



## A new species and a key to known species of the genus *Atractomorpha* (Orthoptera, Acridoidea, Pyrgomorphidae) from China

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### Abstract

A new species, *Atractomorpha taiwanensis* sp. n. from Taiwan, China, is described in this paper. The new species is similar to *A. micropenna* Zheng, 1992, but it differs from the latter by the following: lateral lobe of pronotum without membranous area near posterior margin; the tegmina strongly shortened, not reaching (in male) the midpoint of hind femur; and wings very small, not reaching the midpoint of tegmina. A key to all known species of the genus *Atractomorpha* from China is given. The type specimens are deposited in the Museum of Hebei University, China.

**Key words:** Orthoptera, Acridoidea, Pyrgomorphidae, Species, China.

### Introduction

The genus *Atractomorpha* Saussure was erected in 1862 and the type species is *A. crenulata* (Fabricius, 1793) (= *Truxalis crenulata* Fabricius, 1793). Otte (1994) recorded 25 known species of the genus, among them 8 species distributed in China. Zheng (1993) recorded 13 species from China. Up to the present, the genus contains 30 species distributed in Africa, Australia and Asia, among them, 15 species from China, including 9 species named by Chinese entomologists during 1981–2000.

In the present paper, a new species is described from Taiwan, China. A key to 16 species of the genus *Atractomorpha* from China is presented.

The type specimens are deposited in the Museum of Hebei University, China (MHU).

### *Atractomorpha taiwanensis* sp. nov. Figs. 1–5

**Type materials.** Holotype male, Taiwan: Pingtung Henchun, 22°00'N, 120°44'E, 28. Jan. 2002, Xiangchu Yin, H.T. Hong & Jianping Shi (MHU). Paratypes: 2 females, with same data as holotype (MHU).

#### Descriptions.

**Male** (Figs. 1, 3, 4). Body small, spindle-shaped. Head short-conical, shorter than pronotum, with a row of round tubercles behind the eyes. Vertex short, its length slightly longer than the width at the front of eyes, fastigial furrow present. Frons distinctly sloping backward, making acute angle with vertex. Frontal ridge lower, with narrow longitudinal sulcus entire. Eyes oval, longitudinal diameter about 1.5 times as long as minimum diameter. Antennae nearly ensiform, thick and short, 15 segmented, placed before lateral ocellus, not reaching

posterior margin of pronotum, length of basal segment shorter than width. Median carina of pronotum distinct, with distinct lateral carinae, the length of prozona about 1.3 times as long as the length of metazona, anterior margin of pronotum truncate, posterior margin of pronotum arcuate, posterior-lower angle of lateral lobe of pronotum acute angulated, lateral lobe without membranous area near posterior margin. Prosternal process cuneiform, apex truncate. Interspace of mesosternal lobes nearly tetragonal. Tegmina strongly shortened, not reaching middle of hind femur, its length 4 times width, apex sharp. Wings very small, not reaching the midpoint of tegmina, hyaline, the outer margin undulate. Hind femur slender, its length 6 times its width, median keel of hind femur on the upper side smooth, upper basal lobe of hind femur longer than lower one, tip of lower kneelobe angulated. Posterior tibia with 12 spines on inner side and 11 spines on outer side, including inner and outer apical spine, inner apical spine longer than outer one. Arolium large. Tympanal organ present, tympanic cavity narrow crevice-like. Tergum of the latest abdominal segment longer, its posterior margin with concavity in the middle. Epiproct long, triangular, with median longitudinal sulcus at base. Cercus pyramidal. Subgenital plate rounded at end.

**Female** (Figs.2,5). Size larger than male. Eyes oval, longitudinal diameter about 1.7 times as long as minimum diameter. Antennae ensiform, thick and short, 15 segmented, not reaching posterior margin of pronotum, length of middle segment 0.8 times width. Median carina of pronotum distinct, with distinct lateral carinae, the length of prozona about 1.1 times as long as the length of metazoan, lateral lobe without membranous area near posterior margin. Width of interspace of mesosternal lobes about 2 times its length. Tegmina strongly shortened, just extending over the middle of hind femur slightly, its length 3.3 times width, apex sharp. Wings very small, not reaching the midpoint of tegmina, hyaline, outer margin undulate. Hind femur slender, its length 6 times its width. Posterior tibia with 11-13 spines on the inner side and outer side, including apical spines. Epiproct long, triangular, with short longitudinal sulcus at base. Cercus pyramidal. Subgenital plate square, length nearly equal to width, posterior margin of subgenital plate with triangular protuberance in the middle. Ovipositor valve apex sharp, outer margin of dorsal valves with blunt teeth.

