BioOne COMPLETE

A New Species of the Genus Forcipomyia (Lepidohelea) (Diptera: Ceratopogonidae) in China

Authors: Han, Xiaojing, Li, Xiaofei, and Hou, Xiaohui

Source: Florida Entomologist, 98(2) : 759-761

Published By: Florida Entomological Society

URL: https://doi.org/10.1653/024.098.0254

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Florida-Entomologist on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

A new species of the genus *Forcipomyia (Lepidohelea)* (Diptera: Ceratopogonidae) in China

*Xiaojing Han, Xiaofei Li, and Xiaohui Hou**

Abstract

A new species, *Forcipomyia* (*Lepidohelea*) *qinlingensis* is described and illustrated after a male specimen in China. This new species is compared with its similar congener, *Forcipomyia* (*Lepidohelea*) *qionghaiensis* Liu and Yu, 2001. A key to the adults of the subgenus from China is also provided.

Key Words: *Forcipomyia* (*Lepidohelea*); midges; new species; China

Resumen

Una nueva especie, *Forcipomyia (Lepidohelea) qinlingensis* es descrita e ilustrada a partir de un espécimen macho de la China. Esta nueva especie es comparada con su congénere, *Forcipomyia (Lepidohelea) qionghaiensis* Liu et Yu, 2001. Se presenta una clave para adultos del subgenero de la China.

Palabras Clave: *Forcipomyia* (*Lepidohelea*); nueva especie; Ceratopogonidae; China

Forcipomyia Meigen, 1818 (Diptera: Ceratopogonidae), a worldwide genus, is one of the species-richest genera in the biting midges, with many species being important pollinators of tropical and subtropical cultivated plants (Young 1986; Martínez et al. 2000). This genus contains 1,182 (1,150 extant and 32 fossil) species worldwide (Borkent 2014). During the past 2 years, several entomological surveys of the Qinling Mountains were undertaken, which resulted in a large series of Ceratopogonidae deposited in the Insect Collection of the Zunyi Medical University, China. Among them, a new male specimen of the subgenus *Lepidohelea* Kieffer (1917) in the genus *Forcipomyia* was identified. The paper describes and illustrates the new Chinese species with comparison with adults of allied ones.

Materials and Methods

The specimen was collected by trapping at Taibai, Qinling Mountains, Shaanxi Province, China. The specimen was slide-mounted in phenol-balsam after Wirth & Marston (1968) and Yu & Liu (2005). The morphological terminology and identification used in the study follow McAlpine et al. (1981), Liu et al. (2001), Spinelli et al. (2005), and Yu & Liu (2005). Diagnostic characters were observed and illustrated using a Leica MZ 12.5 stereomicroscope. Measurements of the wings, the flagellar segments, palpus segments, and legs are in millimeters (mm).

The type is deposited in the Insect Collection of Zunyi Medical University, Zunyi, Guizhou Province, China (ICZU).

Results

Forcipomyia (*Lepidohelea*) *qinlingensis* **sp. nov.** (Fig. 1).

DIAGNOSIS

The species of the subgenus *Lepidohelea* Kieffer is known by fore and mid femora light brown, hind femora brown, fore and mid tibiae light brown with light rings near base, hind tibia brown except near base, and extreme apex pale.

DESCRIPTION

Male. Head dark brown. Eyes bare, broadly abutting medially, shorter than length of 1 ommatidia. Antenna (Fig. 1A) with lengths of flagellar segments in proportion of 7:6:6:6:6:6:6:6:7:18:14:11:12, total length 1.11 mm; AR 1.27. Palpus (Fig. 1B) dark brown, lengths of segments in proportion of 5:5:10:4:5; 3rd segment moderately swollen at base, with deep sensory pit at swollen portion opening by rounded pore, there are numbers of sensilla chaeticae in pit; 4th and 5th segments separated; PR 3.33.

Thorax. Brown. Scutum dark brown, without pattern. Legs (Fig. 1C) brown; fore and mid femora light brown, hind femora brown; fore and mid tibiae light brown with light rings at base, hind tibia brown except its base and extreme apex pale; hind tibial comb with two rows of spines, apical row with 7 spines, subapical row with 20 spines; foreleg with lengths of F-T in proportion of 50:48:23:14:10:9:6, TR 1.64; mid-leg with lengths of F-T in proportion of 59:62:18:25:14:9:6, TR 0.72; hind leg with lengths of F-T in proportion of 61:69:19:24:15:10:7, TR 0.79; claws slender, curved; empodia present. Wing (Fig. 1D) brownish, with abundant dense macrotrichiae, darker anteriorly, cells r_1 ill-developed, r_2 well-developed, oval; light brown spots covering cells r_2, r_5, cu_1 and m_4; wing length 1.5 mm; width 0.43 mm; CR 0.44.

