

A New Species and a Newly Recorded Species of the Genus *Chlorogomphus*
(Odonata, Cordulegastridae) from West Malaysia

Haruki KARUBE
(Kanagawa Prefectural Museum)

西マレーシアからのミナミヤンマ属の1新種及び1未記録種について

荻 部 治 紀
(神奈川県立博物館)

マレー半島の西マレーシア領より、ミナミヤンマ属の1新種 *Chlorogomphus yoshihiro* sp. nov. 及び未記録種 *Chlorogomphus arooni* ASAHINA を記載した。

前種はボルネオ島より記載されている *Chlorogomphus dyak* LAIDLAW に近縁の種で、このグループとしては2種目のものである。なお *Ch. dyak* とは胸部の斑紋及び尾部付属器の形状から、簡単に区別できる。

後種は従来タイの南部からのみ知られていたもので、今回マレーシアから初めて記録される。原産地の個体群と比較すると、羽の褐色斑がやや拡大し、その色調も暗めである。また腹部の黄斑も拡大している。

Abstract. Two cordulegastrid dragonflies, *Chlorogomphus yoshihiro* sp. nov. and *Chlorogomphus arooni* ASAHINA, are described from the Malay Peninsula. The former is rather allied *Chlorogomphus dyak* LAIDLAW, and the latter is first recorded from the district.

In early Spring of 1991, Mr. Yoshihiro Hirose succeeded to catch some interesting species of the genus *Chlorogomphus* from Cameron Highlands of Pahang States, West Malaysia. These were consist by two species, one is identified as *Chlorogomphus arooni* ASAHINA and another is rather allied to *Chlorogomphus dyak* LAIDLAW, but differs from that in the characters of the maculate pattern and shape of anal appendage. In 1992, I could collect some materials of the latter species female at the same locality. After careful study, it became clear that the species is surely new to science.

In the present paper, I am going to describe that new species under the name of *Chlorogomphus yoshihiro*, and also record *Chlorogomphus arooni* ASAHINA as the first record from West Malaysia.

Before going further, I wish to express my heartily thanks to Dr. Syoziro Asahina of

the president of the Society of Odonatology, Tokyo, Prof. Dr. Yasuaki Watanabe of the Laboratory of Entomology, Tokyo University of Agriculture, Dr. Allen Davies of Cambridge University for their constant guidance and kind advise to my study, and Mr. Masatoshi Takakuwa of the Kanagawa Prefectural Museum, for his kindness reading of the original manuscript, Mr. Itsuro Kawashima for his drawing of figures whole body used in this paper, Thanks are also due to Messrs. Yoshihiro Hirose, Kouichi Matsumoto and Yusuke Takanami supplying with valuable materials used in this paper.

Chlorogomphus arooni ASAHINA

Chlorogomphus arooni Asahina, 1981, Proc. Japn. Soc. syst. Zool., Tokyo, 20: 35–38; Asahina, 1986, ibid 34: 39–45.

Materials for study. 1 ♀, 19 miles point from Tapha to Cameron Highlands, West Malaysia, 26. III. 1990, leg. Y. Hirose; 1 ♀, 14 miles point of the same, 26. IV. 1990, leg. K. Matsumoto; 1 ♀, Gombak, 36km point from Kuala Lumpur to Genting Highlands, West Malaysia, 1. V. 1993, leg. Y. Takanami.

Notes. This species has hitherto been known from only Thailand, so this is the first record from West Malaysia.

These specimens are very similar to those of type locality but somewhat differs from them in the follows: wings with more blackish marks, especially specimens from Genting Highlands has blackish markings on node; yellow oblique fasciae of 1st to 3rd abdominal segments wider. Male is unknown.

Chlorogomphus yoshihiroii sp. nov.

Type series. Holotype: ♂, 19 miles point from Tapha to Cameron Highlands, West Malaysia, 24. III. 1990, leg. Y. Hirose. Paratypes: 1 ♂, same data as the holotype; 6 ♂♂ 1 ♀, same locality as the holotype, 24–26. IV. 1992, leg. H. Karube. The holotype will be preserved in the collection of the Kanagawa Prefectural Museum (Nat. Hist.), Kanagawa.

This is a slender species, and is rather allied to *Ch. dyak*. Male. Abdomen (incl. appendage) 49.6mm in length; hindwing 40mm in length. Head black; labium whitish yellow; labrum black; anteclypeus brown; postclypeus largely greenish yellow; ridge of antefrons narrowly yellow; eyes almost meeting; occiput black, with black long hairs.

