

***FUKIENOGOMPHUS CHOIFONGAE* SPEC. NOV.
FROM HONG KONG AND A NEW RECORD
OF *CEPHALAESCHNA KLOTSI* ASAHINA
(ANISOPTERA: GOMPHIDAE, AESHNIDAE)**

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The new sp. is described from NE New Territories of Hong Kong. (Holotype ♂: Wu Kau Tang, Hong Kong, 14-IV-2004; deposited with the Biodiversity Conservation Division, Agriculture, Fisheries and Conservation Department, Hong Kong). It is compared with the congeners, and notes on larval habitat are given. New records and illustrations of both sexes and exuviae of *C. klotsi* are provided from Ng Tung Chai, central Hong Kong.

INTRODUCTION

In 2002, the Agriculture, Fisheries and Conservation Department (AFCD) established a Dragonfly Working Group tasked with undertaking comprehensive surveys of odonates throughout Hong Kong and its territories. During 2002 and 2003 several new species records were discovered from Hong Kong, which were reported in WILSON (2003). A new species of *Fukienogomphus* was discovered by the team at Wu Kau Tang in April 2004, which is described here. In addition material of *Cephaleaschna klotsi* Asahina was collected by AFCD staff from Ng Tung Chai, a montane ravine in Tai Mo Shan Country Park. *C. klotsi* is a rare species only previously known from two specimens from Fujian. Drawings and details of the material collected are provided below.

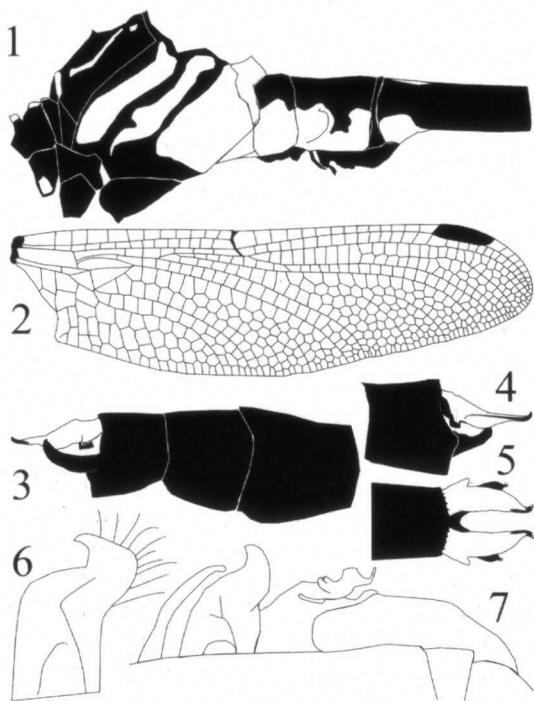
FUKIENOGOMPHUS CHOIFONGAE SPEC. NOV.

Figures 1-12

Material. – **Holotype** ♂ (teneral), Wu Kau Tang, Hong Kong, 14-IV-2004, J.K. Wong leg. – **Paratypes:** 1 ♂ (teneral), Wu Kau Tang, Hong Kong, 14-IV-2004, J.K. Wong leg.; – 1 ♀ (teneral), do., 20-IV-2005, 10 exuviae, do., 20-IV-2005, J.K. Wong & B.S.P. Kwan leg. – **Other material:** 1 ♂, 1 ♀ (teneral), Wu Kau Tang, collected 11-III-2005 as larvae, emerged 11-IV-2005 and 9-IV-2005 respectively, T.K. Woo leg.; – 1 exuvia, do, 14-IV-2004, J.K. Wong leg.; – 13 exuviae, do., 20-IV-2005, coll. K.D.P. Wilson. – Holotype and paratype material will be deposited with the Biodiversity Conservation Division, Agriculture, Fisheries and Conservation Department, 6/F, Cheung Sha Wan Government Offices, 303 Cheung Sha Wan Road, Kowloon, Hong Kong SAR, China.

Etymology. – Named in the memory of *Choi Fong* the grandmother of the discoverer Miss Joyce Wong Kin.

DESCRIPTION. – Small *Fukienogomphus* with a uniformly black metakatepisternum.



