

A review of the genus *Thabena* Stål (Hemiptera: Fulgoromorpha: Issidae) from China with description of one new species

ZHANG Zhengguang^{1,2}, CHEN Xiangsheng^{2①}

1. School of Life Sciences, Jinggangshan University; Key Laboratory for Biodiversity Science and Ecological Engineering, Jiangxi Province, Ji'an, Jiangxi 343009, China

2. The Provincial Key Laboratory for Agricultural Pest Management of Mountainous Regions of Guizhou; Institute of Entomology, Guizhou University, Guiyang, Guizhou 550025, China

Abstract: The planthopper genus *Thabena* Stål, 1861 (Hemiptera: Fulgoromorpha: Issidae: Issini) is reviewed to include four species from China: *T. hainanensis* (Ran & Liang, 2006) (China: Hainan), *T. lanpingensis* sp. nov. (China: Yunnan), *T. litaoensis* (Yang, 1994) (China: Taiwan, Hainan) and *T. yunnanensis* (Ran & Liang, 2006) (China: Yunnan). Two species, *T. lanpingensis* and *T. litaoensis*, are described or redescribed and illustrated. A key to all species of *Thabena* in China is given.

Key words: Hemiptera; Issidae; *Thabena*; new species; China

CLC number: Q969.36⁺5.8

Document code: A

Article ID: 1000-7482(2012)02-0227-06

中国圆顶瓢蜡蝉属回顾及一新种描述（半翅目：蜡蝉总科：瓢蜡蝉科）

张争光^{1,2}, 陈祥盛^{2①}

1. 井冈山大学生命科学学院; 江西省生物多样性与生态工程重点实验室, 江西 吉安 343009; 2. 贵州山地农业病虫害省级重点实验室; 贵州大学昆虫研究所, 贵州 贵阳 550025

摘要: 对中国圆顶瓢蜡蝉属 *Thabena* Stål, 1861 进行了分类回顾, 共有 4 种: 海南圆顶瓢蜡蝉 *T. hainanensis* (Ran & Liang, 2006) (中国海南)、兰坪圆顶瓢蜡蝉 *T. lanpingensis* sp. nov. (中国云南)、黎桃园顶瓢蜡蝉 *T. litaoensis* (Yang, 1994) (中国台湾、海南) 和云南圆顶瓢蜡蝉 *T. yunnanensis* (Ran & Liang, 2006) (中国云南)。对其中 2 个种兰坪圆顶瓢蜡蝉 *T. lanpingensis* 和黎桃园顶瓢蜡蝉 *T. litaoensis* 进行了描述或重新描述, 绘制了特征图。提供了中国圆顶瓢蜡蝉属全部已知种的检索表。

关键词: 半翅目; 瓢蜡蝉科; 圆顶瓢蜡蝉属; 新种; 中国

Introduction

The planthopper genus *Thabena* (Hemiptera: Fulgoromorpha: Issidae: Issini) was established by Stål (1861) based on the type species *Issus retractus* Walker, 1857 and was

Received date: 28 Mar. 2012

①Corresponding author, E-mail: chenxs3218@163.com

recently revised by Gnezdilov (2009) to include 13 species distributed in China, Indonesia, Malaysia, Philippines, Singapore, Thailand and Réunion Island.

In this paper the genus *Thabena* from China is reviewed. *T. litaoensis* (Yang), collected from Hainan Province, is redescribed and illustrated and recorded as new to Mainland China. One new species, *T. lanpingensis* sp. nov., collected from Yunnan Province, is described and illustrated. The generic characteristics are redefined. A key to all known species of this genus in China is also provided.

Material and methods

Morphological terminology follows Chan & Yang (1994). The genital segments of the examined specimens were macerated in 10% KOH and drawn from preparations in glycerin jelly using a light microscope. Illustrations of the specimens were made by using a Leica MZ12.5 stereomicroscope. Spinal formula is the numbers of apical spines of the hind tibia and 1st & 2nd hind tarsomere. Submedian carina is the carina which is located in between the median carina and lateral margin.

Specimens examined are deposited in the Insect Collection at the Institute of Entomology, Guizhou University, Guiyang, Guizhou Province, China (IEGU).

