

Review and key of East Palaearctic species of the genus *Podismopsis* Zubovsky (Orthoptera: Acridoidea) with description of a new species from China

Ying Lu, Liming Wang & Bingzhong Ren*

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In this paper, a list and key of all East Palaearctic *Podismopsis* species are presented. In addition, *Podismopsis squamopennis* sp. n. is described from the Small Northern Lake of Heilongjiang province in China. It mostly resembles *P. gynaemorpha* Ikonnov.

Lu, Y. & Ren, B. Z. *, Jilin Key Laboratory of Animal Resource Conservation and Utilization, School of Life Sciences, Northeast Normal University, Renmin Street 5268, Changchun, China, 130024; E-mails: luy251@nenu.edu.cn & *corresponding author's bzren@163.com

Wang, L. M., School of Life Sciences, Xinyang Normal University, Chang'an road 237, Xinyang, China, 464000; E-mail: shkjqwlm@126.com

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1. Introduction

The genus *Podismopsis* was established by Zubovsky (1900). It was attributed to the genus *Chrysochraon* as a subgenus. However, it was raised to the genus level by Uvarov (1925). Three subgenera (*Eurasiobia*, *Podismacris* and *Podismopsis*) were established by Bei-Bienko (1932). But the subgenus *Eurasiobia* was considered as a synonym of *Podismopsis* by Bei-Bienko & Mistshenko (1951). Jago (1971) considered *Podismacris* as a synonym of *Podismopsis*. Harz (1975) considered *Podismopsis* as a subgenus of *Chrysochraon*. Yin (1984) did not divide *Podismopsis* into subgenera. From that time, more and more scientists considered *Podismopsis* consistently as a separate genus.

So far, according to the specimen identification and literature search, 38 species of the genus *Podismopsis* are distributed in northeastern

China, North Korea, Far East Russia and central and southern Europe. Storozhenko (2007) considered *P. maximpenis* Zhang & Ren, 1992 as a synonym of *P. shareiensis* Shiraki, 1930. Among the 38 species, 22 species are distributed in northeastern China and Sino-Russian and Sino-Korean border areas. In addition, a new species was discovered during a survey of *Podismopsis* in Northeastern China from July to September in 2009.

2. Methods

In the following we describe how different measurements have been applied in this paper:

- Interocular width and width of the frontal ridge between the antennae (Fig. 1a).
- Triangular, central part of epiproct with a wide longitudinal groove (Fig. 1b).

