

# A TAXONOMIC STUDY OF THE GENUS *BAMBUSIPHAGA* (HEMIPTERA, FULGOROIDEA, DELPHACIDAE)

QIN Dao Zheng<sup>1</sup>, ZHANG Ya-Lin<sup>1</sup>, DING Jir-Hua<sup>2</sup>

1. Key Laboratory of Plant Protection Resources and Pest Management of Ministry of Education, Entomological Museum, Northwest A & F University, Yangling, Shaanxi 712100, China

2. Department of Entomology, Plant Protection College, Nanjing Agricultural University, Nanjing, Jiangsu 210095, China

**Abstract** This paper records 14 species of the genus *Bambusiphaga* Huang et Ding, in which the type species: *B. nigripunctata* Huang et Ding, 1979 is re illustrated, male genitalia is re described and aedeagal characters are discussed; *Bambusiphaga bakeri* (Muir) is transferred from the genus *Malaxa* as a new combination; and two new synonymies are proposed, i. e. *B. membranacea* Yang et Yang, 1986 is a junior synonym of *B. furca* Huang et Ding, 1979; *B. latispina* Qin et Yuan, 1999 is a junior synonym of *B. bakeri* (Muir, 1919). A key to all Chinese species is given.

**Key words** Hemiptera, Delphacidae, *Bambusiphaga*, new combination, new synonymies, China.

## 1 Introduction

The planthopper genus *Bambusiphaga* was established by Huang et Ding in 1979, with *Bambusiphaga nigripunctata* as the type species. Up to now, 16 species have been reported over the world, among which 14 species are distributed in China (Huang et al., 1979; Kuch, 1980; Kuch et al., 1980; Ding, 1982; Ding et al., 1982, 1986, 1987; Qin et al., 1999; Yang et al., 1986; Chen et al., 2000), Yang et al. (1986) modified the generic characters.

Recently, we studied the Chinese *Bambusiphaga* fauna, mainly based on the materials deposited in Nanjing Agricultural University (NJAU) and Northwest A & F University (NWFU). All Chinese species of this genus are recorded in this paper, the type species: *B. nigripunctata* Huang et Ding is re illustrated, male genitalia is re described and aedeagal characters are discussed; *Bambusiphaga bakeri* (Muir) is transferred from the genus *Malaxa* as a new combination; and two new synonymies are proposed as well.

Morphological terminology used in this paper follow that of Yang et Yang (1986).

Distribution. China (Sichuan, Gansu, Shaanxi, Hainan, Yunnan, Guizhou, Fujian, Taiwan, Jiangsu, Anhui, Zhejiang), Indian, Northeastern Himalaya, Malay Peninsula, Penang, Singapore.

### Species list

1) *B. nigripunctata* Huang et Ding, 1979

Distribution. China (Sichuan, Hainan, Shaanxi).

2) *B. furca* Huang et Ding, 1979

Distribution. China (Yunnan, Guizhou, Fujian, Taiwan).

3) *B. citricolorata* Huang et Tian, 1979

Distribution. China (Yunnan).

4) *B. similis* Huang et Tian, 1979

Distribution. China (Yunnan).

5) *B. miostylis* Huang et Ding, 1979

Distribution. China (Yunnan).

6) *B. lacticolorata* Huang et Ding, 1979

Distribution. China (Jiangsu, Zhejiang).

7) *B. fascia* Huang et Tian, 1980

Distribution. China (Jiangsu, Anhui, Zhejiang, Gansu).

8) *B. huangi* Ding et Hu, 1982

Distribution. China (Yunnan).

9) *B. luodianensis* Ding, 1982

Distribution. China (Guizhou).

10) *B. jinghongensis* Ding et Hu, 1986

Distribution. China (Yunnan).

11) *B. bakeri* (Muir, 1919), nov. comb.

Distribution. China (Hainan, Guangdong, Shaanxi, Taiwan). Malay Peninsula, Penang.

12) *B. taiwanensis* (Muir, 1917)

Distribution. China (Taiwan, Fujian, Guizhou).

