

Descriptions of *Cephalaeschna zhuae* sp. nov. (Odonata: Aeshnidae) from Yunnan, China

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Abstract: *Cephalaeschna zhuae* Yang sp. nov. (holotype ♂, from Yunnan Province in China) is described and illustrated, and compared with known Chinese species of *Cephalaeschna*. This new species has a distinct bicolor dorsal carina and special colors on the legs, which can distinguish it from other species of the genus *Cephalaeschna*.

Key words: dragonfly; Aeschnoidea; taxonomy; checklist

中国头蜓属一新种记述（蜻蜓目：蜓科）

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摘要：记述头蜓属1新种：朱氏头蜓 *Cephalaeschna zhuae* sp. nov.，该种明显的双色背脊及足部特殊的色彩可与头蜓属其他已知种相区别。

关键词：蜻蜓；蜓总科；分类；名录

Introduction

The genus *Cephalaeschna* was erected by Selys (1883) with *C. orbifrons* Selys, 1883 as type species. This genus presently includes 26 species (Asahina 1981a, b, 1982; Karube 2003, 2011; Wilson & Xu 2008; Xu 2006; Zhang 2013; Zhang *et al.* 2013; Zhang & Cai 2013; Zhang 2019) which are mostly distributed in Indo-China and the southern part of East Asia. Of these, 14 have been reported from mainland China. In this study, we describe a new species recently collected from Yunnan Provinces in China.

Taxonomy

Checklist of *Cephalaeschna* from China

C. patrorum Needham, 1930 — Beijing, Shanxi, Henan, Sichuan

C. obversa Needham, 1930 — Hubei, Sichuan, Guizhou

C. risi Asahina, 1981 — Fujian, Taiwan

Accepted 30 August 2019. Published 25 September 2019. Published online 19 September 2019.

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- C. shaowuensis* Xu, 2006 — Fujian
C. needhami Asahina, 1981 — Fujian, Guangxi, Jiangxi
C. klotsi Asahina, 1982 — Fujian, Guangdong, Guangxi, Hong Kong, Zhejiang
C. chaoi Asahina, 1982 — Fujian
C. dinghuensis Wilson, 1999 — Guangdong
C. discolor Zhang, Cai & Liao, 2013 — Hubei
C. mattii Zhang, Cai & Liao, 2013 — Hubei, Sichuan
C. solitaria Zhang, Cai & Liao, 2013 — Hubei
C. cornifrons Zhang & Cai, 2013 — Yunnan
C. ordopapilionis Zhang & Cai, 2013 — Yunnan
C. xixiangensis Zhang, 2013 — Shanxi

***Cephalaeschna zhuae* Yang sp. nov.** (Figs. 1, 2)

Holotype. ♂, **China**, Yunnan Province, Dulongjiang Autonomous Prefecture of Nujiang, Gongshan County, 01-X-2018, Guohui YANG leg.; **Paratype.** 1♂, same site and collector, 30-IX-2018. Types are deposited in the Collection of the College of Agriculture and Life Sciences, Dali University, Yunnan, China.

Etymology. The specific epithet *zhuae*, commemorates Professor Huiqian ZHU, an expert in dragonfly science in China.

Head. Face is mostly yellowish-green, with brown as follows: labium, mandibles, edge of labrum, anteclypeus and antenna pale brown. Frons fundamentally greenish-brown with long blackish hairs, about 1/2 width of head, with deep brown inverted “V” mark in frontal view and unclear dark brown “T” mark dorsally. Occiput bottle green, coated with long blackish hairs. Frontal view of head as shown in Fig. 1(B, E).