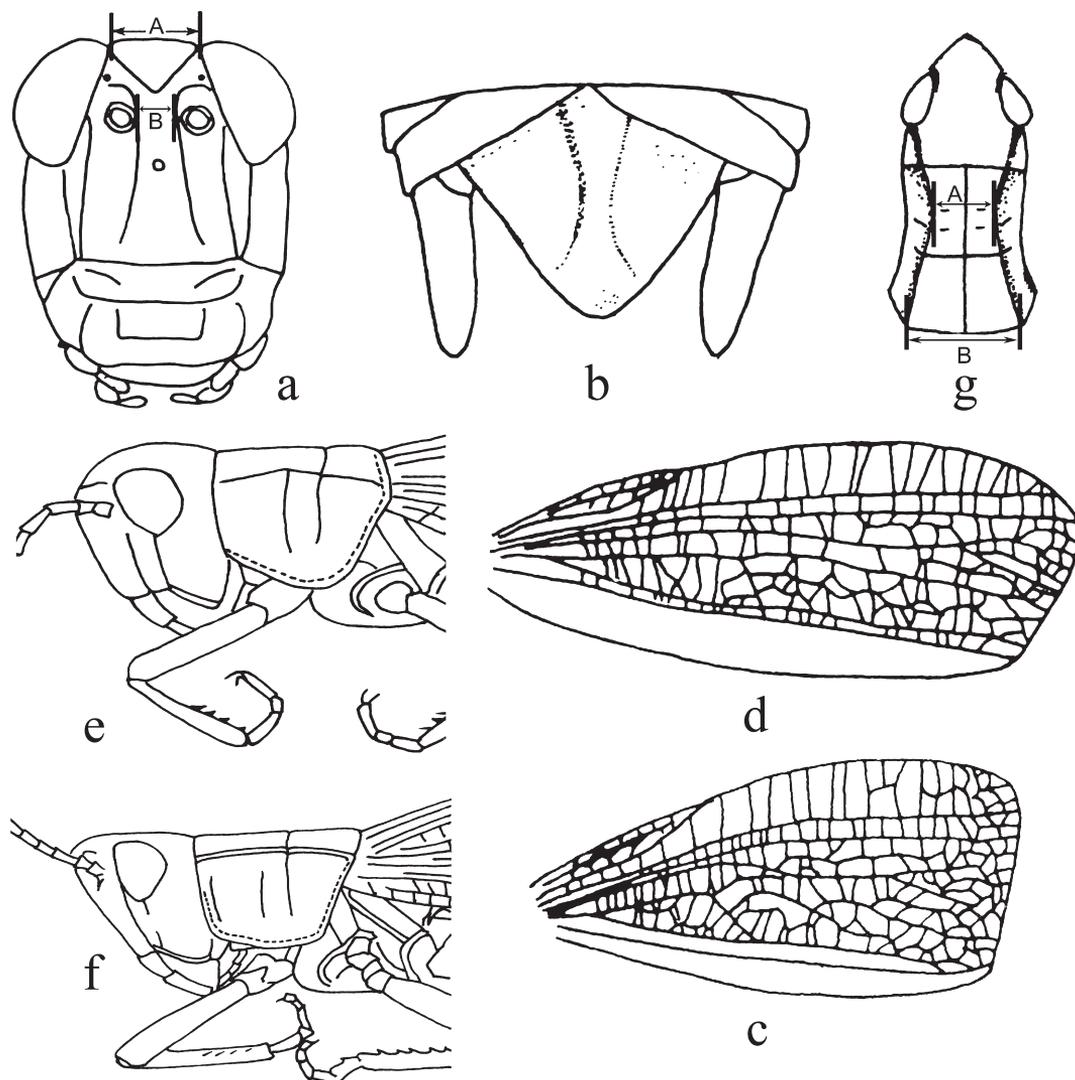


Fig. 1. Depiction of selected measurements applied in this paper. – a. Interocular width (A) and width of the frontal ridge between the antennae (B). – b. Triangular, central part of epiproct with a wide longitudinal groove (from *Podismopsis quadrasonita*). – c. Top of the tegmen flat cut-off (from *P. maximpennis*). – d. Top of the tegmen oblique cut-off (from *P. dolichocerca*). – e. Frons slightly oblique (from *P. altaica*). – f. Frons clearly oblique (from *P. quadrasonita*). – g. Between lateral carinae of pronotum (from *P. maximpennis*): the widest part (A) and the narrowest part (B).

- Top of the tegmen flat cut-off (Fig. 1c).
- Top of the tegmen oblique cut-off (Fig. 1d).
- Frons slightly oblique (Fig. 1e).
- Frons clearly oblique (Fig. 1f)
- Between lateral carinae of pronotum: the widest and narrowest part (Fig. 1g).

3. *Podismopsis* Zubovsky

3.1. Characteristics

Body. Medium-sized. Vertex short, triangular and no fastigial foveolae. Frons oblique in profile. Frontal ridge with longitudinal groove, lateral margin gradually expanded downwards to reach

Table 1. Eastern Palaearctic *Podismopsis* species with inadequate descriptions: female or male not known (or with inadequate morphological description).

Species	Condition
<i>P. altaica</i>	(♀)
<i>P. bisonita</i>	+
<i>P. dailingensis</i>	+
<i>P. frontalis</i>	+
<i>P. gynaemorpha</i>	(♂)
<i>P. konakovi</i>	+
<i>P. mongolica</i>	+
<i>P. planicaudata</i>	+
<i>P. rufipes</i>	+
<i>P. squamopennis</i> sp. n.	+
<i>P. ussuriensis</i>	(♀)

or do not reach clypeus. Antennae filiform, reaching or exceeding posterior margin of pronotum. Compound eyes oblong oval. Anterior margin of pronotum horizontal, posterior margin straight, circular or in middle part with a small triangle-shaped notch. Lateral carinae clearly curved in prozona. Median carina slender, only incised by posterior transverse sulcus with a clear cut.

Male. Tegmina usually developed, reaching hind femur 2/3; top oblique cut-off, and none of intercalary vein. In some peculiar kinds, apex of male tegmina not oblique (such as *Podismopsis gynaemorpha* Ikonnov) or scale-like (such as *Podismopsis squamopennis* **sp. n.**) and hind wings degraded, very small.