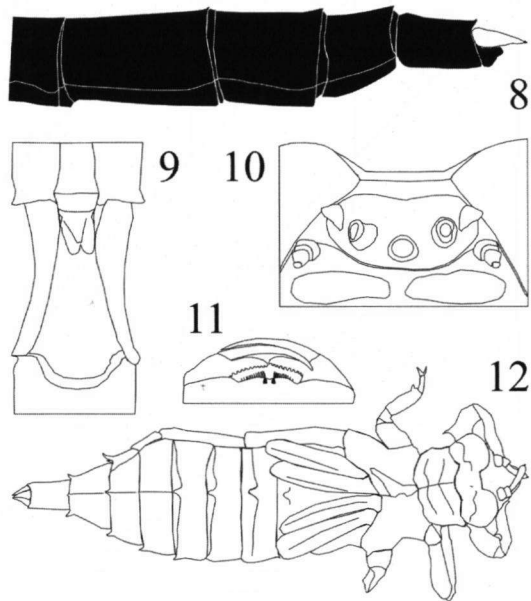
Figs 1-7. *Fukienogomphus choifongae* sp. n., ♂, Wu Kau Tang, Hong Kong: (1) thorax and basal abdomen, lateral view; – (2) hindwing; – (3) caudal appendages, lateral view; – (4) caudal appendages (left superior appendage removed) lateral view; – (5) caudal appendages, dorsal view; – (6) posterior hamulus; – (7) secondary genitalia, lateral view.

Male. – Face predominantly black with broad yellow transverse stripe across frontal crest of frons. Front of frons black. Labium, labrum, clypeus and top of head entirely black. Base of mandibles yellow. A minute peg, between lateral ocelli and the eye, located very close to the eye margin. A smoothly rounded, protuberance above each lateral ocelli beset with long black hairs and connected by low ridge also hirsute. Ridge of occiput gently undulated to form m-shape. Prothorax black, with yellow spot on dorsum of frontal and central lobes and small quadrate yellow spot at centre of hind lobe. Synthorax black with yellow frontal collar not connected at centre. Dorsal crest black and raised to a sharply pointed protuberance (see Fig. 1.) Yellow dorsal stripe not connected to

collar stripe. Antehumeral stripe reduced to small isolated spot below fore wing. Sides of synthorax shiny black with yellow stripes across mesepimeron and metepisternum. Metakatepisternum entirely black. Metepimeron and metaposternum yellow. Coxae and legs black. Wings hyaline (hindwing illustrated in Fig. 2.) Anal triangle 3-celled. Abdomen slightly longer than hindwing. S1 of abdomen yellow below, black above, with large round, yellow spot on dorsum. A thick fringe of long black hairs runs from the central base of dorsum to each side of S1, terminating at the distal lateral margin. S2 black and mainly yellow below and invaded black behind yellow auricle with broad yellow line along dorsal carina, which is broadest towards base. S3-7 black with short narrow yellow line at anterior part of dorsal carina. S8-10 entirely black. Superior appendages broad at base and narrowing sharply beyond mid-point with curved, pointed tip. At its base a prominent, outward pointing, lateral peg and a prominent, square-shaped peg at inner, lateral margin pointing downward. The superior appendage is mainly white above with inner lateral peg and distal tip black. Ventral margin and tip of outer lateral peg also black. The caudal appendages are illustrated in Figures 3-5. Figure 4 shows the left side superior appendage removed to reveal the inner margin of the right superior appendage. Inferior appendage black. Secondary genitalia illustrated in Figure 7. A frontal view of the posterior hamulus is shown in Figure 6. It has a long straight section below the hooked tip.

F e m a l e . — The female has a similar colour pattern to the male, except the female has a hint of faint yellow on the metakatepisternum, which is otherwise black. Occipital margin uniformly straight but the vertex has a prominent pair of pegs, each located between the lateral ocelli and the eye margin (Fig. 10). Segment 10 of abdomen slightly longer than segment 9 (Fig. 8). Cerci white. The prominent valvula vulvae are divided by a short v-shaped indentation (Fig. 9).

E x u v i a e ♂. — Anterior margin of prementum is



Figs 8-12. *Fukienogomphus choifongae* sp. n., Wu Kau Tang, Hong Kong: (8) ♀, caudal abdomen, lateral view; — (9) ♀, valvula vulvae; — (10) ♀, top of head; — (11) exuviae, anterior margin prementum and palpal lobes; — (12) exuviae, dorsal view.

gently undulating and fringed with hairs (Fig. 9.) At the centre of the anterior margin of the prementum is a pair of minute, dark brown teeth, which do not project beyond the edge. Inner margin of palpal lobe with quadrate teeth (Fig. 8). The tenth abdominal segment is narrow and elongated.