Body green. Eyes light brown. Antennae light gray-blue. A row of round particles behind the eye and lower edge of lateral lobes of pronotum yellowish white. Tegmina green, its base with a brown spot. Wings hyaline. Fore and median legs yellowish-green. Hind femur green, outer lower carinula yellowish-white. Hind tibia green.

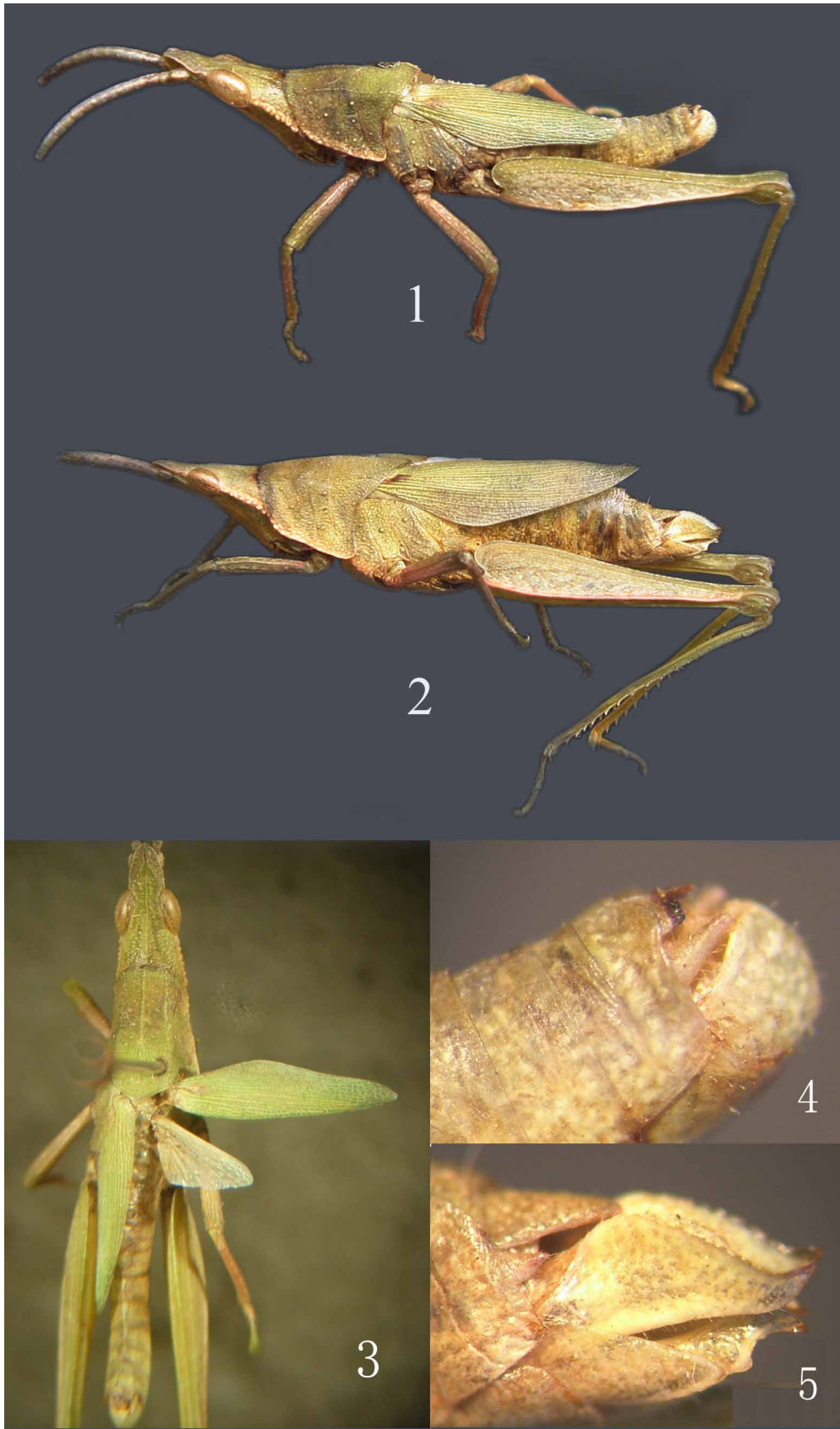
**Measurements.** Length of body: male 15.7mm, female 22.7–23.7mm; Length of tegmina: male 6.9mm, female 10.4mm; Length of hind femur: male 8.5mm, female 11.8mm.