Female. Tegmina flaky, their length 1.3–2 times width. Lower carina in inner side of hind femur with stridulatory pegs; apex of kneelobes triangular or circular. Inner and outer side of hind tibia both with 13–15 spines, but none of barbed-end. Tympanic cavity developed, oval. Upper-outer margin of upper valve with a notch or not.

3.2. Key to the East Palaearctic species

In the process of editing the key, we found that for some species very little data is available. The relevant morphological descriptions of the females of some species are not sufficient (e.g. *P. ussuriensis*), and in some species females (e.g. *P. squamopennis* **sp. n.**) or males (e.g. *P. konakovi*) have not yet be found (Table 1). Therefore, there are no corresponding search entries for females or males

of these species in the key. Lengths of the body and tegmina and the distributions of 34 species of *Podismopsis* in East Palaearctic are presented in Table 2.

1. Male, tegmen long, connected on back, top cut-off like 2
Male, tegmen short, separated from back, not adjoining on back part, top acute or scale-like 33
2. Male, tegmen with wide costal area, widest part of costal area approximately 2.3–3.3 times that of sub-costal area 3
Male, tegmen with narrow costal area, widest part 1.5–2 times that of sub-costal area 16
3. Female, valve of ovipositor thick and short, lower-outer margin of lower valve with big tooth 4
Female, valve of ovipositor long and narrow, lower-outer margin of lower valve straight and with fine teeth, basal part without big teeth 15
4. Male, length of tegmen 1.7–2.4 times its width 5
Male, length of tegmen 2.4–3.1 times its width 9
5. Male, width of costal area of tegmen 3–3.3 times that of sub-costal area 6
Male, width of costal area of tegmen 2.3–3 times that of sub-costal area 7
6. Male, lower side of hind femur orange, length of tegmen 1.9 times width. *P. rufipes*
Male, lower side of hind femur not red, length of tegmen 1.7 times width *P. amplipennis*
7. Male, width of radial area of tegmen 1.2 times that of sub-costal area, length of subgenital plate 1.5 times width of basal part *P. jinbensis*
Male, width of radial area of tegmen 2–2.5 times that of sub-costal area, length of subgenital plate 2 times width of basal part 8
8. Body smaller, interocular width 1.8 times width of frontal ridge between antennae (Fig. 1a) *P. bisonita*
Body larger, interocular width 2.7–3 times width of frontal ridge between antennae *P. juxtapennis*
9. Male, width of radial area of tegmen 3–3.5 times that of sub-costal area *P. ampliradiareas*
Male, width of radial area of tegmen 1.5–2 times that of sub-costal area 10

Table 2. Length (mm) of body and tegmina and distribution of Eastern Palaearctic *Podisomopsis* species.

