Zootaxa 3795 (4): 489–493
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3795.4.8
http://zoobank.org/urn:lsid:zoobank.org:pub:06FCBD70-E034-4639-AAF0-D169DBBAB1DD

Aeshna shennong sp. nov., a new species from Hubei Province, China (Odonata: Anisoptera: Aeshnidae)

HAO-MIAO ZHANG[1] & QING-HUA CAI[1, 2]

[1]*State Key Laboratory of Freshwater Ecology and Biotechnology, Institute of Hydrobiology, Chinese Academy of Sciences, Wuhan 430072, China. E-mail: zhanghaomiao6988@gmail.com*
[2]*Corresponding author. E-mail: qhcai@ihb.ac.cn*

Abstract

Aeshna shennnong **sp. nov.** (holotype male: Dajiuhu national wetland park in Shennongjia National Nature Reserve, Shennongjia City, Hubei Province, China, 28. VIII. 2013) is described, illustrated and compared with its most similar congener, *A. petalura* Martin, 1908. The holotype will be deposited in the Collection of Aquatic Animals, Institute of Hydrobiology, Chinese Academy of Sciences, Wuhan City, Hubei Province, China. New distribution records of *A. petalura* from mainland China are also provided.

Key words: *Aeshna*, Anisoptera, China, Hubei, new species, Odonata

Introduction

Published records of odonates from Hubei Province in central China are very sparse, but some new *Cephalaeschna* species have recently been found there (Zhang *et al.* 2013). Although the climate in central China is not as advantageous for dragonflies as in the southern areas of the country, its species diversity is also considerable, with many species thus far found only there, such as *C. discolor* and *C. solitaria* (Zhang *et al.* 2013). The Shennongjia Mountains, located in the crossroads of the Palearctic and Oriental Realms, are expected to be home to many endemic Odonata. Since July 2012, a series of expeditions to the mountains were conducted, and a total of 80 species have been recorded by the end of 2013, including many species new to science.

In a fieldtrip to Dajiuhu National Wetland Park in July 2013, many rare species were collected, including two species of the genus *Aeshna*. One species might be a variation of *A. juncea*, but this could not be absolutely confirmed yet. The second species, which was still in its larval stage, was taken back for rearing. A female larva emerged successfully in late July. Then at the end of August, during a fieldtrip to the same park several specimens of both sexes were found, observed, and photographed. Compared with the "*Aeshna juncea"* complex this species differs by its male appendages and body markings. It is here described as new and compared with *A. petalura* Martin, 1908, the most similar species in Oriental China. New distribution records of *A. petalura* from mainland China are also provided.

Aeshna petalura Martin, 1908

Figures 8–10

Material examined. 9 ♂ 1 ♀, Mt. Emeishan (29°35'N, 103°23'E), altitude 1400 m, Emeishan City, Sichuan Province, China, Haomiao Zhang leg., 15–25 viii 2007; 1 ♂, Mt. Qingchenshan (30°54'N, 103°28'E), altitude 1100 m, Sichuan Province, Dujiangyan City, China, Haomiao Zhang leg., 31 viii 2007; 1 ♂, Mt. Doupengshan (26°21'N, 107°23'E), altitude 1100 m, Duyun City, Guizhou Province, China, Haomiao Zhang leg., 31 viii 2012.

Distribution. Bhutan, China (Sichuan, Guizhou, Guangxi and Taiwan), India and Nepal.

Accepted by D. Paulson: 4 Apr. 2014; published: 14 May 2014

Paratype female. Head (Fig. 7) and thorax (Fig. 3) very similar to the male, but face paler.

Abdomen shorter and thicker than in males, with more developed yellow markings except postero-dorsal band, which is pale sky blue (Fig. 4). Lateral side of S1 with a very large spot. Dorsum of S2 with an anterior spot and paired median and posterior spots; side of S2 largely yellow. Dorsum of S3–6 with triangular anterior spots, paired median and posterior spots, and lateral sides of S3–6 with developed anterior, median and posterior spots. Dorsum of S7 with very small paired anterior spots and paired median and posterior spots; sides of S7 with anterior and median spots. S8 with paired posterior spots on dorsum and paired lateral spots closer to anterior margin. S9–10 entirely black. Vulvar lamina as illustrated in Figs.14–15. Cerci black, 1.5 times as long as S10. Ovipositor short, tip slightly exceeding end of S9.