DIFFERENTIAL DIAGNOSIS. — TSUDA (2000) lists three species of *Fukienogomphus*, all restricted to China. These species are *prometheus* Lieftinck, known from Fujian, Guangdong, Hainan and Hong Kong (WILSON & REELS, 2001), *promineus* Chao, known only from Fujian and *margarita* Chao. *F. margarita* was described, from a larvae, at the same time as *promineus* (CHAO, 1954) and later synonymised with *promineus* by Chao (ZHAO, 1990). Male *prometheus* material collected from Guangdong is much larger than Hong Kong *F. choifongae*. The hindwing is 40–42 mm compared with Hong Kong specimens circa 33.0–35.0 mm. *F. promineus* is even larger than *prometheus* with a hindwing of 48–54 mm (ZHAO, 1990). The superior appendages and secondary genitalia of *prometheus* are very similar to *choifongae*. Both the inferior appendages of *prometheus* and *promineus* are considerable more divaricate than *choifongae*, which has an inferior appendage with a fork angle of almost 90°. There are clear structural differences in the shape of the posterior hamulus. Both *prometheus* and *promineus* have a relatively small, rounded indentations below the hooked tip of the posterior hamulus, whereas *choifongae* has a large indentation with a straight inner margin. In addition, *choifongae* has a black metakatepisternum, which in *prometheus* and *promineus* is coloured yellow.

The female can be separated from *prometheus* and *promineus* by the relative length of the v-shaped gap separating the two valves of the valvula vulvae. In *choifongae* the gap is short, less than the width of the valves, whereas the inden-

Table I
Exuviae counts from three 20 m pool section transects, both sides of stream,
at Tin Sam Stream, Wu Kau Tang, 20-IV-2005

	Downstream Tin Sam village	Adjacent to Tin Sam village (upper boundary)	Upstream Tin Sam village
<i>Fukienogomphus choifongae</i> sp. n.	0	3	20 (1 female actively emerging)
<i>Asiagomphus hainanensis</i> (Chao, 1953)	13	34	30
<i>Burmagomphus vermicularis</i> (Martin, 1904)	0	2	0
<i>Leptogomphus hongkongensis elegans</i> Asahina, 1988	1	0	0
<i>Tetracanthagyna waterhousei</i> McLachlan, 1898	3	0	0
<i>Euphaea decorate</i> Selys, 1853	1	0	0

tation in both *prometheus* and *promineus* is greater in length than the width of the valves.

Measurements (mm). – Holotype ♂: abd. 36.5, app. 2.0, hindwing 33.0. Paratype ♂: abd. 38.0, hindwing 35.0; ♀ abdomen + app. 37.0, hindwing 32.0; exuvial length 28.5.

REMARKS. – The *Fukienogomphus* larvae has an elongate abdominal tip, similar in form to the genus *Trigomphus* but is larger, more cylindrical, exceeding 28 mm compared with the maximum size of *Trigomphus* which is ca 23 mm (CHAO, 1994). *Trigomphus* larvae also have a pair of small teeth located medially at the anterior margin of the prementum. The inner margin of the palpal lobe of *Trigomphus* is beset with triangular-shaped teeth as opposed to the quadrate teeth of *Fukienogomphus*.

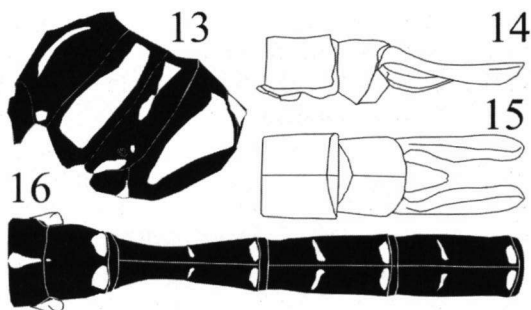
BIOLOGY. – In 2004 the type exuviae was found clasped to emergent vegetation at the side of a small, shallow, hill stream with a sandy mud, gravel and cobble substrate, less than 3 metres width. On the 20th April 2005 a quantitative survey of odonate exuviae was undertaken at three 20 m transects at the Tin Sam stream, which is the type locality stream. *F. choifongae* exuviae were found attached to vegetation and rocks, and on bare mud, adjacent to pool sections between riffles with substrates comprised of muddy sand. The survey results, shown in the Table above, confirm the importance of the Tin Sam stream for the population of *F. choifongae* and suggest its presence is not transitory. The results indicate the most important stretch of the Tin Sam stream for *choifongae* is located above Tin Sam village. There is no sewerage system at Wu Kau Tang and domestic sewage is treated by a series of septic tanks, which give rise to organic enrichment in the small tributary stream adjacent to Tin San village. Although the type specimen was found below Tin Sam village in 2004 no exuviae were found below the village in 2005.