13) *B. maculata* Chen et Li

Distribution. China (Guizhou).

14) *B. wangmoensis* Chen et Li

Distribution. China (Guizhou).

## 2 Key to the Chinese Species of *Bambusiphaga*

1. Genital styles unbifurcated apically ..... 7
- Genital styles bifurcated apically ..... 2
2. Anal segment with laterapical angle or median portion produced into a process ..... 4

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- Anal segment with lateroapical angle or median portion not produced ..... 3
3. Pygofer of male without medioventral process, phallus with a stout process at apical third ..... *B. furca* **Huang et Ding**  
 Pygofer of male with a small medioventral process, phallus without process ..... *B. luodianensis* **Ding**
4. Anal segment with median portion produced into a process ..... 6  
 Anal segment with left lateroapical angle produced into a process ..... 5
5. Medioventral process single, unbranched .....  
 ..... *B. bakeri* (**Muir**), **nov. comb.**  
 Medioventral process well developed, branched .....  
 ..... *B. maculata* **Chen et Li**
6. Aedeagus without recuspines, phallobase well developed .....  
 ..... *B. wangmoensis* **Chen et Li**  
 Aedeagus with three recuspines subapically, without phallobase .....  
 ..... *B. huangi* **Ding et Hu**
7. Anal segment with left lateroapical angle not produced ..... 10  
 Anal segment with left lateroapical angle strongly produced ..... 8
8. Right and left genital styles unsymmetrical .....  
 ..... *B. jinghongensis* **Ding et Hu**  
 Right and left genital styles symmetrical ..... 9
9. Genital styles broad, long, sides nearly parallel, with apical process .....  
 ..... *B. mirostylis* **Huang et Ding**  
 Genital styles broad at base, narrowing to apex, without apical process .....  
 ..... *B. fasciata* **Huang et Tian**
10. Genital styles with apex truncated, basal half of vertex with a big oval blackish maculation submedially .....  
 ..... *B. nigripunctata* **Huang et Ding**  
 Genital styles with apex not truncated, basal half of vertex without blackish oval maculation ..... 11
11. Frons longer in middle line than wide at middle part about 2.6:1.0 .....  
 ..... *B. laeticolorata* **Huang et Ding**  
 Frons longer in middle line than wide at middle part about 2.0:2.2:1.0 ..... 12
12. Aedeagus with distinct phallobase .....  
 ..... *B. taiwanensis* (**Muir, 1917**)  
 Aedeagus without phallobase ..... 13
13. Male genitalia in posterior view with genital styles divergent .....  
 ..... *B. citricolorata* **Huang et Tian**  
 Male genitalia in posterior view with genital styles convergent .....  
 ..... *B. similis* **Huang et Tian**

### 3 Study on the Type Species

#### *Bambusiphaga nigripunctata* **Huang et Ding, 1979** (Figs. 1-12)

*Bambusiphaga nigripunctata* Huang et Ding, 1979: 170; Ding et Tian, 1984: 50; Wang et Ding, 1996: 23.

Huang et Ding (1979) did not describe characters of male genitalia of the type species, Wang et Ding (1996) gave a simple description. The present paper re-illustrated the type species, male genitalia is re-described and aedeagal characters are discussed.

Redescription. Anal segment short, without process. Pygofer longer ventrally than dorsally in profile, with opening longer than wide in posterior view, ventral margin concave, without medioventral process. Basal two fifths of aedeagus distinctly swollen

from lateral view, with a hook-shaped process, middle part of aedeagus contorted till apical one-fourth, apex strongly constricted, with a lamellate process, directed dorsad, basal part of the process with a hook-shaped process. Genital styles developed, strongly divergent apically, apex truncated.