Measurements (mm). Holotype: total length 74.0, abdomen (including anal appendages) 56.0, hind wing 46.5. Paratype male: total length 69.0; abdomen (including anal appendages) 52.5, hind wing 45.0. Paratype females: total length 65.0–68.0; abdomen (including anal appendages) 48.0–52.0, hind wing 46.5–48.5.

Distribution. China (Shennongjia, Hubei).

Diagnosis. A brightly marked robust aeshnid, with unique thoracic maculation and anal appendages among Chinese species of Aeshna. This species is very similar to *Aeshna petalura* Martin, 1908 in the structure of male cerci. These two species possess distally expanded male cerci, which allow distinguishing their males from those of all other described species of *Aeshna* thus far recorded from China. *A. shennong* is smaller than *A. petalura*, and its body markings, especially its thoracic stripes, help separate both male and female from *A. petalura*. In *A. petalura,* there are two broad yellowish or greenish stripes across the mesepimeron and metepimeron respectively, separated by a brown area as wide as each stripe, whereas in *A. shennong* there is a large yellowish or greenish spot covering most of mesepimeron and metepisternum, and the metepimeron is also almost entirely yellowish or greenish yellow (Figs. 1, 3). The apical teeth of the male cerci are much shorter and stronger and visible in dorsal view in *A. shennong* (Figs. 8, 11), longer and thinner and not visible in dorsal view in *A. petalura* (Figs. 9, 12). In posterior view, the teeth are directed latero-externally at about 90° from the cercus hind margin in *A. shennong* (Fig. 13) and ventrally or medio-ventrally in *A. petalura* (Fig. 9).

Notes on biology. The average altitude of Dajiuhu wetlands is above 1700 m. There are over 20 lakes and ponds of different sizes in the wetlands park, and their microhabitats seem to be different. *Aeshna shennong* was found only at one pond with abundant emergent aquatic vegetation hidden at the foot of the mountain. Only a few males were observed, and females were more abundant in late August. Emergence was recorded during early July, and in late August most specimens were aged, but three specimens (including one paratype male and two female paratypes) were still relatively young and in good condition. Males flew about 3–5 meters above the ponds, usually patrolling for a short time before flying away. Females were seen in greatest numbers around noon and were wary and careful when approaching water. They hovered for nearly one minute and then perched on stems of emergent aquatic plants, laying eggs on the stems at about 20–50 cm above water (Figs. 16–17).

Acknowledgements

Special thanks are given to Wen-Chi Yeh for his help with the identification of the new species. This work was funded by Special Project of Background Survey for Resources in Mt Shennongjia Area (2012SNJ002), the Major S & T Special Project of Water Pollution Control and Management (2012ZX07104-002) and FEBL Research Grant (2011FBZ02).

References

Asahina, S. (1938) Eine neue Aeschna aus Formosa (Odonata, Aeschnidae). *Annotationes Zoologicae Japonenses*, 17, 541–547.

Martin, R. (1908) Aeschnines. Catalogue systématique et descriptif. *Collections Zoologiques Baron Edm Selys Longchamps*, 18, 1–84.

Wilson, K.D.P. (2005) Odonata of Guangxi Zhuang Autonomous Region, China, part II: Anisoptera. *International Journal of Odonatology*, 8, 107–168.
http://dx.doi.org/10.1080/13887890.2005.9748247

Zhang, H.M., Cai, Q.H. & Liao, M.Y. (2013) Three new *Cephalaeschna* species from central China with descriptions of the hitherto unknown sex of related species (Odonata: Aeshnidae). *International Journal of Odonatology,* 16, 157–176.
http://dx.doi.org/10.1080/13887890.2013.782530