CEPHALAESCHNA KLOTSI ASAHINA, 1982

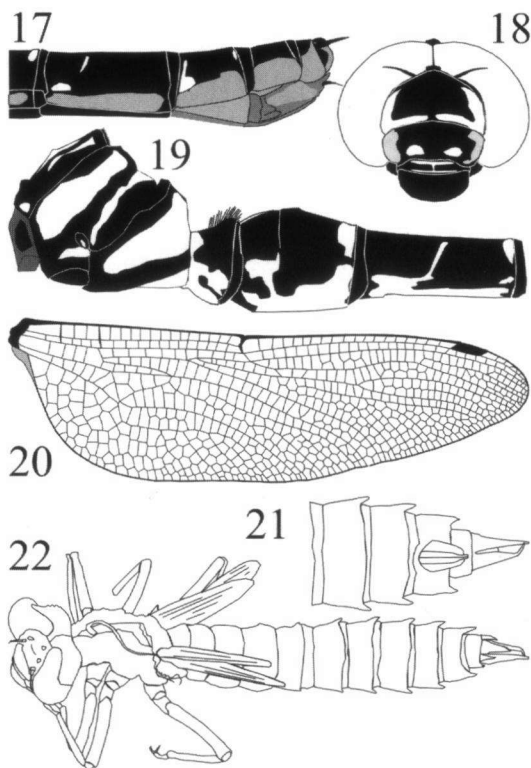
Figures 13-22

Cephalaeschna klotsi: ASAHINA, 1982: 9-10, figs 7-11 (type-loc. Tachulan, Shaowu, Fujian); WILSON, 2004: 198-199, (photo ♀ and exuviae, Ng Tung Chai, 25-IV-2003).

Material. – 1 ♀ (with exuviae), Ng Tung Chai, Hong Kong, 25-IV-2003, T.K. Woo & W.L.



Figs 13-16. *Cephalaeschna klotsi* Asahina, ♂, Ng Tung Chai, Hong Kong: (13) thorax, lateral view; – (14) caudal appendages, lateral view; – (15) caudal appendages, dorsal view; – (16) basal abdomen, dorsal view.



Figs 17-22. *Cephalaeschna klotsi* Asahina, Ng Tung Chai, Hong Kong: (17) ♀, caudal abdomen, lateral view; – (18) ♀, head, frontal view; – (19) ♀, thorax and basal abdomen, lateral view; – (20) ♀, hindwing; – (21) exuviae, dorsal view; – (22) exuviae, abdominal tip, ventral view.

is the type locality. The site is also the type locality for platystictid damselfly *Sinosticta ogatai* (Matsuki & Saito, 1996).

BIOLOGICAL NOTES. – The exuviae was discovered clinging to a moist clump of short ferns, close to a slight trickle of water at an altitude of ca 300 m. The possibility exists that the larvae may inhabit a semi-aquatic environment of wet vegetated, ground rather than stream habitat. According to Woo (pers. comm.) larvae were found at the base of a fern clump which grew in moist ground adjacent to a trickle of water. In addition adults were observed to be active during daytime feeding on small insects close to the breeding site. Ng Tung Chai is a forested ravine located on the northern slopes of Tai Mo Shan, which at 957 m, is Hong Kong's highest mountain.

Hui leg. (same material as Wilson, 2004 above); 1 ♂, Ng Tung Chai, Hong Kong, 19-VI-2004, T.K. Woo & W.L. Hui leg.

REMARKS. – The ♂, ♀ and exuviae *C. klotsi* are illustrated in Figures 13-22. ASAHINA (1982) described *Cephalaeschna klotsi* from two specimens; a ♂, collected, 3-III-1945, from Tachulan, Fujian, ex. T.C. Maa (K.S. Lin) and a ♀, collected 20-VIII-1917, from Yenping, Fujian, Harry R. Caldwell, leg. These are the details of the only two specimens previously published. The Hong Kong specimens are more or less identical to the Fujian material illustrated by ASAHINA (1982). The ravine area of Ng Tung Chai was classified as a Site of Special Scientific Interest in 1979 on account of its rich flora, including the occurrence of Hong Kong Balsam, *Impatiens hongkongensis* Grey-Wilson, for which Ng Tung Chai

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