

THE CICADA GENUS *Mogannia* (Hemiptera: Cicadidae) FROM VIETNAM, WITH KEY TO SPECIES

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I. INTRODUCTION

The cicada genus *Mogannia* Amyot & Serville is characterized by its anteriorly protruding postclypeus and was formerly placed in the tribe Moganniini Distant (*sensu* Metcalf 1963a, 1963b; Duffels & van der Laan 1985). Hayashi (1976) reviewed the genus *Mogannia* from Taiwan and the Ryukyus, illustrated five known species and provided a key to the species as well. According to Hayashi (1976), the genus *Mogannia* should be allied to *Nipponosemia* Kato and *Emathia* Stal. Lee & Hill (2010) recognized Moganniini as a junior synonym of Cicadatrini Distant and redefined the latter by including *Cicadatra* Kolenati, *Psalmocharias* Kirkaldy, *Mogannia*, *Nipponosemia* and *Emathia*. Recently, Pham & Yang (2009) reviewed the family Cicadidae from Vietnam, with provided a list ten species of genus *Mogannia*.

In the present paper we reviewed the species of *Mogannia* from Vietnam, with a key to species of the genus *Mogannia* from Vietnam is provided.

II. MATERIALS AND METHODS

Specimens were collected by netting and light trapping. Previously collected specimens were included in our evaluations. Specimens are deposited at the Department of Insect Systematics of the Institute of Ecology and Biological Resources, Hanoi (IEBR).

The tribal classification of this study is based on that of Moulds (2005). Genus and species names, as well as synonymies, follow the catalogues of Metcalf (1963), and Lee (2008).

The nomenclature of the different parts of the body follows Moulds (2005).

Specimens examined are listed by provinces (given in bold).

The following acronyms are used: NP (National Park), NR (Natural Reserve).

III. TAXONOMY

Family: Cicadidae

Subfamily: Cicadinae

Tribe: Moganniini

Genus: *Mogannia* Amyot & Audinet-Serville, 1843

Mogannia Amyot & Audinet-Serville, 1843, Hem. : 467.

Cephaloxys Signoret, 1847a, Ann. Soc. Ent. Fr. : 294.

Type species: *Cicada conica* Germar, 1830, Tnon's Arch. II., 2: 39.

Distribution. Oriental region.

Key to the Vietnamese species of the genus *Mogannia*

- 1 (2) Vertex, supra-antennal plate, pronotal collar, and mesonotum green 3
 2 (1) Vertex, supra-antennal plate, pronotal collar, and mesonotum not so..... 7
 3 (4) Fore wing hyaline without mark infuscations *M. viridis*
 4 (3) Fore wing hyaline with mark infuscations 5
 5 (6) Hind wing without fuscous stripes on anal angle *M. hebes*
 6 (5) Hind wing with a fuscous stripe on anal angle..... *M. obliqua*
 7 (8) Body lustrous metallic dark blue or bluish-black; frontoclypeus longer than vertex in median length..... 9
 8 (7) Body lusterless and not bluish; frontoclypeus as long as or shorter than vertex in median length..... 13
 9 (10) Fore wing bright yellow for half the length from the base, marked with black at the base, and with a large black spot at the base of the first and second discal areolets.....
 *M. cyanea*
 10 (9) Fore wing with half of basal brown or deep brown..... 11
 11 (12) Hind wing hyaline with their bases narrowly sanguineous *M. saucia*
 12 (11) Hind wing hyaline without their bases narrowly sanguineous *M. effecta*
 13 (14) Fore wing pale hyaline; the basal halves fuscous and semi-opaque, costal membrane and extreme base sanguineous *M. conica*
 14 (13) Fore wing not so 15
 15 (16) Fore wing with basal area, clavus and transverse streak on media black-brownish.....
 *M. caesar*
 16 (15) Fore wing not so 17
 17 (18) Fore wing hyaline, the latter black on basal half, one basal round spot and apical fascia yellowish black..... *M. funebris*
 18 (17) Fore wing pale hyaline, the venation and costal area pale castaneous; an oblique dark castaneous fascia, enclosing a transverse, waved, pale, linear fascia commencing at upper end of radial cell and terminating on claval cell *M. aliena*

***Mogannia effecta* Distant, 1892**

Mogannia effecta Distant, 1892, Ann. Mag. Nat. Hist. (6) 9; 316; Pham & Yang, 2009: 5.

Material examined: Vinh Phuc: 2♂, Tam Dao NP, 900m, 15.vii.2001, coll. Hoang Vu Tru.

Distribution: Vietnam (Vinh Phuc), China, India, Nepal, Indonesia.

***Mogannia cyanea* Walker, 1858**

Mogannia cyanea Walker, 1858b: 40 [TL: North China]; Distant, 1917a: 101; Metcalf, 1963b: 865; Sanborn *et al.*, 2007: 32; Lee, 2008: 19; Pham & Yang, 2009: 15.