Specimens examined. 1 ♂ (holotype, NJAU), 1 ♀ (paratype, NJAU), China, Sichuan, Chengdu, Aug. 1975; 13 ♂♂ 62 ♀♀ (paratypes, NJAU), China, Sichuan, Chengdu, Ya'an, Hongya, Aug. 1975, coll. DING Jir Hua and TIAN Li Xin. 6 ♂♂ 2 ♀♀ (NWAUFU), China, Hainan, Xinglong, 25 Apr. 1983, coll. ZHANG Ya Lin; 1 ♂ (NWAUFU), 14 Aug. 1984; 1 ♀ (NWAUFU), 15 Aug. 1984, China, Shaanxi, Ningshan, collector unknown.

Discussion. Huang et Ding (1979) erected *Bambusiphaga* and designated *B. nigripunctata* as its type species. Wang et Ding (1996) noted *B. nigripunctata* in "Delpha. Fauna Gansu Prov., China (Homoptera, Fulgoroidea)", but the characters of aedeagus is not the same as figured by Huang et Ding in 1979. After sorted and identified Delphacidae specimens in the Entomological Museum, Northwest A & F University, collected from Hainan and Shaanxi Provinces, the authors found the same species noted by Wang et Ding in 1996. By checking the type specimens of this species deposited in Nanjing Agricultural University, all the characters are the same as the specimens which collected in Shaanxi and Hainan Provinces, the figure of aedeagus illustrated by Huang et Ding (1979) is wrong, and this species, especially the aedeagal characters is re-illustrated here (Figs 1-12).

Distribution. China (Sichuan, Hainan, Shaanxi).

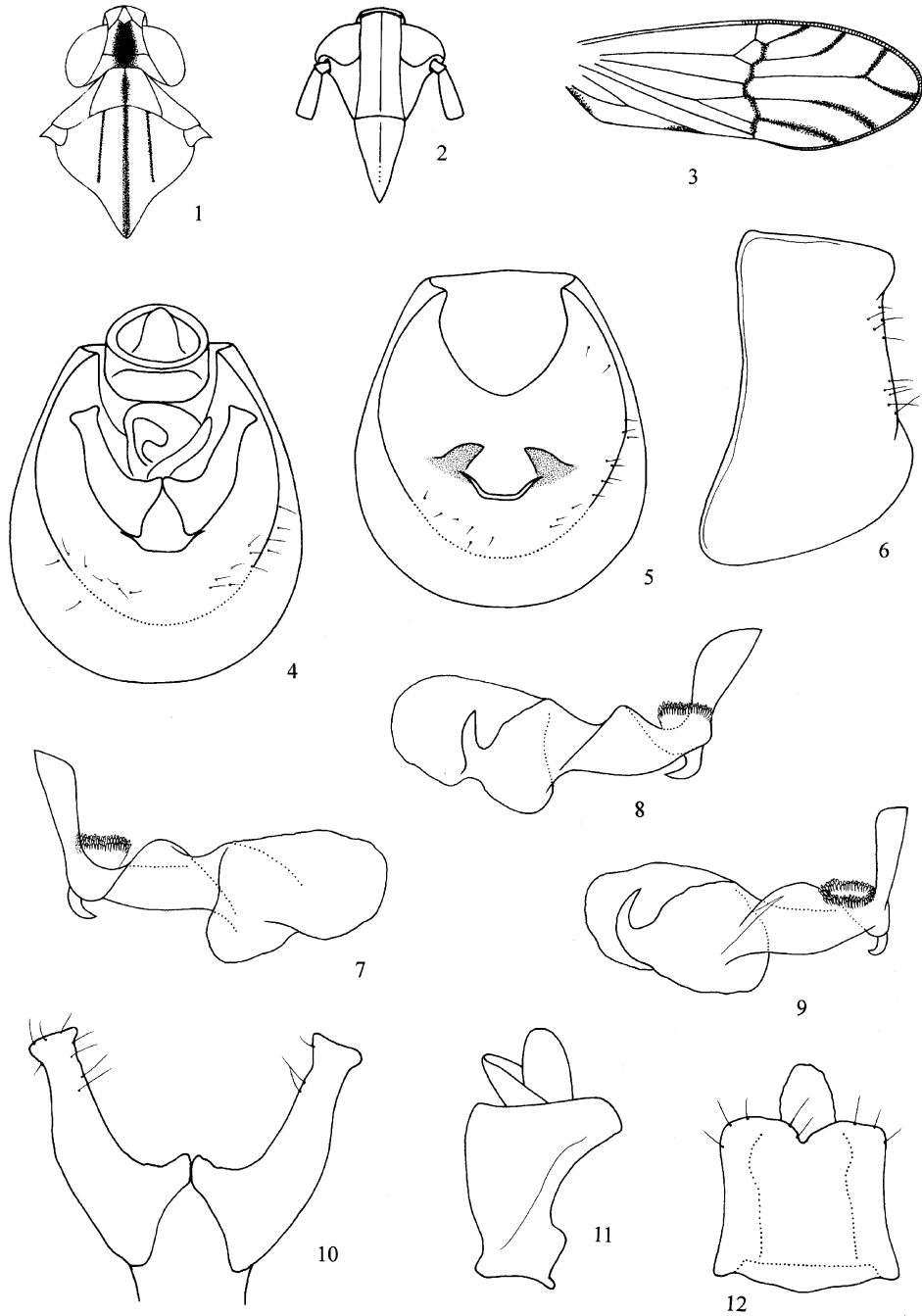
### 4 New Synonymies and New Combination