Genus *Thabena* Stål, 1861

Thabena Stål, 1866a: 208.

Cibyra Stål, 1861: 209.

Gelastyra Kirkaldy, 1904: 208.

Gelastyrella Yang, 1994: 90 (in Chan & Yang, 1994).

Borbonissus Bonfils, Attié & Reynaud, 2001: 217.

Diagnosis. Vertex transverse, disc depressed, with an oval mark beside midline, with anterior margin rounded, posterior margin curved concave, lateral margins slightly convex, wider than long (1.8–2.0: 1.0). Frons disc convex, with median and transverse keels, longer than the widest part. Clypeus disc convex. Pronotum with a small pit beside midline, posterior margin slightly straight or convex. Mesonotum subtriangular, median and lateral keels present. Forewings about 2.0 times longer than widest part, acutely rounded at apex, longitudinal veins distinct, Sc and R convergent near base, M bifurcate near middle, MA or MP bi- or trifurcate at middle part, Cu simple. Hindwings deeply incised on apical margin into two lobes, anal lobe absent, with a network of veins. Hind tibiae with two lateral teeth near apex. Spinal formula of hind leg: 7-(17, 18, 21, 35)-2, 8-(29, 40, 42, 49)-2.

Male genitalia. Anal segment oval or long, aedeagus with hooks ventrally, apical part somewhat expanded, sometimes distinct.

Distribution. China, Indonesia, Malaysia, Philippines, Singapore, Thailand and Réunion Island.

Key to species of *Thabena* in China

1. Anal segment in dorsal view oval or long oval, ventral margin of aedeagus normal, aedeagus ventrally with a pair of hooks near middle 2
- Anal segment in dorsal view long striped in basal 2/3, expanded and almost rounded in apical 1/3, ventral margin of aedeagus distinctly convex near middle, aedeagus ventrally with a pair of hooks distad 3

2. Anal segment in dorsal view long oval, pygofer (Fig. 5) in lateral view wider, hind margin distinctly convex near dorsal part, aedeagus apically with finger-like processes directing cephalad in lateral view *T. lanpingensis* sp. nov.
- . Anal segment in dorsal view oval, pygofer in lateral view narrow, hind margin slightly curved, aedeagus apically without finger-like processes directing cephalad, ventrally with a pair of hooks directing dorsal-caudad *T. yunnanensis* Ran & Liang
3. Vertex grayish with basal portion somewhat green, spinal formula of hind legs: 7-(29, 35)-2, aedeagus in ventral view with a trefoil process near apex, ventral lobe with apical margin concave in middle *T. litaoensis* Yang
- . Vertex yellow brown, spinal formula of hind legs: male 8-49-2; female 8-(40-42)-2, aedeagus in ventral view without a trefoil process near apex, ventral lobe with apical margin convex in middle *T. hainanensis* Ran & Liang

1. ***Thabena lanpingensis* sp. nov.** (Figs. 1–9)

Description. Body length (from apex of vertex to tip of forewings): ♂ 5.0 mm, ♀ 6.3 mm; forewing length: ♂ 4.1 mm, ♀ 5.2 mm.

Coloration. Vertex brown. Eyes brown with black marks. Frons dark brown with pale brown verrucae. Clypeus pale brown with dark diagonal stripes in lateral margins. Rostrum and antenna dark brown. Pro- and mesonotum brown. Tegmina with pale brown and black brown marks, hindwings dark brown. Legs brown. Abdomen ventrally dark brown.

Head and thorax. Vertex (Fig. 1) transverse, 2.0 times wider at base than long in middle line, with anterior margin rounded, posterior margin concave, lateral margins slightly convex, elevated, disc depressed. Frons wide, 1.1 times wider at the widest part than long in middle line, weakly enlarged towards clypeus, with median keel crossed by transverse keel below upper margin. Clypeus disc convex. Pronotum with a small pit near midline on each side, without median and lateral keels; scutellum triangular without keels. Fore wings narrowing apically, without hypocoastal plate, clavus with cuspidal caudo-dorsal angle, 2.0 times longer than the widest part, Sc+R union at base, M bifurcate near middle, MA trifurcate, MP simple, Cu simple. Hind wings almost equal in length to fore wings, bilobed, with well-developed remigium and vannus, separated by deep cleft, with many transverse veins, costal margin concave, anal lobe of vannus rudimentary. Hind tibia with two lateral spines distally. Spinal formula of hind leg 7-17-2.