Name	Length of body (1 st row) and tegmina (2 nd row)	Distribution ¹
<i>P. altaica</i> (Zubovsky, 1900)	♂13.5–16.0; ♀17.0–24.0 ♂6.5–8.5; ♀2.5–4.0	Siberia. (Russia: W. Siberia, Karysh River, Altai Mts)
<i>P. amplimedioides</i> Zheng & Shi, 2010	♂18.0–19.0; ♀22.0 ♂9.0–10.0; ♀7.0	Mohe Co., Heilongjiang Pr.
<i>P. amplipennis</i> Zheng & Lian, 1988	♂25.0; ♀27.0–30.0 ♂15.0; ♀5.0–6.0	Jingbo Lake, Ning'an C., Heilongjiang Pr.
<i>P. ampliradiareas</i> Zheng, Cao & Lian, 1991	♂19.0–22.0; ♀25.0–30.0 ♂12.0–13.0; ♀5.6–6.0	Jingbo Lake, Ning'an C., Heilongjiang Pr.
<i>P. angustipennis</i> Zheng & Lian, 1988	♂16.0–17.0; ♀23.0–26.0 ♂9.0–11.0; ♀5.0–5.5	Yichun C., Jiayin Co., Huma Co.
<i>P. bisonita</i> Zheng, Cao & Lian, 1991	♂17.0–19.0 ♂11.0–11.5	Jiagedaqi District, Heilongjiang Pr.; Helong C., Changbai Mountain, Jilin Pr.
<i>P. brachycaudata</i> Zhang & Jin, 1985	♂17.3–17.5; ♀22.7–23.5 ♂9.3–10.7; ♀3.8–4.6	Mangui T., Inner Mongolia Pr.; Mohe Co., Xilinji T., Heilongjiang Pr.
<i>P. dailingensis</i> Zheng & Shi, 2010	♂16.0 ♂9.0	Dailing District, Yichun C., Heilongjiang Pr.
<i>P. dolichocerca</i> Ren, Zhang & Zheng, 1994	♂16.3–19.4; ♀25–28.7 ♂12.6–13.5; ♀4.7–6.0	Jingbo Lake, Ning'an C., Heilongjiang Pr.; Benxi C., Fushun C., Fengcheng C., Hengren Co., Liaoning Pr.; Changbai Mountain, Dunhua C., Wangqing Co., Song Jianghe T., Jilin Pr.
<i>P. frontalis</i> Mistshenko, 1951 ²	♀21.6–25.8 ♀3.6–4.9	Europe, East Europe, Russia East, [Russia: Bash- kiria, Urgania]
<i>P. gelida</i> Miram, 1931	♂15.0–16.8; ♀19.0–22.7 ♂9.0–9.5; ♀3.1–3.5	Europe, East Europe (Russia: Yakutia, Verkhoyansk)
<i>P. genicularibus</i> (Shiraki, 1910)	♂19.0–22.0; ♀25.0–32.0 ♂11.5–12.0; ♀5.2–7.0	Eastern Asia, Japan, Sakashitaana Cave, Kawano- becho, Kagoshima Pref.
<i>P. gynaemorpha</i> Ikonnikov, 1911	♂22.3–23.8; ♀21.3–27.5 ♂8.1–9.3; ♀5.0–5.9	Russian Far East, Primorye
<i>P. humengensis</i> Zheng & Lian, 1988	♂17.0–19.0; ♀23.0–30.0 ♂11.5–12.0; ♀6.0–8.0	Genhe C., Ergunazuqi, Inner Mongolia Pr.
<i>P. insularis</i> Mistshenko, 1951 ²	♂15.5; ♀16.1 ♂8.7; ♀9.5	Russian Far East. (Russia: Shantar island)
<i>P. jacuta</i> Miram, 1928	♂16.0–18.1; ♀23.0–25.0 ♂10.5–11.0; ♀3.5–4.5	Siberia, Yakutiya. (Russia: Yakutsk)
<i>P. jinbensis</i> Zheng, Cao & Lian, 1991	♂18.0; ♀25.0–28.0 ♂11.5; ♀3.5–4.0	Jingbo Lake, Ning'an C., Heilongjiang Pr.; Erdao- baihe T., Changbai Mountain, Jilin Pr.
<i>P. juxtapennis</i> Zheng & Lian, 1988	♂20.0–23.0; ♀28.0–30.0 ♂13.0–14.0; ♀6.0–6.5	Jingbo Lake, Ning'an C., Heilongjiang Pr.; Changbai Mountain, Jilin Pr.; Hengren Co., Liaoning Pr.
<i>P. konakovi</i> Bei-Bienko, 1948	♀25.6 ♀5.1	Russian Far East, Kuril Is., (Russia: Iturup Island)
<i>P. mongolica</i> Bei-Bienko, 1959	♂20.0 ♂8.3	China, Inner Mongolia, Sukhe River
<i>P. mudanjiangensis</i> Ren, Zhang & Zheng, 1994	♂16.0–17.5; ♀24.7–28.2 ♂10.9–11.9; ♀4.8–5.2	Jingbo Lake, Ning'an C., Heilongjiang Pr.; Erdaobaihe T., Changbai Co., Jilin Pr.