#### 4.1 *Bambusiphaga bakeri* (**Muir, 1919**), **nov. comb.**

*Malaxa bakeri* Muir, 1919: 521-531; Yang et Yang, 1986: 56.

*Bambusiphaga latispina* Qin et Yuan, 1999: 33. new synonymy.

Specimens examined. 1 ♂ (holotype, NWAUFU), 4 ♂♂, 6 ♀♀ (paratypes, NWAUFU), China, Hainan, Xinglong, 28 Apr. 1983, coll. ZHANG Ya Lin; 1 ♂ (paratype, NWAUFU), China, Guangdong, Dianbai, 11 Apr. 1983, coll. ZHANG Ya Lin; 1 ♂ (paratype, NWAUFU), China, Hainan, Yancheng, 8 Apr. 1983, coll. ZHANG Ya Lin; 1 ♀ (paratype, NWAUFU), 20 July 1987, China, Shaanxi, Wugong, collector unknown.



Figs. 1-12. *Bambusiphaga nigripunctata* Huang et Ding, 1979. 1. Head and thorax. 2. Frons and clypeus. 3. Tegmen. 4. Male genitalia, posterior view. 5. Pygofer, ventral view. 6. Pygofer, lateral view. 7-9. Aedeagus, in different view. 10. Genital styles, posterior view. 11-12. Anal segment.

**Distribution.** China (Hainan, Guangdong, Shaanxi, Taiwan), Malay Peninsula, Penang.

#### 4.2 *Bambusiphaga furca* Huang et Ding, 1979

*Bambusiphaga furca* Huang et Ding, 1979: 172; Ding et Tian, 1984: 51.

*Bambusiphaga membranacea* Yang et Yang, 1986: 41. new synonymy.

**Distribution.** China (Yunnan, Taiwan).

#### REFERENCES

Asche, M. 1983. *Bambusiphaga lynchi* nov. spec., eine neue Delphacide

aus dem nordöstlichen Himalaya und einige Beiträge zur Gattung *Bambusiphaga* Huang et Ding, 1979 (Homoptera, Auchenorrhyncha, Fulgoroidea, Delphacidae). *Marburger Ent. Publ.*, 1 (8): 197-210.

Chen, X-S, Li, Z-Z and Jiang, S-N 2000. Descriptions of two new species of Delphacidae attacking Bamboo from China. *Sci. Sil. Sinicae*, 36 (3): 77-80.

