

# A new species in the monkey grasshopper genus *Ptygomastax* Bey-Bienko (Orthoptera: Eumastacidae) from China

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**Abstract:** A new species in the genus *Ptygomastax* Bey-Bienko, *Ptygomastax jiuzhiensis* sp. nov., collected from Qinghai in China, is described and illustrated. This new species is similar to *Ptygomastax heimahoensis* Cheng and Han, but some notable differences are found for this new species that frontal ridge nearly parallel between antennae and the color of median longitudinal carina on occiput and tergum distinct from body colour, the carina on occiput black, the carina on tergum light green, while body black brown. The type specimens were stored in Quanzhou Normal University.

**Key words:** Eumastacoidea; taxonomy; key

## 中国褶蚱属 *Ptygomastax* Bey-Bienko 一新种 (直翅目: 蚱科)

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**摘要:** 记述来自中国青海的褶蚱属 *Ptygomastax* Bey-Bienko 1 新种: 久治褶蚱 *Ptygomastax jiuzhiensis* sp. nov.。该新种与黑马河褶蚱 *Ptygomastax heimahoensis* Cheng & Han 相似, 但新种颜面隆起在触角间近平行, 后头和背板中间纵条纹的颜色明显不同于体色, 后头纵条纹黑色, 背板纵条纹淡绿色, 而体黑褐色。

**关键词:** 蚱总科; 分类; 检索表

## Introduction

The genus *Ptygomastax* Bey-Bienko belongs to Eumastacidae in the Eumastacoidea (Bey-Bienko 1959) with five currently-known species worldwide (Bey-Bienko 1959; Cheng *et al.* 1974; Yin 1984; Zheng *et al.* 2012; Ge *et al.* 2021; Cigliano *et al.* 2023) distributed in Gansu, Qinghai and Sichuan of China. While identifying grasshopper specimens collected from Qinghai in China in 2016, a new species, *Ptygomastax jiuzhiensis* sp. nov., was found and is described. An updated key to species of the genus *Ptygomastax* is also provided.

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## Material and methods

All specimens were collected at 4030 m on the hill near the Nianbao Lake in Qinghai, China. The character description, figures and measurements were done with help of a Caron 50D digital camera. Measurements of the whole body were done with a Vernier micrometer. Type specimens are deposited at the insect collection of the College of Oceanology and Food Science, Quanzhou Normal University, Quanzhou, Fujian Province, China.

## Taxonomy

### *Ptygomastax* Bey-Bienko, 1959

*Ptygomastax* Bey-Bienko, 1959: 414. Type species: *Ptygomastax sinica* Bey-Bienko, 1959, by original designation.

Generic characters. Body small, slender. Head exserted or slightly exserted above the pronotum, the vertex with distinct median carinula. Antennae filiform, 13 or 14 segments, of which the apical segment is wide. Face sloping slightly in lateral view. Eyes elliptical in shape. Pronotum truncate anteriorly, midkeel of pronotum conspicuous, lateral keels of prozona distinct. First segment of hind tarsus longer than the second and third segments together in length. The claws of the tarsus symmetrical, of which the arolium is small.

Diagnosis. Antennae with 13 or 14 segments, the length longer than the length of fore femur. Face protruding slightly, broader between antennae.

### Key to species of the genus *Ptygomastax* Bey-Bienko

1. Frontal ridge obviously widened between antennae ..... *P. heimahoensis* Cheng & Hang
- Frontal ridge nearly parallel between antennae ..... 2
2. Hind tibia with 11–14 spines; hind tarsus with 2–3 teeth ..... *P. longifemora* Yin
- Hind tibia with more than 14 spines; hind tarsus with more than 3 teeth ..... 3
3. Color of median longitudinal carina on occiput and tergum distinct from body colour, the carina on occiput black, the carina on tergum light green, while body brown ..... *P. jiuzhiensis* sp. nov.
- Color of median longitudinal carina on occiput and tergum same as body colour, brown ..... 4
4. Body size larger, hind femur longer ..... *P. nihilsulcus* Ge
- Body size smaller, hind femur shorter ..... *P. abaensis* Zheng, Ye & Yin

### *Ptygomastax jiuzhiensis* sp. nov. (Figs 1, 2)

Description. Measurements: Male (mm) ( $n = 4$ ). Body length: 11.9–13.1; length of pronotum: 1.8–2.0; length of hind femur: 9.1–9.61. Female (mm) ( $n = 1$ ). Body length: 17.1; length of pronotum: 2.1; length of hind femur: 11.30.

Adult (♂). Size small (Fig. 1A). Head shorter and exserted above the pronotum. Anterior and lateral margin of vertex slightly protruding beyond eyes, rise crest conspicuous (Fig. 1C). Vertex and occiput with median carina, surface on occiput coarse (Fig. 1B). Face sloping slightly in lateral view. Frontal ridge sulcate, nearly parallel between antennae, widened above the lateral ocellus (Fig. 1F). Eyes elliptical; the length of subocular suture is about 1.2 times length of eyes. Median ocellus beneath the horizontal line of lower margin of eyes. Pronotum short, with distinct median carinae; lateral carinae irregularly curved; the middle of anterior margin slightly concave; the middle of posterior margin concave, triangle-shaped. A triangular

stripe under the oblique on each lateral lobe of pronotum (Figs 1B, 1C). Mesonotum and metanotum with obvious median and pleural carina. Without wings. The length of hind tibia is 4.8 times of the width, with 12–14 spines on inner sides and 14–18 spines on outer sides (Fig. 1E). The first segment of hind tarsus longer than the sum of second and third segments together in length; hind tarsus dorsally with a double row of 4 to 5 teeth (Fig. 1E). Claws symmetrical, arolium small and rhomboid. Abdominal tergum with obvious median and pleural carinae. Epiproct in triangular form and cercopod in tapered form. Hypandrium short and triangular (Fig. 1D).