Table 2, continued

<i>P. planicaudata</i> Liang & Jia, 1994	♂17.5–18.0 ♂10.5–10.8	Jiagedaqi District, Heilongjiang Pr.; Inner Mongolia Pr.; Erdaobaihe T., Changbai Mountain, Jilin Pr.
<i>P. poppiusi</i> (Miram, 1907)	♂15.0–18.0; ♀25.0–28.0 ♂11.5–12.0; ♀5.2–7.0	Europe, East Europe, Russia North, (Russia: Arkhangelsk)
<i>P. quadrasonita</i> Zhang & Jin, 1985	♂18.0–19.8; ♀25.0–29.8 ♂11.8–12.8; ♀5.9–7.3	Mohe Co., Xilinji T., Mao'er Mountain, Heilongjiang Pr.; Inner Mongolia Pr.
<i>P. rufipes</i> Ren, Zhang & Zheng, 1991	♂22.0 ♂12.3	Jingbo Lake, Ning'an C., Heilongjiang Pr.
<i>P. shareiensis</i> Shiraki, 1930 = <i>P. maximpennis</i> Zhang & Ren, 1992	♂22.2; ♀22.5–27.2 ♂14.0; ♀4.2–5.0	Jingbo Lake, Ning'an C., Heilongjiang Pr.; Wangqing Co., Jilin Pr.; Taiwan
<i>P. silvestris</i> Storozhenko, 1986	♂15.0; ♀23.0–23.7 ♂7.6; ♀3.9–4.0	Russian Far East, Sakhalin. (Sakhalin Island)
<i>P. sinucarinata</i> Zheng & Lian, 1988	♂16.0–19.0; ♀22.5–26.0 ♂10.0–11.0; ♀3.5–5.0	Mohe Co., Xilinji T., Heilongjiang Pr.; Inner Mongolia Pr.
<i>P. squamopennis</i> sp. n.	♂19.4–21.0 ♂5.2–5.3	Small Northern Lake, Ning'an C., Heilongjiang Pr.
<i>P. tumenlingensis</i> Zhang & Ren, 1992	♂16.7–18.5; ♀22.2–24.1 ♂9.8–11.5; ♀3.2–4.9	Jiagedaqi District, Heli Co., Heilongjiang Pr.; Tumenling T., Zuoqia T., Erdaobaihe T., Changbai Co., Jilin Pr.
<i>P. tuqiangensis</i> Zheng & Shi, 2010	♂18.0–20.0; ♀21.7–22.0 ♂11.0–11.5; ♀4.0–4.5	Tuqiang T., Mohe Co., Heilongjiang Pr.
<i>P. ussuriensis</i> Ikonnikov, 1911	♂17.5–20.0; ♀23.5–31.0 ♂9.2–12.5; ♀4.5–5.0	Raohe Co., Mishan C., Heilongjiang Pr.; Antu Co., Erdaobaihe T., Changbai Co., Jilin Pr.
<i>P. viridis</i> Ren, Zhang & Zheng, 1994	♂17.1–18.5; ♀27–29.6 ♂12–13.9; ♀6.3–6.5	Jingbo Lake, Ning'an C., Heilongjiang Pr.
<i>P. yurii</i> Storozhenko, 2006	♂17.1–18.2; ♀22.5–26.5 ♂8.2–8.7; ♀4.5–4.9	Russian Far East, Moneron Island, Mt. Staritskogo; upper stream of Moneron River

1 Abbreviations: Pr.: Province, Co.: Country, C.: City, T.: Town.

2 In Mistshenko & Bei-Bienko (1951).

10. Male, length of subgenital plate 2.3–2.6 times width of basal part; epiproct triangular, half of middle part with wide longitudinal groove
11 Male, length of subgenital plate 1.7–2 times width of basal part; epiproct triangular, middle part with wide longitudinal groove (Fig. 1b)
11. Male, length of pronotum prozona 1.2–1.3 times that of metazona; female, outer and outer–upper margin of valves light white
P. viridis
Male, length of pronotum prozona 1.5 times that of metazona; female, colour of the outer and outer–upper margin of valves same as other parts of valves
P. quadrasonita
12. Male, lateral carinae of pronotum nearly parallel

- Male, lateral carinae of pronotum arcuate
13. Posterior margin of pronotum straight. Male, length of tegmen 3.1 times its width, width of radial area 1.8–2.0 times that of sub-costal area; Female, length of tegmen 2.0 times its width, reaching or surpassing second urotergite, lower side of hind femur red
P. humengensis
Middle of posterior margin of pronotum slightly concave. Male, length of tegmen 2.4–2.6 times its width, width of radial area 1.6 times that of sub-costal area; Female, length of tegmen 2.5 times its width, reaching second urotergite, lower side of hind femur yellowish brown
P. amplimediis
14. Male, posterior margin of pronotum approximately straight, length of pronotum prozona