**Diagnosis.** The new species is similar to *A. micropenna* Zheng, 1992, but it differs from the latter in three characters (see table 1).

**TABLE 1.** Comparison of *Atractomorpha taiwanensis* sp. n. and *A. micropenna* Zheng, 1992

|          | <i>A. taiwanensis</i> sp. n                                | <i>A. micropenna</i> Zheng,  |
|----------|--|--|
| Pronotum | lateral lobe without membranous area near posterior margin | lateral lobe with membranous area near posterior margin                        |
| Tegmina  | not reaching the middle of hind femur                      | extending distinctly past the middle of hind femur                             |
| Wings    | hyaline, very short, not reaching the midpoint of tegmina  | colored red at base, longer, extending distinctly past the midpoint of tegmina |

**Etymology.** The specific epithet is named for Taiwan Island, the type locality.



**FIGURES 1–5.** *Atractomorpha taiwanensis* sp. n. 1. male, lateral view; 2. female, lateral view; 3. male, dorsal view; 4. male, subgenital plate, lateral view; 5. female, ovipositor valves, lateral view.

**Key to 16 species of *Atractomorpha* Saussure, 1862 from China**

- 1(28) Tegmina and wings longer, extending past the end of hind femur.
- 2(7) Body relatively slender. Lateral lobe of pronotum with membranous area near posterior margin. Wings longer, usually slightly shorter than tegmina at rest.
- 3(4) Body slender. Fastigium shorter, its length equal or slightly longer than long diameter of eye. Beijing, Hebei, Shanxi, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong, Hubei, Huanan, Guangdong, Guangxi, Sichuan, Guizhou, Yunnan, Shaanxi, Gansu, Qinghai, Taiwan; Japan, Viet-Nam ..... **1. *A. sinensis*** Bolivar, 1905  
*Bol. Soc. Esp. Hist. Nat.* V. pp. 198, 205. n. 9.
- 3(4) Body distinctly slender. Fastigium longer, its length 1.2–1.4 times as long as diameter of eyes in male or 1.5–1.7 times in female.
- 5(6) Tegmina extending for one-third of their length beyond the apex of hind femora. Wings colored red at base only, other all hyaline. Yunnan, Guizhou, Sichuan, Shanxi; Pakistan, India, Tailand, Burman, Indonesia, Malay, Philippines ..... **2. *A. psittacina*** (de Haan, 1842)  
*Bijdragen tot de kennis de orthoptera* (Zool., pt. 2): pl. 23. f. 1. p. 146. (*Acridium (Truxalis) psittacium*).
- 6(5) Tegmina extending for 1/6 of their length beyond the apex of hind femora. Wings colored red at base only, other all dark brown. Female unknown. Anhui: Hefei ..... **3. *A. nigripennis*** Zheng, 2000  
*Acta Entomologica Sinica*. 43(2): 184–187, figs. 1–5.
- 7(2) Body more robust. Lateral Lobe of pronotum without membranous area near posterior margin. Wings shorter, rather not reaching to the apex of the tegmina.
- 8(19) Body longer, its length 5–8 times as long as width. Hind femur longer, its length 6.3–7.8 times as long as width, lower margin not distinctly projecting outward on the outer side.
- 9(14) Body larger in size, length of body more than 23.0mm in male, length of hind femora more than 11.0mm. Wings colourless, hyaline.
- 10(11) Tegmina longer, extending for one-third of their length beyond the apex of hind femora. Wings wider and longer, extending much beyond the apex of hind femora. Shanghai, Beijing, Hebei, Fujian, Sichuan ..... **4. *A. sagittaris*** Bi and Hsia, 1981  
*Acta Entomologica Sinica* 24(4): 409, 410, 414, figs. 13–21.
- 11(10) Tegmina shorter, extending for less one-third of their length beyond the apex of hind femora. Wings narrower and shorter, just extending beyond the apex of hind femora.
- 12(13) Tegmina and wings in both sexes slightly wider at apex, wings relatively straight at anterior margin. Mesosternal interspace in male slightly narrowed backward. Beijing, Hebei, Shanghai, Hubei, Guangdong, Guangxi, Shaanxi; Japan, Korea ..... **5. *A. lata*** (Motschoulsky, 1866)  
*Bull. Sci. Nat. Mose.* xxxix (1): p. 181. (*Truxalis lata*).
- 13(12) Tegmina and wings in both sexes slightly narrower at apex, wings distinctly curved backward at anterior margin. Mesosternal interspace in male distinctly narrowed backward. Jiangsu ..... **6. *A. suzhouensis*** Bi and Hsia, 1981  
*Acta Entomologica Sinica* 24(4): 410, 411, 414, figs. 22–30.
- 14(9) Body small in size, length of body shorter than 23.0mm in male, the length of hind femora shorter than 11.0mm. Base of wings red or dark.
- 15(16) Base of wings and longitudinal veins dark. Hainan ..... **7. *A. fuscipennis*** Liang, 1988  
*Acta Zootaxonomica Sinica* 13(2): 158–160, figs. 1–8.
- 16(15) Base of wings red.
- 17(18) The lateral lobe of pronotum deeply incurved on posterior margin, posterior-lower angle acute backward. Wings all colored indistinct light-red. Body slender. Yunnan, Sichuan, Guizhou: Qingzhen ..... **8. *A. peregrina*** Bi and Hsia, 1981  
*Acta Entomologica Sinica* 24(4): 411, 412, 414, figs. 31–39.

