2). Tegmina blackish brown, with pale apex. Every femur, fore and mid tibiae darkish black on the base and apex.

**FIGURES 1–5. *Larnaca sinica* sp. nov. 1. Head of male, frontal view; 2. Head and pronotum of male, dorsal view; 3. End of male abdominal, lateral view; 4. End of male abdominal, ventral view; 5. Subgenital plate of female, ventral view. Scale bars=1 mm.**

**Measurements.** (length in mm).

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Material. Holotype, ♂, China, Guangxi, Huanjiang, Jiuyanshan, Yangmeiao, Alt. 1200m, 2015.VII.21, collected by Liu Xian-Wei et al.; Paratypes, 1♀, other data as holotype; 1♀, China, Guangxi, Longfang, 1980.V.22, collector unknown; 1♂, China, Guangxi, Jinxiu, Luoxiang, Alt. 400m, 1999.V.15, collector unknown (Zoology Institute, the Chinese Academy of Sciences).

Distribution. China (Guangxi).

Discussion. This new species differs from its congeners in the spots of frons and the shape of male 10th abdominal tergite.

2. Larnaca hainanica sp. nov.
(Figs. 6–8)
http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:477215

Description. Male. Body small-sized. Head small, fastigium of vertex arched, about 1.5 times as broad as scape; eyes oval, prominent; frons smooth. Fore margin and hind margin of pronotum almost parallel. Tegmina extending to apex of abdomen: tegmen with M vein not united with R vein, R vein and without branch, cross veins small and un conspicuous. Wings slightly extending beyond tegmina. Fore and mid tibiae with 5 pairs of spurs on ventral surface, and mid tibia with an inner apical spur on dorsal surface. Hind femur with 11–14 inner and outer spines on ventral surface; hind tibia on dorsal surface with 6–7 outer and inner spines. Hind margin of male 10th abdominal tergite bearing with 2 hook-like processes on ventral surface, curved (Fig. 8). Subgenital plate with concave hind margin, styli short.

Female. Unknown.

Coloration. Body pale yellowish-brown. Fastigium of vertex and frons with some darkish spots (Fig. 6). Pronotum with 6 blackish brown spots on the disk, hind and lateral margin with black bands (Fig. 7). Tegmina blackish brown, with pale apex. All femora and fore and mid tibiae dark black on the base and apex.

FIGURES 6–8. Larnaca hainanica sp. nov. 6. Head of male, frontal view; 7. Head and pronotum of male, dorsal view; 8. End of male abdominal, ventral view. Scale bars=1 mm.

Measurements. (length in mm).

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Material. Holotype, ♂, China, Hainan, Jianfengling, Alt. 1000m, 2011.IV.11–23, collected by Bi Wen-Xuan.

Distribution. China (Hainan).

Discussion. This new species is very similar to L. hainanica sp. nov., differs from it on the spots of frons, narrow black bands in hind margin and lateral margin of pronotum and the hook-like processes of the 10th abdominal tergite.
Protopogryllacris Karny, 1937


Type species. Gryllacris personata Audient-Serville, 1831

Key to species of the genus Protopogryllacris from China

1  Fastigium of vertex yellowish brown or pale yellowish green ................................................................. 2
- Fastigium of vertex testaceous ................................................................. P. personata (Audient-Serville, 1831)
2  Ocelli small and unconspicuous; process of female 7th abdominal sternum acute . . . . . . . . . . . . . . . . P. japonica (Matsumura et Shiraki, 1908)
- Ocelli large and obvious; process of female 7th abdominal sternum cylindrical, posterior margin rounded .......... 3
3  Hind margin of male subgenital plate without V-shaped notch; ovipositor 13–20mm long. .......................... 4
- Hind margin of male subgenital plate with V-shape notch; ovipositor 25mm long ................................. P. incisa sp. nov.
4  Hind margin of female subgenital plate with V-shape notch ................................................................. P. cylindrigera (Karny, 1926)
- Hind margin of female subgenital plate with shallow notch ................................................................. P. chinensis sp. nov.