Prothorax black with a pair of greenish yellow markings on posterior lobe. Pterothorax black, with yellowish stripes as shown in Fig. 1; antehumeral stripe very narrow; lower part of humeral stripe gradually becoming more obscure; anterior part of mesepimeron with yellow band; metepisternum with yellow band at median part, which is indistinct near metastigma and is scarcely connected with yellow patch of metinfraepisternum; metepimeron with oblique yellow bands at anterior area and lower edge; metapostepimeron almost yellow.

Wings nearly hyaline; pterostigma black, covering 2.5 cells. Triangles 2-celled in all

wings, that of the fore with costal and distal sides equal in length and much longer than the basal, that of the hind with distal side a little longer than the costal. Anal loop 8-celled. Anal triangle 3-celled. Nodal index: 8-13; 17-9/11-14: 16-2.

Abdomen slender, black, with yellowish markings (Fig. 1); 1st segment with oblique patch at lower part, which is connected with anterior fascia of 2nd segment; 2nd with two rings, one is obliquely running from ante-ventral part to the medio-dorsal, another is situated at apex, both of which are bilaterally separated dorsally; lower edge of 3-4th yellow; 3rd with median small fascia and a pair of yellow dorsal spots at apex; 4-5th black; 6th with yellow ring at apex; 7-9th without markings.

Caudal appendages black. Superior appendage almost straight in dorsal view and longer than segment 10; ventral spine stout, situated at basal 3/5. Inferior appendage slightly shorter than the superior, gradually thickened and weakly reflexed dorsad towards apex, broadly divaricate at apex, with two pairs of spines dorso-apically; latero-median notch running near apex (Figs. 2, 3).

Accessory genitalia as shown in Fig. 5; anterior lamina attenuate to apex which is a little hooked posteriad; hamulus posterioris moderately thick. Penis rather slender; penis vesicle with 1st segment distinctly protruding posteriad, longitudinally and deeply grooved medio-ventrally; 2nd segment slender; 3rd anteriorly with spine; 4th somewhat conical with a pair of very long projections towards base, very deeply divaricate at apex of ventral plate, with dorsal part narrowly rounded at apex, and with a median distinct pit running from apex to basal 2/3 (Figs. 6, 7).

Female. Abdomen 53.5mm in length ; hindwing 45.5mm in length.

Maculations similar to those of male. Head broader than in male; eyes more widely separated; narrow stripe of antefrons more slender (Fig. 8).

Maculations of Prothorax and Pterothorax similar to those of male in general (Fig. 9). Wings slender; fore wing with apparent golden yellow marks at apical half and base, these maculations jointed through sc and R+M; hind wing almost hyaline, with golden yellow patches around node and at base; nodal index 10-19: 20-9/11-16: 14-10; triangle of fore wing 3-celled in right wing, 2-celled in the left, that of the hind 4-celled in right, 3-celled in the left; anal loop 18-celled, nearly reaching posterior ridge.

Abdomen slender; maculate pattern similar to male, but yellow markings more developed; oblique patch of 2nd segment and ring of 6th segment wider.