- 1.2–1.4 times that of metazona. Tegmen reaching or surpassing end of abdomen, length of tegmen 2.5 times its width, width of cubital area 2.0 times that of medial area
P. dolichocerca
- Male, middle of posterior margin of pronotum slightly concave, length of pronotum prozona 2.0 times that of metazona. Tegmen not reaching end of abdomen, length of tegmen 2.7 times its width, width of medial area 3.3 times that of cubital area
P. dailingensis
15. Male, tegmen large and wide, top flat cut-off (Fig. 1c) *P. shareiensis* (= *P. maximpennis*)
Male, tegmen narrower, top oblique cut-off (Fig. 1d). Hind femur long: male 11.3–12.4 mm, female 13.0–13.4 mm
P. yurii
16. Frons slightly oblique (Fig. 1e) *P. altaica*
Frons clearly oblique (Fig. 1f) 17
17. Male, vertex wider, interocular width 3 times width of frontal ridge between antennae 18
Male, vertex narrower, interocular width 1.5–2.5 times width of frontal ridge between the antennae 19
18. Male, length of antennal middle segment 2.5–3 times its width
P. ussuriensis
Male, length of antennal middle segment 1.5–2 times its width
P. mongolica
19. Male, subgenital plate conical, tip part flat
P. planicaudata
Male, subgenital plate conical, tip part pointed 20
20. Female, valve thick and short, upper-outer margin of upper valve with notch, lower-outer margin of lower valve with large tooth 21
Female, valve long and narrow, upper-outer margin of upper valve with fine teeth and without notch, lower-outer margin of lower valve straight, with fine teeth, basal part without big teeth 25
21. Female, tegmen wide, widest part surpassing 1.5–1.7 times widest part of hind femur
P. genicularis
Female, tegmen narrow, widest part less than or equal to or slightly larger than widest part of hind femur 22
22. Female, upper-outer margin of upper valve with deep notch 23
Female, upper-outer margin of upper valve not with deep notch, width of interocular 3 times width of frontal ridge between antennae
P. frontalis
23. Female, interocular width 2.6 times width of frontal ridge between antennae
P. mudanjiangensis
Female, interocular width 2 times width of frontal ridge between antennae 24
24. Male, frontal ridge reaching clypeus, and a longitudinal groove of frontal ridge throughout. Radial area of tegmina narrow, widest part nearly equal to that of sub-costal area, almost not larger than that of sub-costal area. Female, antennae fine, length of middle segment of antennae 2.5 times width. Length of pronotum prozona 1.5 times that of metazona (along median carina)
P. poppiusi
Male, frontal ridge not reaching clypeus, which does not have a longitudinal groove, but fray and only a notch in middle; radial area of tegmina wide, widest part approximately 2 times that of sub-costal area. Female, antennae thick, length of middle segment of antennae 3 times width. Pronotum prozona short, its length 1.25 times that of metazona (along median carina)
P. jacuta
25. Male, lateral carinae curved in pronotum prozona; between lateral carinae, widest part distinctly broader than narrowest part (Fig. 1g) 26
Male, lateral carinae of pronotum slightly bending inward; between lateral carinae, widest part is nearly equal to narrowest part 28
26. Length of tegmina, male 9.0–9.5 mm, female 3.1–3.5 mm
P. gelida
Length of tegmina, male >10.0 mm, female >3.5 mm 27
27. Male, length of tegmen 2.9 times its width, width of costal area 2.0 times that of sub-costal area, width of radial area 2.0 times that of sub-costal area, cubital area equal to costal area
P. tuqiangensis
Male, length of tegmen 2.4 times its width, width of costal area 1.5 times that of sub-costal area, width of radial area 1.5 times that of sub-costal area, width of cubital area 1.3 times that of costal area
P. sinucarinata
28. Female, tegmen not reaching second urotergite 29
Female, tegmen reaching middle or end of second urotergite 31

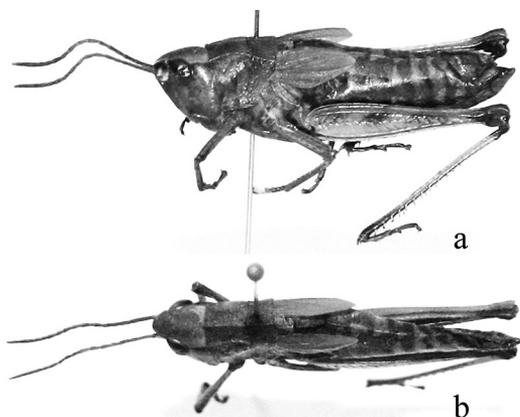


Fig. 2. *Podismopsis squamopennis* sp. n. male. – a. Lateral view. – b. Dorsal view.

