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Verification and Distribution of Genus Aeschnophlebia Selys (Odonata: Aeschnidae) in China 【Scientific note】

對綠蜓屬(蜻蜓目：蜓科)種類在中國分布之詮釋【科學短訊】

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Abstract

This article discusses the identity of two species of Aeschnophlebia Selys 1883, A. anisoptera Selys and A. logistigma Selys, in China. The author fully recognizes the presence of the latter by the specimen obtained from Nanjing and Yuntai Mountain in the northern part of Jiangsu Province. A. anisoptera Selys is not present in China. Descriptions and illustrations of these two species are provided. This article also states that A. kolthoffi Sjostedt 1925 is a new synonym of A. logistigma Selys 1883.

摘要

本文主要討論綠蜓屬(Aeschnophiebia)的長痣綠蜓(A. longistigma Selys)和黑紋綠蜓(A. anisoptera Selys)二個種在中國的分布問題。著者根據江蘇南京和北部雲台山的標本研究，証明尼登 (Needham J. G.) 1930 年在中國紀錄長痣綠蜓分布河北、江蘇是正確的，並指出1966 年日本學者朝比奈正二郎 (Asahina S.) 和中國學者對黑紋綠蜓分布中國的意見和結論是錯誤的。文中對上述二個種的分類特徵作了簡述或附有成蟲部分特徵圖。並核定克氏綠蜓(A. kolthoffi Sjostedt, 1925)為長痣綠蜓的新異名。

Key words: verification, Aeschnophlebia, distribution, China.
關鍵詞: 詮釋、綠蜓屬、分布、中國

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Verification and Distribution of Genus *Aeschnophlebia* Selys (Odonata: Aeschnidae) in China

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ABSTRACT

This article discusses the identity of two species of *Aeschnophlebia* Selys 1883, *A. anisoptera* Selys and *A. logistigma* Selys, in China. The author fully recognizes the presence of the latter by the specimen obtained from Nanjing and Yuntai Mountain in the northern part of Jiangsu Province. *A. anisoptera* Selys is not present in China. Descriptions and illustrations of these two species are provided. This article also states that *A. kolthoffi* Sjostedt 1925 is a new synonym of *A. logistigma* Selys 1883.

Key words: verification, *Aeschnophlebia*, distribution, China.

Introduction

Selys (1883) erected the genus *Aeschnoplebia*, consisting of 3 species, *A. optata, A. longistigma,* and *A. anisoptera*; with *A. optata* as its type species. Sjostedt (1925) described a new species, *A. kolthoffi* from Jiangsu, China; Belgsev (1965) described another new species, *A. zygoptera* from eastern USSR.

Needham (1930) published a book *A Manual of the Dragonflies of China*, in which two species of *Aeschophlebia*, *A. longistigma* Selys from Hopei and Nanking, and *A. kolthoffi* Sjostedt from Jiangsu were includued. Needham redescribed *A. longistigma* Selys based on van Dyke's collection of specimens. Needham saw no specimen of *A. kolthoffi* Sjostedt from China; his notes were taken from the original description of the species. Wu (1935) in *Catalogus Insectorum Sinensium-Odonata* stated there are three species of *Aeschnophlebia* in China, *A. anisoptera* Selys, *A. longistigma* Selys, and *A. kolthoffi* Sjostedt, according to references. Asahina (1966) considered Needham's record (1930) on *A. longistigma* to be wrong, and that it should be corrected as *A. anisoptera* after he examined the Chinese specimen labelled by Needham as "*A. longistigma* Selys ♂, 1♂ Soochow, China, IV-28-23, presented by E. C. VanDyke" kept in Californai, USA. Asahina examined the type species "*optata*" in Brussels Museum, Belgium in August 1953. He found "*optata*" to be a specimen of *Planaeshna milinei* Selys with abnormal wing veins and an incomplete abdomen. Sui and Sun (1984) published a book entitled *Common Species of Dragonflies from China* showing that *A. anisoptera* Selys was found in Peking, China, and providing a detailed description

as well as three figures and one photo. Allen *et al*. (1985) published *A Systematic List of the Extant Species of Odonata*, which cited 5 species of this genus. Hamada and Inoue (1985) in *The Dragonflies of Japan in Color* agreed that *A. longistigma* Selys is distributed in Japan, northern and central China, and the Korean Peninsula, and that *A. anisoptera* Selys is distributed only in Japan. In 1986, Sui and Sun reiterated that *A. anisoptera* Selys is distributed in Peking. Ishida *et al* (1991) in their I*llustration Guide for Identification of the Japanese Odonata*: showed an identical piont of view with Hamada and Inoue (1985). Han (1990) reported that a large quantity of *A. anisoptera* Selys can be found in June at Qufu, Shandong, China. Zhao (1994) in his paper illustrated the larval characteristics of Chinese dragonflies and showed distributions of two species of this genus in China, *A. anisoptera* Selys and *A. longistigma* Selys, with three figures.