Male genitalia. Anal segment (Fig. 6) in dorsal view long oval, about 2.0 times longer than the widest at middle, apical margin obtuse, anal foramen near middle. Pygofer (Fig. 5) in lateral view wider, hind margin distinctly convex near dorsal part. Genital styles (Fig. 9) in lateral view triangular, acutely rounded at ventrocaudal margin, base convex hooked. Aedeagus (Figs. 7, 8) deeply U-shaped in lateral view, with lateral, ventral and dorsal lobes; dorsal lobe bifurcate, with finger-shaped apically, directed cephalad; aedeagus each side with a hook near middle; ventral lobe with apical margin convex in middle in ventrally view.

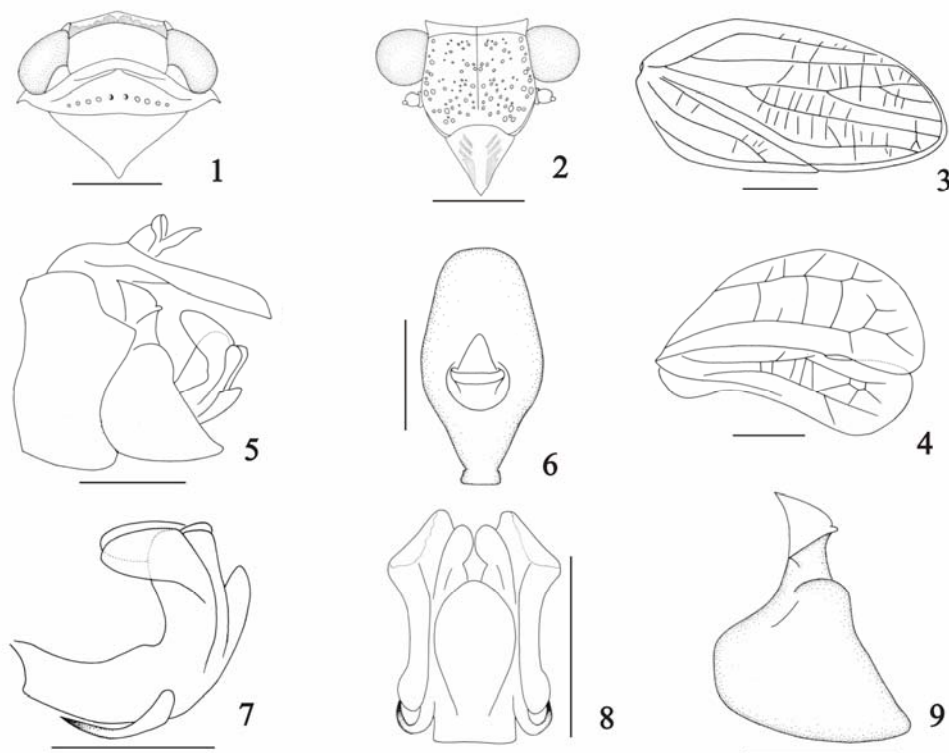
Holotype. ♂, **China:** Yunnan, Lanping, 2500 m, 10–11-VIII-2006, Zhengguang ZHANG.
Paratypes. 2♂2♀, same data as holotype.

Remarks. This new species is similar to *T. yunnanensis* (Ran & Liang), but differs from the latter in: 1) spinal formula of hind legs: 7-17-2 (in the latter, spinal formula of hind leg: male 7-(18-21)-2; female 7-21-2); 2) anal segment in dorsal view, long oval; pygofer wider, hind margin distinctly convex near dorsal margin; aedeagus lateral view, dorsal lobe bifurcate,

finger-shaped in apical, directed cephalad; genital styles with apical margin acutely convex (in the latter, anal segment in dorsal view, oval; pygofer narrow, hind margin without distinct process near dorsal margin; aedeagus laterally view, dorsal lobe not as above; genital styles with apical margin obtusely convex).

Etymology. The specific name refers to the type locality, Lanping, Yunnan Province.

Distribution. China (Yunnan).