29. Male, length of subgenital plate 1.5 times its widest part *P. tumenlingensis*
 Male, length of subgenital plate 1.8–2 times its widest part 30
30. Male, length of antennal middle segment 2.5 times width *P. brachycaudata*
 Male, length of antennal middle segment 2 times width *P. silvestris*
31. Female, length of tegmen 1.7 times its width *P. angustipennis*
 Female, length of tegmen 2 times its width 32
32. Male and female, frons with stout and big spots. Female, lower margin of pronotum lobe wave, tegmen reaching end of second urotergite *P. insularis*
 Female, frons smoothly; lower margin of pronotum lobe rounded, tegmen reaching the middle of second urotergite *P. konakovi*
33. Male, tegmen relatively long, not scale-like, and reaching fifth urotergite *P. gynaemorpha*
 Male, tegmen short and scale-like *P. squamopennis* sp. n.

4. Description of *Podismopsis squamopennis* sp. n. (Figs. 2–3)

Type specimens. Holotype: 1 ♂, collected from the Small Northern Lake of Heilongjiang province (121° 33.0201 E, 31° 42.1480 N) by Liming Wang and Ying Lu, 12.VII. 2009. Paratypes: 3 ♂. Locality and date as for holotype. Type specimens are deposited in Department of Biology, School of Life Sciences, Northeast Normal University.

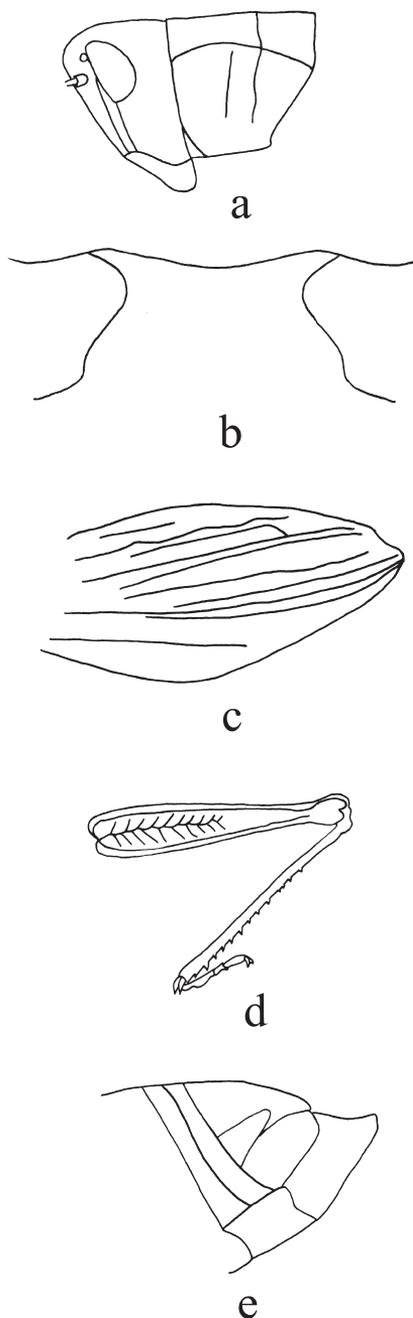


Fig. 3. *Podismopsis squamopennis* sp. n. male. – a. Head. – b. Interspace of mesosternal lobes. – c. Tegmina. – d. Hind femur. – e. Genitalia.

Description. Male: body medium in size, frons distinctly backwards oblique. (Fig. 2a–b) Head triangular, apex obtuse with obvious median carina; the width on vertex before eyes 2.6 times the width on frontal ridge between anten-

nae; foveolae absent. Antennae filiform, surpassing the basal part of hind femur, length of middle segment 2.4–2.5 times its width. Eyes oval, the longitudinal diameter of eyes 1.3–1.5 times horizontal diameter and about 1.1 times subocular furrow, or slightly shorter than subocular furrow (Fig. 3a). Posterior margin of pronotum straight, the central of pronotum slightly concave; lateral carinae arcuately curved in prozona. The widest part of pronotum 1.3–1.4 times narrowest part, the length of prozona 1.4–1.5 times that of metazona. The narrowest of interspace of mesosternal lobes 1.5–1.8 times its length (Fig. 3b). Tegmen reduced, scale-like and slightly acute on the top, just surpassing the second urotergite or reaching the middle of the third urotergite, not adjoining on back, its length 2.1 times its width (Fig. 3c). Hind wing extremely reduced, hind femur length 5.3–5.5 times width, apex of kneelobe circular (Fig. 3d). Tympanic cavity developed, oblong oval. Supra anal-plate triangular, flat. Cerci long-pyramidal, the top acute. Subgenital plate short-pyramidal, length 1.3–1.9 times width in the basal part (Fig. 3e).