- 18(17) The lateral lobe of pronotum slightly incurved on posterior margin, posterior-lower angle slightly elongated backward, near right angle. Wings colored indistinct light-red at base only. Body more robust. Liaoning: Shenyang, Dalian, Dandong; Jiling: Changchun; Hebei ..... **9. *A. heteroptera*** Bei–Bienko, 1951  
*Acridoidea of the fauna of the USSR and neighbouring countries*. Pts. 1 [In Russian.] 38: 275, fig. 569.
- 19(8) Body thick and short, near fusiform, especially in female, its length 3–4.5 times as long as width. Hind femur shorter, its length 5.1–6 times as long as maximum width, lower carina on the outer side distinctly expanded outward.
- 20(21) Fastigium longer, distinctly longer than long diameter of eye. Body relatively longer. Xizang: Motuo, Chayu; Nepal, Sikkim, Bhutan, India ..... **10. *A. himalayica*** Bolivar, 1905  
*Bol. Soc. Esp. Hist. Nat.* V. pp. 198, 204. n. 8.
- 21(20) Fastigium shorter, its length equal to or shorter than the length of eye, sometimes slightly longer than long diameter of eye, but body thicker and shorter.
- 22(23) Eyes oval, prominent, behind the eye with dark band. Wings shorter, just extending beyond the apex of hind femora. Female unknown. Xizang: Cona ..... **11. *A. melanostriga*** Bi, 1981  
*In Huang, 1981 Insects of Xizang*, Vol.1. p.72, 73, 82, 83, figs. 28–30.
- 23(22) Eyes long, oval, behind the eye without dark band. Wings longer, extending far beyond the apex of hind femora.
- 24(25) Lateral carinae of pronotum distinct. Yunnan ..... **12. *A. dubia*** Wang, Xiangyu, He and Mu, 1995  
*Journal of Shandong University (Natural Sciences)* 30(3): 336–339, figs. 1–8.
- 25(24) Lateral carinae of pronotum indistinct.
- 26(27) Tegmina and wings in both sexes wider, especially in female, the apical part of tegmina slightly curved backward on the anterior margin. Tegmina slightly short, extending for less one-fourth of their length beyond the apex of hind femora. Pronotum with sparse granules. Yunnan: Xishuanbanna, Mengla ..... **13. *A. yunnanensis*** Bi and Hsia, 1981  
*Acta Entomologica Sinica* 24(4): 412–414, figs. 40–48.
- 27(26) Tegmina and wings in both sexes narrower, apical part of tegmina straight on anterior margin, narrower at apex. Tegmina slightly long, extending for one-fourth of their length beyond the apex of hind femora. Pronotum with more granules, especially in female. Guangdong, Guangxi, Sichuan; Nepal, Bhutan, India, Burma, Viet Nam ..... **14. *A. burri*** Bolivar, 1905  
*Bol. Soc. Esp. Hist. Nat.* V. pp. 197, 203. n. 6.
- 28(1) Tegmina and wings short, not reaching the knee of hind femora.
- 29(30) Lateral lobe of pronotum with membranous area near posterior margin. Tegmina and wings surpassing over the middle of hind femur distinctly and wings slightly shorter than tegmina, extending distinctly past the midpoint of tegmina. Female unknown. Ningxia: Pingluo ..... **15. *A. micropenna*** Zheng, 1992  
*Grasshopper fauna of Ningxia*: pp. 36–38, figs. 97–102.
- 30(29) Lateral lobe of pronotum without membranous area near posterior margin. Tegmina and wings strongly shortened, not reaching the middle of hind femur and wings very small, not reaching the midpoint of tegmina. Taiwan: Pingtung Henchun ..... **16. *A. taiwanensis*** sp. nov.

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