Chen, X-S and Li, Z-Z 2000. Descriptions of two new species of Delphacidae attacking Bamboo from Guizhou Province, China (Homoptera: Delphacidae). *Acta Zootax. Sinica*, 25 (2): 178-182. [动物分类学报]

Ding, J-H 1982. Two new species of the tribe Tropidocephalini

- (Homoptera: Delphacidae). *Jour. Nanjing Agric. Coll.*, 4: 42-45.
- Ding, J H and Hu, G W 1982. A new species of the genus *Bambu siphaga* from Yunnan (Homoptera: Delphacidae). *Acta Ent. Sinica*, 25 (4): 443-444.
- Ding, J H, Yang, L F and Hu, G L 1986. Descriptions of new genera and species of Delphacidae attacking Bamboo from Yunnan Province, China. *Acta Ent. Sinica*, 20 (4): 415-425.
- Ding, J H and Hu, G L 1987. Note on male *Bambu siphaga fasciata* Huang et Tian (Homoptera: Delphacidae). *Entomotax.*, 9 (2): 106.
- Ding, J H and Hu, G L 1987. A preliminary list of planthoppers attacking Bamboo in China with an illustrated key to the genera and species. *Jour. Bamboo Res.*, 6 (4): 70-84.
- Huang, G L, Tian, L X and Ding, J-H 1979. A new genus and some new species of Delphacidae attacking Bamboo in China, *Acta Zootax. Sinica*, 4 (2): 170-181. [动物分类学报]
- Kuch, G L 1980. Descriptions of five new species of Delphacidae (Homoptera). *Acta Ent. Sinica*, 23 (2): 195-201.
- Kuch, G L, Huang, G L, Tian, L X and Ding, J-H 1980. New species and new genus of Delphacidae from China. *Acta Ent. Sinica*, 23 (4): 413-426.
- Muir, F. 1919. Some Malayan Delphacidae (Homoptera). *Philippine Journ. Sci.*, 15: 521-531.
- Qin, D Z and Yuan, F 1999. One new species of the genus *Bambu siphaga* (Homoptera: Delphacidae) from China. *Entomotax.*, 21 (1): 33-35.
- Wang, J-C and Ding, J-H 1996. Delphacidae Fauna of Gansu Province, China (Homoptera, Fulgoroidea). *Gansu Sci. & Tech. Press.* 162 pp.
- Yang, J T and Yang, G T 1986. Delphacidae of Taiwan (I) Asiracinae and the tribe Tropidocephalini (Homoptera: Fulgoroidea). *Taiwan Mus. Spec. Publ.*, 6: 1-79.

## 中国竹飞虱属分类研究 (半翅目, 蜡蝉总科, 飞虱科)

秦道正<sup>1</sup> 张雅林<sup>1</sup> 丁锦华<sup>2</sup>

1. 西北农林科技大学植保资源与病虫害治理教育部重点实验室, 西北农林科技大学昆虫博物馆 陕西杨凌 712100
2. 南京农业大学植物保护学院 江苏南京 210095

**摘要** 整理记述中国飞虱科竹飞虱属 *Bambu siphaga* Huang et Ding 14 种。研究发现丁锦华、黄其林 (1979) 对该属模式种黑斑竹飞虱 *B. nigripunctata* 雄性外生殖器阳茎结构的图示与王金川、丁锦华 (1996) 在《甘肃飞虱》中对该种阳茎结构的记述及图示不同, 通过解剖西北农林科技大学昆虫博物馆馆藏的该种标本, 发现其阳茎结构与王金川、丁锦华 (1996) 记述及图示的阳茎结构相同, 在检查了该种的模式标本后, 确认丁锦华、黄其林 (1979) 图示的雄性外生殖器

阳茎结构并非本种。本文对该种雄性外生殖器结构作了重新描记, 并绘制了该种成虫及雄性外生殖器鉴别特征图。文中还建立 1 个新组合: *B. bakeri* (Muir) nov. comb. 及 2 个新异名: *B. membranacea* Yang et Yang, 1986 为 *B. furca* Huang et Ding, 1979 的异名; *B. latispina* Qin et Yuan, 1999 为 *B. bakeri* (Muir, 1919) 的异名。文中还提供了该属所有中国种类的检索表。

**关键词** 半翅目, 飞虱科, 竹飞虱属, 新组合, 新异名, 中国.  
中图分类号 Q969.35