Abdomen. Tergites 2–8 brown with lateral pale patches and dense spines. Genitalia (Fig. 1F): Tergite 9 short, not extending to apex of gonocoxite, caudal margin rounded; cercus short, extending beyond margin of tergite 9; sternite 9 broad, with apicolateral processes and median excavation. Gonocoxite moderately stout, about 2 times longer than maximum width, yellowish brown except its middle part pale, with apical spines; gonostylus pale, slightly shorter than gonocoxite,

[1]Zunyi Medical University, Zunyi, Guizhou, 563099, P. R. China
*Corresponding author; E-mail: hxh19801122@163.com

Downloaded From: https://complete.bioone.org/journals/Florida-Entomologist on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

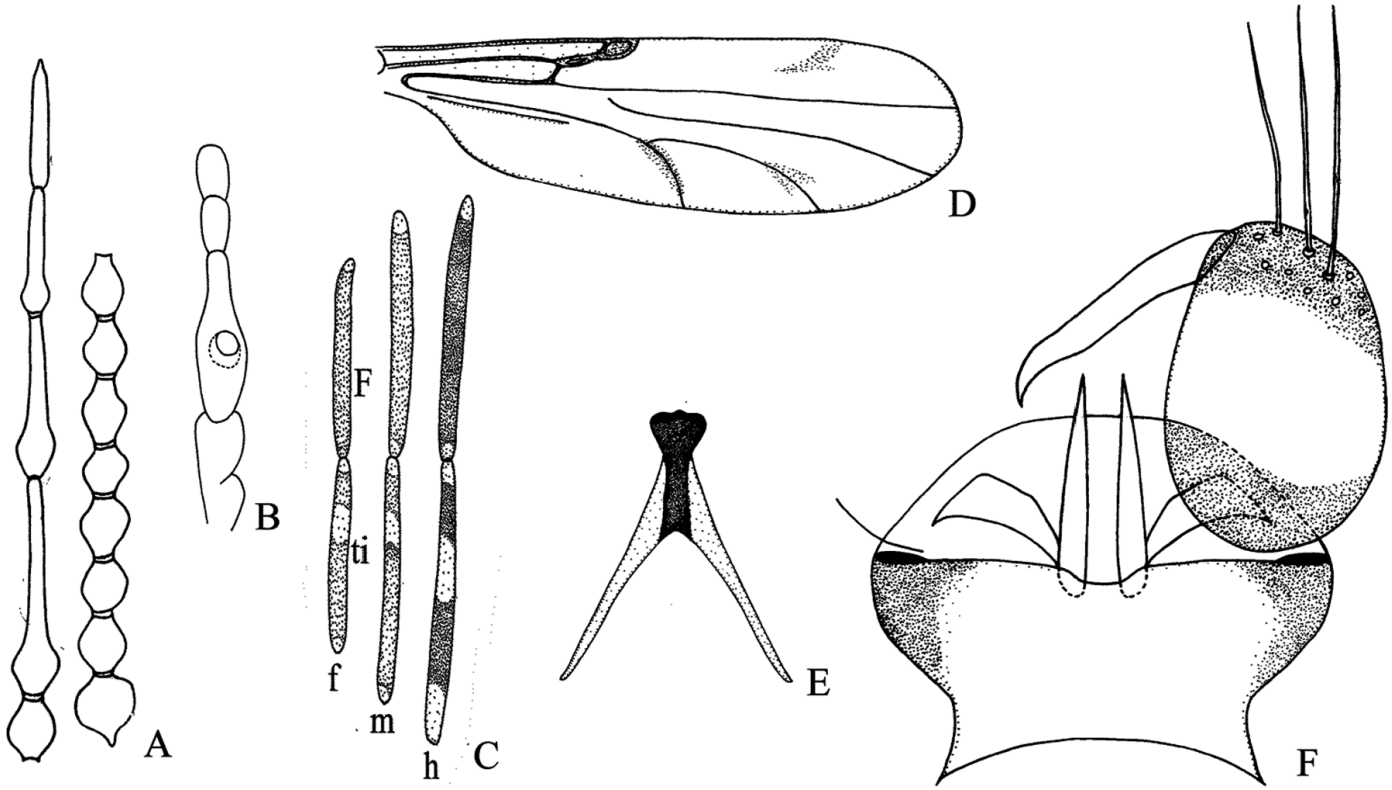


Fig. 1. *Forcipomyia* (*Lepidohelea*) *qinlingensis* **sp. nov.**, male; A: antenna; B: palpus; C: legs; D: wing; E: aedeagus; F: hypopygium, ventral view.

nearly straight, tip barely curved. Parameres disconnected at base, with 2 branches nearly parallel. Aedeagus (Fig. 1E) triangular, fused extending to ½ of total length, distal process resembling a stigma of female flowers, obtuse at apex.