Body black brown or dark green. Median carina on head black (Fig. 1B). Eyes black. Patches of yellow with a little white on pronotal lobes (Fig. 1C). Median longitudinal carina on disc of tergum light brown, two yellowish white longitudinal carinas throughout the entire back. Middle of prozona of lateral lobe of pronotum with yellowish white twill.



Figure 1. *Ptygomastax jiuzeiensis* sp. nov., ♂, adult. A. Whole body, lateral view; B. Body, dorsal view; C. Eye, lateral view; D. Ovipositor valves, lateral view; E. Hind tibia; F. Head, frontal view.

Adult (♀). Size bigger than the male specimens. Antenna filiform (Fig. 2B). Eyes elliptical (Fig. 2C). The length of hind tibia is 5 times the width, with 14 spines on inner sides and 18 spines on outer sides (Fig. 2E). Ovipositor slender, upper and lower valvulae with saw-like teeth; lower ovipositor valve hooked at the end, its base of lower side with two big teeth (Fig. 2D). Other characteristics similar to the male.

Body brown or light brown. Eyes brown or dark brown (Fig. 2C). Antenna yellowish

brown (Fig. 2B).

**Holotype.** ♂, **China**, Qinghai, Jiuzhi, 4030 m, 33°25'49"N, 101°29'6"E; 09-VIII-2011, collected by Guofang JIANG. **Paratypes.** 1♀3♂, same locality, date and collector as for holotype.

**Etymology.** The specific epithet is named after the type locality, Jiuzhi, Qinghai, China.

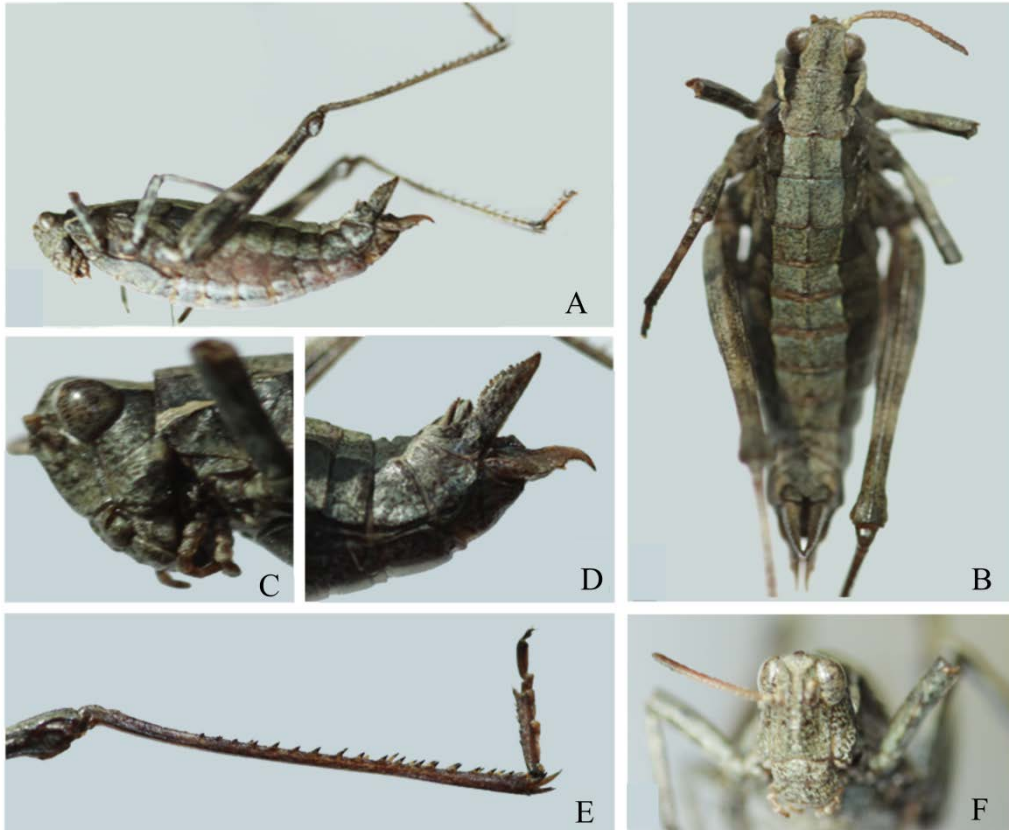


Figure 2. *Ptygomastax jiuzhiensis* sp. nov., ♀, adult. A. Whole body, lateral view; B. Body, dorsal view; C. Eye, lateral view; D. Ovipositor valves, lateral view; E. Hind tibia; F. Head, frontal view.

**Table 1.** Comparison of the characters between *P. jiuzhiensis* sp. nov. and *P. heimahoensis*

Characters	<i>P. jiuzhiensis</i> sp. nov.	<i>P. heimahoensis</i>
Frontal ridge	Nearly parallel	Widened between antennae
Hind tibia	14–18 spines	10–14 spines
Hind tarsus	4–5 teeth	3 teeth
Color of the back of body	Distinctly different from body color	Same as body color

**Remarks.** By combining morphology with morphometrical analyses, *Ptygomastax jiuzhiensis* sp. nov. is most similar in appearance to *Ptygomastax heimahoensis* (Cheng & Han 1974), but they are easily distinguished by several combinations of characters: shape of frontal ridge, the number of spine on hind tibia, the teeth of hind tarsus, and the colour of

body and back (Table 1). This new species is also different from *P. nihilsulcus* and *P. abaensis* by the *P. jiuzhiensis*'s characters: color of median longitudinal carina on occiput and tergum distinct from body colour, the carina on occiput black, the carina on tergum light green, and body brown.

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