Taxonomic characteristics of Genus *Aeschonphlebia* Selys 1883

Adult green with black markings, wings yellow in which sub-costal veins appear to extend 1 or 2 cells beyond nodus, at least in fore wing. Sectors of arculus arise near middle, vein Rs is symmetrical. Radial planate is convex to rearward and separated from Rs by 2 rows of cells.

Aeschonphlebia longistigma Selys

Aeschonphlebia longistigma Selys, 1883: Ann. Soc. Ent. Belg. 27: 123, ♂, Japan. - Liu, 1929. Peking Soc. Nat. Hist. Bull. 3(IV): 7-19. - Needham, 1930. Zool. Sin. 11(1): 85-88. - Wu, 1935. Catalogus Inst. Sin.: 263. - Asahina, 1957. Shin-Konchu 10(8): 53. - Allen *et al*., 1985. System. List Extant, Sp. Odon. 2 (5): 7. - Hamada and Inoue, 1985. The Dragon. Jap. in Colour 2: 225. - Ishida *et al*., 1991. Illus. Guide Iden. Jpn. Odon. pls. 34, 72; figs. 36, 68, 93. - Zhao, 1994. Aqua. Insect China Use. Monit. Water Qual.: 139-140.

Aeschophlebia kolthoffi Sjostedt, 1925: Ark. Zool. 17A, 14: 1-5 (new synonym).

Aeschophlebia anisoptera: Asahina, 1966. Kontyu 34(2): 131-135. - Sui and Sun, 1984. Comm. Sp. Dragonflies China: 23-25. - Sui and Sun, 1986. Agric. Inst. China: 1-10. - Han, 1990. J. Qufu Norm. Univ. 16: 75-76.

Materials examined: JIANGSU: Yuntai Mt., 10♂5♀, 10-VI-1987; 5♂4♀, 25-V-1989; 6♂2♀, 22-VI-1993; 5♂1♀, 20-VI-1995. JIANGSU: Nanking, 5♂3♀, 15-V-1992; 11 ♂ 2 ♀, 10-VI-1992, Y-H Jiang.

Description: Face green with 4 black cross stripes, a narrow one on front border of labrum, a broad one covering whole anteclypeus and part of postclypeus, one on front-clypeal suture, and uppermost one on crest of frons. Latter from top of a conspicuous T-spot, base of which becomes confluent with broad black cross stripe through ocelli, which stripe covers vertical tubercle except for a yellow area in its middle fork. Occiput greenish with black angle.

Front of synthorax green with a black middorsal stripe, 4 rayed, upon crest above, enclosing spots of green within crest, and confluent at ends of crest with another black stripe that covers upper end of humeral suture but diverges forward from its below. Sides green with a little black in depths of third suture at both ends. Legs red almost to knees, black beyond. Wings hyaline, tinged with yellow, with pale costa and tawny stigma.

Abdomen blackish with interrupted, middorsal and lateral stripes toward base, latter one extending to apex in female, sometimes obscure in male. There are touches of yellow on bases of appendages and ovipositor black.

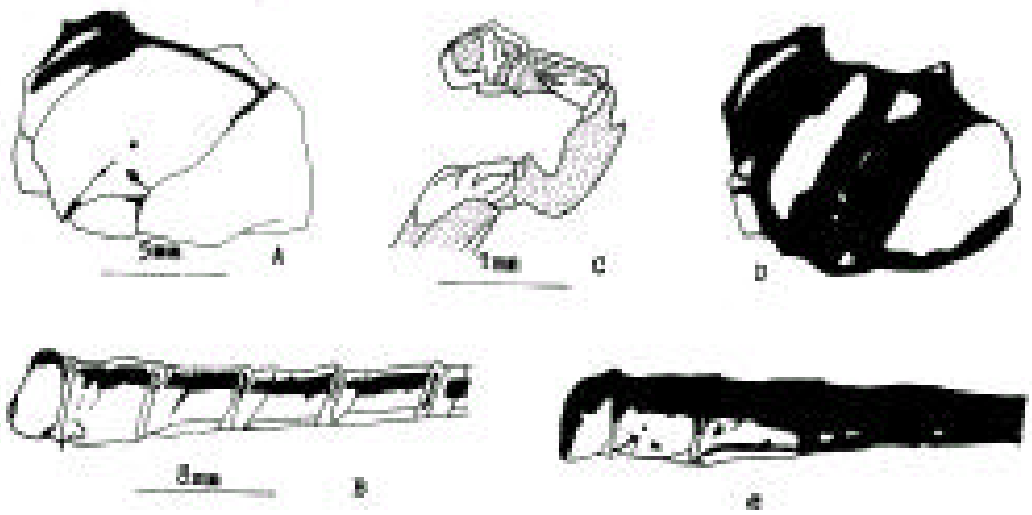

Fig. 1. Characteristics of *A. longistigma* and *A. anisoptera*. A-C: *A. longistigma* , A: synthorax, lateral view; B: abdomen in part, lateral view; C: aedeagus, lateral view. D-E: *A. anisoptera*, D: synthorax, lateral view; E: abdomen in part, lateral view. (D and E, from Ishida *et al.*, 1991).