FEMALE

Unknown.

DISTRIBUTION

China (Shaanxi Province).

TYPE

HOLOTYPE, 1 male, CHINA, Shaanxi Province, Qinling Mountains, vicinity of Taibai, 23-VIII-2013, leg. Xiaohui Hou.

REMARKS

This new species is similar to *F. qionghaiensis* Liu et Yu, 2001, but its adult differs clearly in 3rd segment of palpus swollen at the basal half, sensory pit in swollen portion, 4th and 5th segments separated; aedeagus with distal process thickened resembling a stigma of a female flower and branches of paramere nearly parallel.

ETYMOLOGY

The species is named for its type locality, the Qinling Mountains.

Key to adults of the species of the subgenus *Lepidohelea* in China

1.— Fore and mid femora of consistent color 2

1′.— Fore and mid femora brown at least at the base and apex 5

2.— Palpus segment 3 with a small sensory pit 3

2′.— Palpus segment 3 with a deep sensory pit 4

3.— Palpus segments 4 and 5 fused completely . . . . . *qionghaiensis*

3′.— Palpus segments 4 and 5 separated . . . . . *articulatus*

4.— Hind femora consistent in color . . . . . *qinlingensis* **sp. nov.**

4′.— Hind femora light at the basal 1/3, brown in apical 2/3 . . . . . *pectinis*

5.— Fore and mid femora brown at the base and apex . . . . . *palliscuta*

5′.— Fore, mid and hind femora brown at the base and apex 6

Downloaded From: https://complete.bioone.org/journals/Florida-Entomologist on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

6.— Fore and mid tibia with light rings at the middle 7

6'.— Fore tibia with basal, middle and apical rings or bands; mid tibia with mid and apical rings or bands only . . . . . *solutus*

7.— Hind tibia with light ring at the base, near the middle and at the apex . . . . . *pulcherrima*

7'.— Hind tibia with light ring at the middle and apex 8

8.— Scutellar bristles, 7 . . . . . *maculatus*

8'.— Scutellar bristles, 12 . . . . . *xichangensis*

Acknowledgments

We thank Prof. Y. X. Yu (Academy of Military Medical Sciences, Beijing, China) for reviewing the manuscript. This research was supported by the National Natural Science Foundation of China (No. 81360257), the Science and Technology Fund Project of Guizhou (No. LKZ [2011] 39), and the Education Department Fund Project of Guizhou (No. [2011] 56).

References Cited

Borkent A. 2014. World Species of Biting midges (Diptera: Ceratopogonidae), http://www.inhs.uiuc.edu/research/FLYTREE/Borkent.html (last updated 20-I-2014).

Kieffer JJ. 1917. Chironomides d'Australie conservés au musée national hongrois de Budapest. Annales Historico–Naturales Musei Nationalis Hungarici 15: 175-228.

Liu JH, Yan G, Liu GP, Hao B-S, Liu Z-J, Yu Y-X. 2001. Forcipomyiinae of China (Diptera: Ceratopogonidae) II. The genus *Forcipomyia* Meigen. Vol. 3: 4-256, Magnolia Press, Bellevue, Washington, USA.

Martínez A, Narváez Z, Spinelli GR. 2000. Mosquitas polinizadoras (Diptera: Ceratopogonidae) del cacao colectadas en comunidades Piaroa en Amazonas, Venezuela. Boletín de Entomología Venezolana 15: 249-253.

McAlpine JF, Peterson BV, Shewell GE, Teskey HJ, Vockeroth JR, Wood DM [eds.]. 1981. Manual of Nearctic Diptera. Volume I. Monograph 27. Canada Communication Group, Ottawa, Canada. 674 pp.

Meigen JW. 1818. Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten. Vol. 1. xxxvi + 333 pp., pls. 1-11. Beaufort Sohn, Aachen, Germany.

Spinelli GR, Ronderos MM, Diaz F, Marino PI. 2005. The bloodsucking biting midges of Argentina (Diptera: Ceratopogonidae). Memórias do Instituto Oswaldo Cruz 100: 137-150.

Wirth WW, Marston N. 1968. A method for mounting small insects on microscope slides in Canada balsam. Annals of the Entomological Society of America 61: 783-784.

Young AM. 1986. Notes on the distribution and abundance of midges (Diptera: Ceratopogonidae and Cecidomyiidae) in some Central American cacao plantations. Brenesia 24: 273-286.

Yu YX, Liu JH. 2005. Forcipomyiinae, *Forcipomyia* Meigen, 1818. pp. 468-692 *In* Yu YX [ed.], Ceratopogonidae (Insecta, Diptera) of China, Vol. 1. Military Medical Science Press, Beijing, China.

Downloaded From: https://complete.bioone.org/journals/Florida-Entomologist on 29 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use