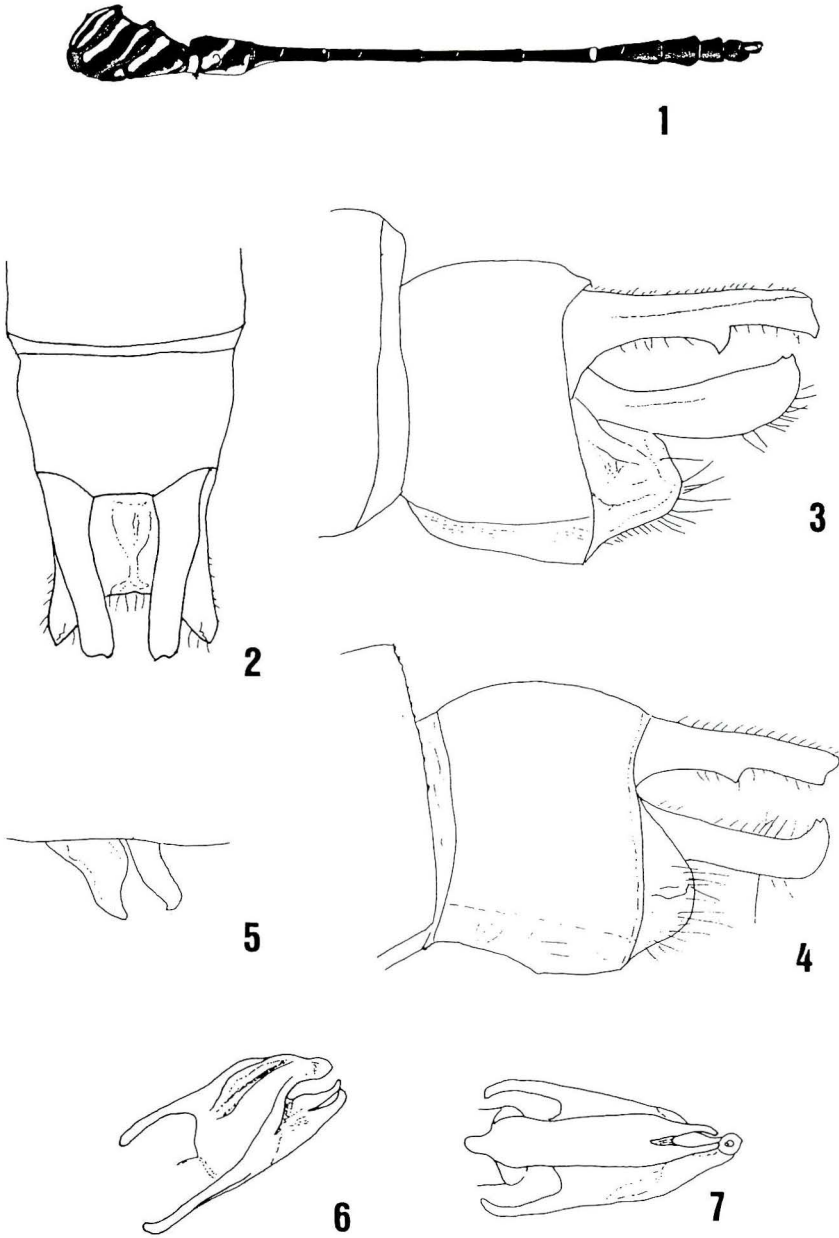
Valvula valvae shaped as truncated cone, the tip transversely hips-shaped. Tenth abdominal segment with dorsal plate shorter than paraproct, with the ventral lobed at apex, and slightly longer than paraproct. Cerci somewhat shorter than dorsal plate of 10th segment (Fig. 10).

Notes. Laidlaw described in 1931 that he examined a male of *Ch. dyak* from Johole of the Malay Peninsula. However, I don't believe that the species habits in the district,

because two or more species among the same species group of the genus *Chlorogomphus* are never sympatrically distributed.

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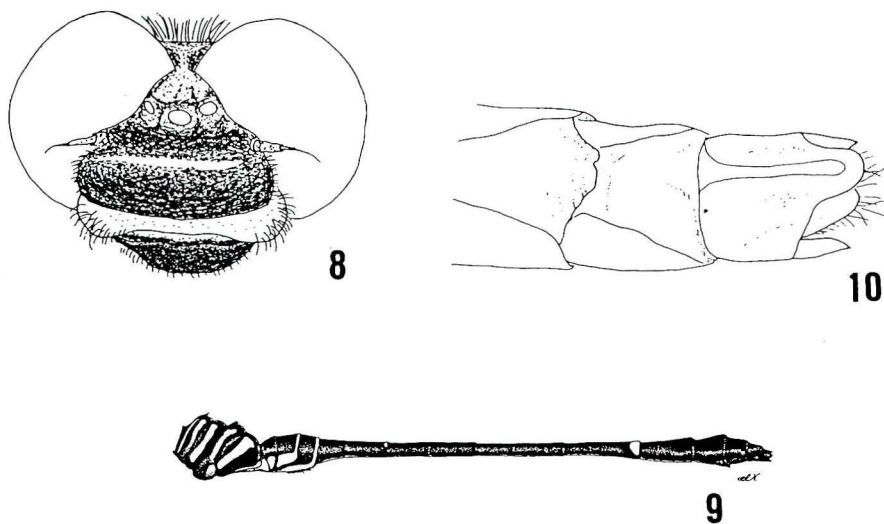
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Figs. 1-3, 5-7. *Chlorogomphus yoshihiroi* sp. nov., male.

1. Body in lateral view; 2. Caudal appendage in dorsal view; 3. Caudal appendage in lateral view; 5. Accessory genitalia in lateral view; 6. The last segment of penis in latero-ventral view; 7. same in ventral view.

Fig. 4. *Chlorogomphus dyak* Laidlaw, male caudal appendage in lateral view.



Figs. 8-10. *Chlorogomphus yoshihiroi* sp. nov., female.

8. Head in anterior view; 9. Body in lateral view; 10. End of abdomen in ventral view.