Figures 1–9. *Thabena lanpingensis* Zhang & Chen sp. nov. 1. Head and thorax, dorsal view; 2. Frons and clypeus; 3. Tegmen; 4. Wings; 5. Male genitalia, left side; 6. Anal segment, dorsal view; 7. Aedeagus, left side; 8. Aedeagus, ventral view; 9. Genital style, left side. Scale bars = 0.5 mm (Figs. 6–9), 1.0 mm (Figs. 1–5)

2. *Thabena litaoensis* (Yang, 1994) (Figs. 10–18)

Gelastystrella litaoensis Yang, 1994: 90 (in Chan & Yang, 1994).

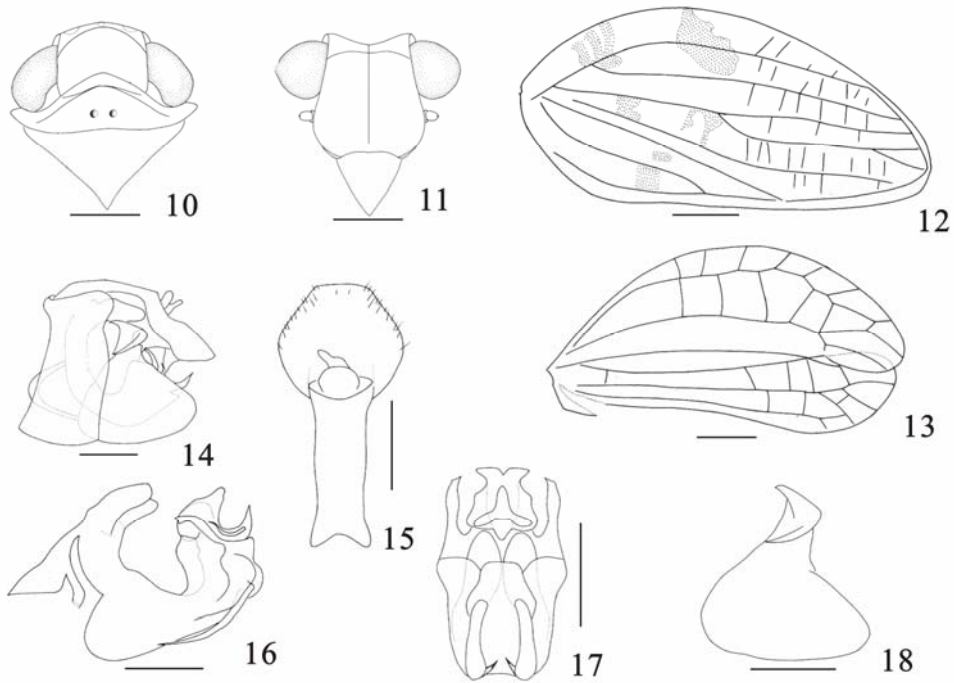
Thabena litaoensis: Gnezdilov, 2009: 80.

Description. Body length (from apex of vertex to tip of forewings) ♂ 7.6 mm; forewings length ♂ 6.4 mm.

General coloration. Vertex (Fig. 10) brown, eyes dark brown. Frons (Fig. 11) brown with black spots near base margin. Clypeus brown with dark brown near apex. Antenna dark brown. Rostrum light brown. Pro- and mesonotum brown. Forewings brown with black marks scattered, veins more or less green. Hindwings dark brown. Legs brown with dark brown marks. Abdomen ventrally dark brown.

Head and thorax. Vertex (Fig. 10) 1.8 times wider at base than long in midline. Frons (Fig.

11) disc convex, with median and transverse keels, 1.2 times longer in midline than the widest part. Clypeus disc convex. Pronotum with a small pit beside midline, posterior margin slightly straight. Mesonotum subtriangular, median and lateral keels present. Forewings (Fig. 12) 2.1 times longer than widest part, longitudinal veins distinct, Sc and R convergent near base, M bifurcate near middle, MA simple, MP bifurcate at middle part, Cu simple. Hindwings (Fig. 13) deeply incised on apical margin into two lobes, anal lobe absent, with a network of veins. Hind tibiae with two lateral teeth near apex. Spinal formula of hind leg: ♂ (N=4) 8–29–2.