Thorax. Prothorax brown, with long yellowish hairs. Synthorax black. Dorsal carina 1/3 yellow, dorsal stripes on mesepisternum roughly triangular and bent slightly outwards; mesepimeron stripe broad, connects with a long triangular spot on the upper end of metepisternum; epimeron with broad triangular patch. Legs mainly black, the tibiae and claw brownish yellow, the base of femora with yellowish-green spot (Fig. 1A). Wings hyaline, tinted with brown at extreme base and infused with smoky brown in all wings. Membrane present, short, limited to petiole of wing. Pterostigma black braced at its proximal side, 2.5 mm in length, covering 3.5 cells. Nodal index: 23–225: 21–22 / 18–18: 20–20; triangle 6-celled in forewings, 5-celled in hind wings, anal loop 10-celled; anal triangle 5-celled. The wing venation as shown in Fig. 1(A, J).

Abdomen. Black brown with greenish-yellow markings. Basal 3 segments markedly inflated. S1 black, marked with greenish-yellow on both sides. Sides of S2 with a greenish-yellow ventral of auricle, a narrow middorsal stripe discontinuous in middle; S3 marked with triangular spots on middle of dorsum, large basal lateral triangular spot, S4–S7 marked with greenish-yellow spot on sides, connecting with a pair of small triangular spots on middle dorsum, and big triangular spots on apical portion of dorsum of S4–S6, becoming a small triangular spot on S7; S8–S9 marked with small basal ventrolateral spots, S10 black (Figs. 1C, D).

Superior appendages. black, about 2.0 times as long as S10. In lateral view, curved upwards, narrowed before midpoint, about 1/3 distance from the base, in dorsal view,

expanded in apical 2/3, with pointed tips. Inferior appendage black brown, about 2/3 length of superior appendages (Figs. 1F, G). Penis black and brown, the prominence on the stem slightly hooked, the distal segment with a pair of slim flagella (Fig. 1I).