3. Protopogryllacris chinensis sp. nov. (Figs. 9–10)

http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:477216

Description. Male. Body medium-sized. Fastigium of vertex about 1.5 times as broad as scape; median ocellus rounded, large. Fore margin and hind margin of pronotum slightly convex, with irregular sulcus. Tegmina almost exceeding the apex of hind femur; tegmen with R vein with 2 branches, Rs occurred at the middle of R, furcated; M vein simple; CuA with 2 branches, A 4. Wings slightly extending beyond tegmina. Fore and mid tibiae with 5 pairs of spurs on ventral surface, and mid tibia with an internal apical spur on dorsal surface. Hind femur on dorsal surface with 5–7 outer spines and 3 inner spines. 10th abdominal tergite cuculiform, with a longitudinal sulcus in the middle, apical lobe bearing with a short spine (Fig. 9). Subgenital plate broader, hind margin rounded truncated, slight concave in the middle, styli long.

Female. Posterior margin of 7th abdominal sternum with a cylindrical process; subgenital plate triangular, hind margin rounded, with arc-shape notched (Fig. 10). Ovipositor slight longer than hind femur, curved upwards as sickle, upper margin of apex truncate.

FIGURES 9–10. Protopogryllacris chinensis sp. nov. 9. end of male abdominal, ventral view; 10. 7th abdominal sternite and subgenital plate of female, ventral view. Scale bars=1 mm.

**Measurements.** (length in mm).

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**Material.** Holotype, ♂, China, Zhejiang, Qinyuan, Baishanzu, 1996.VIII.12–20, collected by Jin Xin-Bao and Zhang Wei-Nian. Paratype, 1♂, China, Zhejiang, Wuyanling Nation Nature Reserve, Alt. 800m, 2005.XII, collected by Wang Yi-Ping; 2♂♀1♀, China, Zhejiang, Qinyuan, Baishanzu, Alt. 1000m, 2007.VII.20–23, collected by Xu Zhi-Zhou and Ning Lie; 2♂♂2♀, China, Zhejiang, Longquan, Fengyangshan, Alt. 1400m, 2007.VII.27, collected by Fu Qiang; 8♂♂4♀♀, China, Hubei, Yingshan, Taohuachong, Alt. 640m–900m, 2014.VII.29–30, collected by Li Miao-Miao et al.

**Distribution.** China (Zhejiang, Hubei).

**Discussion.** This new species is very similar to *P. cylindrigera* (Karny, 1926) but differs from it in the hind margin of male subgenital plate being slightly concave in the middle and the process of female 7th abdominal sternum slender and elongate.

4. *Prosopogryllacris incisa* sp. nov.

(Figs. 11–14)

http://lsid.speciesfile.org/urn:lsid:Orthoptera.speciesfile.org:TaxonName:477217

**Description.** Male. Body large, robust. Fastigium of vertex arched, about 2 times as broad as scape; eye elongate-oval, prominent; median ocellus rounded, prominent (Fig. 11). Fore and hind margins of pronotum slightly convex. Tegmina almost exceeding the apex of hind femur; tegmen with R vein with 2 branches, Rs occurred at the middle of R, with furcation; M vein simple; CuA with 2 branches, A with 4; wings slightly extending beyond tegmina. Fore and mid tibiae with 5 pairs of spurs on both margins of ventral surface, mid tibia with an internal apical spur on dorsal surface; hind tibia on dorsal surface with 7–8 outer spines and 3 inter spines. Hind femur armed dorsally with 6 outer spines and inter spines. 10th abdominal tergite with a median longitudinal sulcus and a pairs of spine-like processes (Figs. 12–13). Cerci long, cylindrical, with triangular basal lobe. Hind margin of subgenital plate with V-shape notch, styli long.

Female. Mid process of female 7th abdominal sternum short and broad. Caudal margin of subgenital plate with V-shaped notch, caudal margin of lobes rounded (Fig. 14). Ovipositor longer than hind femur, slightly curved upwards, apex truncate.

**Coloration.** Body pale yellowish-brown, legs pale yellow-green. Ocellus yellow. Apex of tegmina with veins dark brown.

**Measurements.** (length in mm).

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<td>♀</td>
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**FIGURES 11–14.** *Prosopogryllacris incisa* sp. nov. 11. Head of male, frontal view; 12. End of male abdominal, lateral view; 13. End of male abdominal, ventral view; 14. 7th abdominal sternum and subgenital plate of female, ventral view. Scale bars=1 mm.


**Distribution.** China (Hunan, Guizhou, Guangxi, Chongqing).

**Discussion.** This new species is very similar to *P. japonica* (Matsumura *et al.* Shiraki, 1908) and *P. cylindrigera* (Karny, 1926), differs from the former in the hind margin of male subgenital plate with V-shaped notch and differs from the latter in the mid process of female 7th abdominal sternum being short and broad.

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References