Material examined: No specimen was examined.

Distribution: North Vietnam, South China, Taiwan (China), Thailand, Myanmar, India.

***Mogannia hebes* (Walker, 1858)**

Cephaloxys hebes Walker, 1858b: 38 [TL: North China].

Mogannia hebes: Jacobi, 1905: 433; Distant, 1917a: 101; Metcalf, 1963b: 873; Lee, 2008: 19; Pham & Yang, 2009: 15.

Material examined: Vinh Phuc: 1♂, Tam Dao NP, 900-1000m, Cic1501, 2002; 1♂, same locality, Cic0817, vi.2002; Dong Nai: 1♂, Cat Tien NP, Cic0882, 9.v.2001.

Distribution: Vietnam (Lao Cai, Vinh Phuc, Lang Son, Dong Nai), China, India, South Korean, Japan, Malaysia, Taiwan (China).

***Mogannia caesar* Jacobi, 1902**

Mogannia caesar Jacobi, 1902: 21 [TL: Montes Mau-Son, Tonking]; Jacobi, 1905: 433; Distant, 1906b: 107; Distant, 1914: 33; Distant, 1917a: 101; Schmidt, 1932: 131 (*M. cagsar* [sic]); Kato, 1934: 159 (*M. cagsar* [sic]); Metcalf, 1963b: 860; Boulard, 2006: 140; Sanborn *et al.*, 2007: 32; Lee, 2008: 19; Pham & Yang, 2009: 15.

Material examined: Vinh Phuc: 2♂, 1♀, Tam Dao NP, 900-1000m, Cic0762-Cic0764, 2002; 1♀, same locality, Cic0334; 15.vii.2001; 2♂, 1♀, Dao Tru, Lap Thach, Cic0330, Cic0332, Cic0333, Cic0815, 19.v.2001; 1♂, Me Linh Station for Biodiversity, 100m, Cic0331, 23.iv.2001; 1♂, same locality, Cic1169, 31.v.2007; **Hai Phong:** 1♀, Cat Ba NP, Cic0335, 17.vii.2003, coll. Pham Hong Thai; **Ninh Binh:** 1♂, Cuc Phuong NP, Cic1168, 24.v.2005; 1♀, same locality, Cic1172, 3.v.2006; 1♂, same locality, Cic1173, iv.2006; 2♀, same locality, VS378, VS379, v.2006; **Thanh Hoa:** 1♂, Pu Luong NR, Thanh Son, Ba Thuoc, 600m, Cic0234, 10.iv.2002; 1♀, Pu Luong NR, Lung Cao, Ba Thuoc, 500-700m, Cic0223, 14.vi.2003; **Ha Tinh:** 3♂, 2♀, Khe Let, Son Hong, Huong Son, 600-800m, Cic0446-Cic0450, 22-24.iv.2004, coll. Truong Xuan Lam; **Lam Dong:** 1♂, Dambri, Bao Loc, 800m, Cic0115, v.2003, coll. Ta Huy Thinh.

Distribution: Vietnam (Vinh Phuc, Lang Son, Hai Phong, Ninh Binh, Thanh Hoa, Ha Tinh, Lam Dong), China, Thailand.

***Mogannia conica* (Germar, 1830)**

Cicada conica Germar, 1830: 39 [TL: Java].

Mogannia conica: Distant, 1917a: 101; Moulton, 1923: 161; Schmidt, 1932: 130; Wu, 1935: 21; Metcalf, 1963b: 861; Sanborn *et al.*, 2007: 32; Lee, 2008: 20; Pham & Yang, 2009: 15.

Material examined: Vinh Phuc: 2♂, Tam Dao NP, 900m, 15.vii.2001, coll. Hoang Vu Tru. **Thanh Hoa:** 1♂, 1♀, Pu Luong NR, 650m, 10.iv.2002, coll. Ta Huy Thinh.

Distribution: Vietnam (Vinh Phuc, Thanh Hoa), China (Xizang, Yunnan and Guangdong), Philippines, Thailand, Laos, Cambodia, Philippine, Malaysia, Indonesia (Java and Sumatra), Myanmar, Nepal, India.

***Mogannia aliena* Distant, 1920**

Mogannia aliena Distant, 1920: 336 [Tonkin, Indochina]; Metcalf, 1963b: 859; Lee, 2008: 20; Pham & Yang, 2009: 15.

Material examined: No specimen was examined.

Distribution: North Vietnam.

***Mogannia saucia* Noualhier, 1896**

Mogannia saucia Noualhier, 1896: 254 [TL: Route de Luang-Prabang à Theng]; Jacobi, 1905: 434; Metcalf, 1963b: 886; Boulard, 2005d: 140; Sanborn *et al.*, 2007: 32; Lee, 2008: 20; Pham & Yang, 2009: 15.