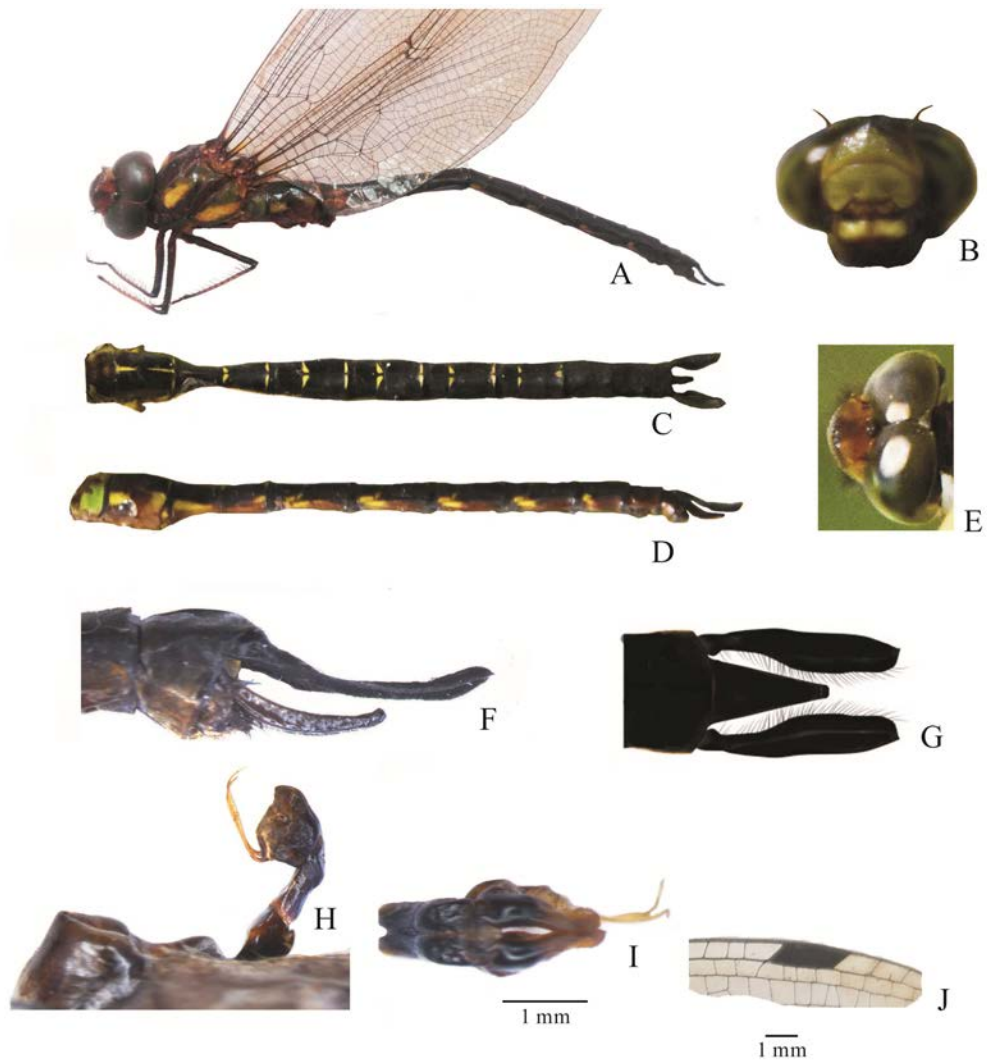


Figure 1. *Cephalaeschna zhuae* sp. nov., holotype, ♂ (A–I). A. Body, lateral view; B. Head, frontal view; C. Abdomen, dorsal view; D. Abdomen, lateral view; E. Head, dorsal view; F. Appendages, lateral view; G. Appendages, dorsal view; H. Penis, lateral view; I. Penis, ventral view; J. Leading edge of wings and pterostigma.

Diagnosis. This new species is distinguished from other species by the colour of legs and dorsal carina. It is closely similar to *C. risi* and *C. masoni*, both with a black body, green and yellow thoracic stripes, green eyes and bi-colored legs, but this new species is different from *C. risi* and *C. masoni* by “T” mark on fron, and the structure of appendages, with the inferior appendage 2/3 length of superior appendages, but slightly beyond by half of superior appendages in *C. risi* and *C. masoni*. Detailed differences between the three taxa are discussed

in Table 1.

Female. Unknown.

Measurements. Abdomen (incl. appendages) 53 mm, hind wing 44 mm.

Distribution. China (Yunnan).



Figure 2. *Cephalaeschna zhuae* sp. nov, holotype, ♂. A. Body, dorsal view; B. Body, lateral view.

Table 1. Comparison of characters of males of *Cephalaeschna zhuae*, *C. risi* and *C. masoni*

Character	<i>C. zhuae</i>	<i>C. masoni</i>	<i>C. risi</i>
Frons/head ratio	$\leq 1/2$	$> 1/2$	$\leq 1/2$
Top of frons	With “T” mark	Without “T” mark	Without “T” mark
Dorsal carina	Mainly black with small yellow spot	Black	Largely yellow
Pterostigma	Black	Black	Reddish brown
Legs	Mainly black, femur black, claw brownish yellow.	Mainly reddish brown, femur from distal 1/3–1/4 to the base of tibia black, claw black	Mainly brownish yellow, femur from distal 1/5 to the base of tibia black, claw black
Abdominal colour pattern	Black brown, middorsal line undeveloped	Black brown, middorsal line undeveloped	Narrow transverse stripes only
Superior appendages	Narrowed at 1/3 from base in lateral view; expanded in apical 2/3 in dorsal view; bent in lateral view	Slightly narrowed 1/3 from base in lateral view; expanded in apical 1/2 in dorsal view.	Slightly narrowed 1/3 from base in lateral view; expanded in apical 2/3 in dorsal view.
Inferior appendage	About 2/3 length of superior appendages	About 1/2 length of superior appendage	About 1/2 length of superior appendage

Acknowledgements

The project is funded by National Natural Science Foundation of China (31260520; 31760126) and Collaborative Innovation Center for Biodiversity and Conservation in the Three Parallel Rivers Region of China.

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