Figures 10–18. *Thabena litaoensis* (Yang, 1994). 10. Head and thorax, dorsal view; 11. Frons and clypeus; 12. Tegmen; 13. Wings; 14. Male genitalia, left side; 15. Anal segment, dorsal view; 16. Aedeagus, left side; 17. Aedeagus, ventral view; 18. Genital style, left side. Scale bars = 0.5 mm (Figs. 14–18), 1.0 mm (Figs. 10–13)

Male genitalia. Anal tube (Fig. 15) in dorsal view long striped in basal 2/3, expanded and almost rounded in apical 1/3. Penis short and broad near apical part. Aedeagus (Figs. 16, 17) strongly curved in lateral view, with finger-like processes near base, ventral margin distinctly convex near middle, ventrally with a pair of hooks near apical part, ventral lobe with apical margin concave in middle in ventral view. Apical part of aedeagus expanded, lamina-like, with a deep indentation in lateral view, with baculiform processes directing cephalad beneath the indentation, in ventral view, bilobed apically, with trefoil process near apical part. Genital styles (Fig. 18) in profile subtriangular, with strong process in dorsal margin, caudo-dorsal angle rounded.

Specimens examined: 4♂, **China:** Hainan, Bawangling National Natural Reserve (18°58'N, 109°13'E), 450–880 m, 24-IV-2009, Zaihua YANG.

Distribution. China (Hainan, Taiwan).

3. *Thabena hainanensis* (Ran & Liang, 2006)

Gelastystrella hainanensis Ran & Liang, 2006: 65.

Thabena hainanensis: Gnezdilov, 2009: 80.

Distribution. China (Hainan).

4. *Thabena yunnanensis* (Ran & Liang, 2006)

Gelastystrella yunnanensis Ran & Liang, 2006: 67.

Thabena yunnanensis: Gnezdilov, 2009: 83.

Distribution. China (Yunnan).

Acknowledgements

We are grateful to Ms. M.L. Chan (National Museum of Natural Science, Taichung, Taiwan) and Dr. V.M. Gnezdilov (Russian Academy of Sciences, St. Petersburg) for providing valuable references. This work was supported by the National Natural Science Foundation of China (31160163, 31093430, 31060290), the International Science and Technology Cooperation Program of Guizhou (20107005), the Natural Science Foundation of Jiangxi Province, China (20114BAB214013), the Educational Commission of Jiangxi Province, China (GJJ12484), the Scientific Research Foundation for Doctors of Jinggangshan University (JZ10039) and High Level Discipline of Biology, Jiangxi Province.

References

- Bonfils J, Attié M, Reynaud B. 2001. Un nouveau genre d'Issidae de l'île de la Réunion: *Borbonissus* n. gen. (Hemiptera, Fulgoromorpha). *Bulletin de la Société Entomologique de France*, 106: 217–224.
- Chan ML, Yang CT. 1994. *Issidae of Taiwan (Homoptera: Fulgoroidea)*. Taichung, Taiwan, 1–188.
- Gnezdilov VM. 2009. Revisionary notes on some tropical Issidae and Nogodinidae (Hemiptera: Fulgoroidea). *Acta Entomologica Musei Nationalis Pragae*, 49(1): 75–92.
- Kirkaldy GW. 1904. Bibliographical and nomenclatorial notes on the Hemiptera. 3. *Entomologist* (London), 33: 279–283.
- Ran HF, Liang AP. 2006. The issid genus *Gelastystrella* Yang (Hemiptera: Fulgoroidea: Issidae) from China. *Zootaxa*, 1238: 63–68.
- Stål C. 1861. Nova methodus familias quasdam Hemipterorum disponendi. *Öfversigt af Konliga Svenska Vetenskaps-Akademiens Förhandlingar*, 18: 195–223.
- Stål C. 1866a. Hemiptera Homoptera Latr. *Hemiptera Africana*, 4: 1–276.
- Stål C. 1866b. *Analecta Hemipterologica*. *Berliner Entomologische Zeitschrift*, 10: 381–394.
- Walker F. 1857. Catalogue of the Homopterous insects collected at Sarawak, Borneo, by Mr. A. R. Wallace, with descriptions of new species. *Journal of the Proceedings of the Linnean Society*, 1: 141–175.