Aeschnophlebia anisoptera Selys

Aeschnophlebia anisoptera. Selys, 1883: Ann. Soc. Ent. Belg. 27: 123; - Navas, 1933: Notes d'Ent. Chin. 1(9): 1; - Wu, 1935: Catolg. Inst. Sin.: 263; - Asahina, 1957: Shin-Konchu, 10(8): 53-54; - Asahina, 1958: Asahina, Iconogr. Ins. Jpn.: 152; - Allen *et al*., 1985: System. List Extant Sp. Odon. 2(5): 7; - Hamada and Inoue, 1985: The Dragonflies Jpn. in Colour 2: 224-226; - Ishida, *et al*., 1991: Illus. Guide Iden. Jpn. Odon. p. 78; pls. 34; figs. 36, 93; - Zhao, 1994: Aqua. Insect Chin. Use. Monit. Water Qual.: 139-140.

Description: This species was not seen by the author. The following descriptions are taken from Japanese literature.

Anteclypeus black, front margin of postclypeus with brown, frons with a conspicuous T-spot.

Synthorax with more black, 3 stripes complete on synthorax sides. Between 1st and 2nd stripes with green yellow mark; 2nd and 3rd stripes with green-yellow spots discontinuous, with 2 spots above spiracle, a spot below spiracle. Wings hyaline, stigma dark brown, wing base red brown, especially in fore wing. Brown marking on wingtip.

Abdomenal segments 1 and 2 with complete dorsal stripe, abdomen also with green yellow spots on posterior margin and middle of abdominal segments, segment 10 entirely black. Auricle black at base.

Larva with dorsal hooks on segments 8 and 9.

Discussion

Species of this genus seem to be narrowly distributed only in eastern Asia and eastern Ussuri. I studied *A. kolthoffi* Sjostedt, in 1987-1998 and found it is a synonym of *A. longistigma* Selys. This genus actually consists of 3 species.

Needham's description (1930) of *A. longistigma* is correct. However, there are possibilities that the specimen seen by

Asahina was wrongly labeled. Sui and Sun (1984) has noted the presence of *A. anisoptera* Selys from Peking, China. Judging from their description, I believe that "*A. anisoptera* Selys" is actually *A. longistigma.* Han (1990) reported that *A. anisoptera* Selys was distributed in Qufu of Shandong, China. But the only reference he consulted was *Common Species of Dragonflies from China* by Sui and Sun (1984). There is no doubt that their "*A. anisoptera*" was *A. longistigma*

The author studied dragonflies of Yuntai Mountain in the northern part of Jiangsu Province and found that *A. longistigma* Selys is very common, especially from May to July. Large quantities can be found near streams and rivers on the plains, while fewer numbers can be found at elevations above 100 meters where they fly low among grasses and shrubs at the edge of forests. They are weak flyers, and are easily captured. The author once saw this species flying at the side of a small river about 1 km from the coast. It may fly after sunset until it is completely dark.

Overall, the author considers that Needham's (1930) record was reliable. *A. longistigma* seems to have a continuous distribution from China (Jiangsu; Shandong; Hopei and northeast China) to Japan through the Korean Peninsula. It can be concluded from many aspects that the definition made by Asahina in 1966 about the distribution of *A. anisoptera* Selys in the Yangtze River valley of China is not tenable.

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對綠蜓屬(蜻蜓目：蜓科)種類在中國分布之詮釋

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摘　要

本文主要討論綠蜓屬(*Aeschnophiebia*)的長痣綠蜓(*A. longistigma* Selys)和黑紋綠蜓(*A. anisoptera* Selys)二個種在中國的分布問題。著者根據江蘇南京和北部雲台山的標本研究，証明尼登 (Needham J. G.) 1930 年在中國紀錄長痣綠蜓分布河北、江蘇是正確的，並指出 1966 年日本學者朝比奈正二郎 (Asahina S.) 和中國學者對黑紋綠蜓分布中國的意見和結論是錯誤的。文中對上述二個種的分類特徵作了簡述或附有成蟲部分特徵圖。並核定克氏綠蜓(*A. kolthoffi* Sjostedt, 1925)為長痣綠蜓的新異名。

關鍵詞：詮釋、綠蜓屬、分布、中國。