Mogannia indigotea Distant, 1917a: 101, 103 [TL: Chapa, Tonkin; N. China; Milanao, Tayabas, Philippine Is.]; Metcalf, 1963b: 879 (synonymized by Boulard (2005d)).

Material examined: **Vinh Phuc:** 2♂, Lap Thach, 200m, 19.v.2001, coll. Hoang Vu Tru; **Phu Tho:** 2♂, Xuan Son NP, 400m, 15.vi.2004, coll. Pham Hong Thai; **Hai Phong:** 1♀, Cat Ba NP, 200m, 17.vii.2003, coll. Pham Hong Thai; **Quang Nam:** 1♀, LaBo B, ChaVal, Song Thanh NR, Ho.1022, 28.iv.2005.

Distribution: Vietnam (Vinh Phuc, Phu Tho, Hai Phong, Lang Son, Quang Nam), South China, Philippine, Indonesia, Laos, Cambodia, Thailand.

Mogannia obliqua Walker, 1858

Mogannia obliqua Walker, 1858b: 39 [“Hindostan”; Java]; Distant, 1920: 337; Moulton, 1923: 163; Metcalf, 1963b: 885; Lee, 2008: 20; Pham & Yang, 2009: 15.

Material examined: **Hoa Binh:** 1♀, Tan Son, Mai Chau, 900m, Cic0074, 30.vi.2001; **Gia Lai:** 1♀, AYun, Mang Yang, 978m, Ho.2.0125, 1.vi.2011, coll. Hoang Vu Tru; 1♀, Dak Jo Ta, Mang Yang, 1000-1100, Ho.2.0013, 9.vi.2011, Hoang Vu Tru; **Dong Nai:** 1♀, Cat Tien NP, Sa Mach, Cic0095, 5.vi.2002.

Distribution: Vietnam (Hoa Binh, Gia Lai, Dong Nai), Malaysia, Indonesia (Java), Myanmar, India.

Mogannia viridis (Signoret, 1847)

Cephaloxys viridis Signoret, 1847a: 294 [TL: Java].

Mogannia viridis: Moulton, 1923: 164, 170; Metcalf, 1963b: 888; Lee, 2008: 20; Pham & Yang, 2009: 15.

Mogannia distinguenda Distant, 1920: 337 [TL: Haut Mekong, Muong Sing, Indochina] (synonymized by Moulton (1923)).

Material examined: **Lam Dong:** 1♂, Bao Loc pass, 800m, Cic0338, 5.viii.2001.

Distribution: Vietnam (Lam Dong), Philippines, Malaysia, Indonesia (Java, Sumatra), Myanmar, India.

Mogannia funebris Stål, 1865

Mogannia funebris Stål, 1865: 155 [TL: Silhet]; Jacobi, 1905: 433; Distant, 1917b: 319; Metcalf, 1963b: 872; Lee, 2008: 20; Pham & Yang, 2009: 15.

Material examined: No specimen was examined.

Distribution: Vietnam (Mau Son, Lang Son), Myanmar, Bangladesh, India.

Acknowledgments: We thank Dr. Susini Marie-Lucie and Dr. Patrick Grootaert (Royal Belgian Institute of Natural Sciences) for grant support to the first author; the grant was issued by the capacity building Programme of the Belgian Global Taxonomic Initiative National Focal Point and runs with financial support from the Belgian Directorate-General for Development Cooperation. The present study was partially supported by the basis project of the Department of Insect Systematics, IEBR, the National Foundation for Science and Technology Development (NAFOSTED-106.12-2012.63), Vietnam, the International Foundation for Science (IFS-No D/5181-1), Sweden, and the Nagao Natural Environment Foundation, Japan.

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GIỐNG VE SÀU *Mogannia* (Hemiptera: Cicadidae) Ở VIỆT NAM

PHẠM HỒNG THÁI

TÓM TẮT

Giống ve sấu *Mogannia* thuộc tộc Moganniini, phân họ Cicadinae, họ ve sấu Cicadidae gồm 10 loài được ghi nhận có mặt ở Việt Nam: *Mogannia* Amyot & Audinet-Serville, 1843; *Mogannia effecta* Distant, 1892; *Mogannia cyanea* Walker, 1858; *Mogannia hebes* (Walker, 1858); *Mogannia caesar* Jacobi, 1902; *Mogannia conica* (Germar, 1830); *Mogannia aliena* Distant, 1920; *Mogannia saucia* Noualhier, 1896; *Mogannia obliqua* Walker, 1858; *Mogannia viridis* (Signoret, 1847) và *Mogannia funebris* Stal, 1865. Trong bài báo này, chúng tôi đưa thông tin về phân bố của tất cả các loài và dựa trên những đặc điểm hình thái, xây dựng khóa định loại đến loài thuộc giống *Mogannia* đã được ghi nhận ở Việt Nam.