Measurements of the males (lengths in mm): Body 19.4–21.1; Pronotum 4.5–4.6; Tegmina 5.2–5.3; Hind femur 12.5–13.6.

Colour: Body dark brown with black postocular band. Tegmen yellow-brown, the lower side of hind femur red with three dark blotches between upper and lower carina in outer side. Knee of hind femur black, tibia dark red, basal part black with black stripes in apex.

Female: unknown.

Etymology. The specific name is derived from the Latin words, squama scale, pennis wings.

5. Discussion

In OSF (<http://Orthoptera Species File. org>, Eades et al. 2011), we find that for species lacking foveolae, the tribe Chrysochraontini has been established (Brunner von Wattenwyl 1893 [as Chrysochraontes], Jacobson 1905 [as Chrysochraontinae]) including *Confusacris*, *Euthystira*, *Euthystiroides*, *Foveolatacris*, *Podismomorpha*, *Podismopsis* and *Pseudoasonus*. Among them *Podismopsis* and *Podismomorpha* are most similar to each other. They not only lack fastigial foveolae, but also the posterior transverse sulcus

Table 3. Comparison between male tegmina of *Podismopsis gynaemorphia* Ikonnikov and *P. squamopennis* sp. n.

<i>P. gynaemorphia</i>	<i>P. squamopennis</i> sp. n.
Short and thin, nearly reach to 5 th urotergite.	Reduced, scale-like and slightly acute on the top, just surpassing 2 nd urotergite or reaching the middle of 3 rd urotergite.
Length 1.3 times width.	Length 2.1 times width.

of pronotum clearly cuts the median carina and lateral carina. At the same time posterior margin of pronotum is rounded, straight or slightly concave, but without a distinct lacuna. There are also differences between the two genera. In *Podismopsis*, the lateral carina of pronotum are arcuately, the posterior margin of pronotum is straight in lateral view. In *Podismomorpha* the lateral carinae of pronotum are weak, not obvious, and the posterior margin of pronotum is with obvious upheaval after the median transverse sulcus in lateral view. The genera *Leuconemacris*, *Ptygonotus*, *Nivisaris*, *Asulconotoides* and *Asulconotus* are different from the *Podismopsis* by posterior margin of pronotum with a distinct triangular notch. And the genera *Confusacris*, *Euthystira*, *Euthystiroides*, *Foveolatacris* and *Pseudoasonus* are different from the *Podismopsis* in the swordlike shape of the antennae.

P. squamopennis sp. n. was discovered near to the Small Northern Lake of Heilongjiang province, where we surveyed the species diversity of Orthoptera. The relevant morphological characters of them were corresponding with that of *Podismopsis*, and were similar to that of *P. gynaemorphia* Ikonnov, so we attributed the new species in the genus *Podismopsis*. The differences between *P. squamopennis* sp. n. and *P. gynaemorphia* Ikonnov are listed in Table 3.

In this study, we found that the tegmina of males of the new species *P. squamopennis* sp. n. were scaly. This finding changes the former understanding that the tegmina of the most *Podismopsis* males are truncate or oblique cut, and the females' are scaly.

The scientific names of *Podismopsis* species imply that the song is an important species-specific character. Because the new species was caught by accident, the sound mechanism was not studied. However, some Chinese researchers have studied the songs and pointed out that the sound mechanism of *Podismopsis* is hind femur-tegmen type. The lower carinas in inner side of the hind femurs possess stridulatory pegs, which can produce sound by rubbing with the longitudinal veins of tegmina. *Podismopsis* make chirping noises by rubbing the hind femurs and the tegmina: tegmina are kept closed at rest and at the same time the hind femurs make up and down movements against the surface of tegmina. But the type of the tegmina of the new species is different from that of the other *Podismopsis* species, so the sound mechanism of the new species needs still to be studied.

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