

**SOMATOCHLORA TAIWANA SPEC. NOV.,
A NEW DRAGONFLY FROM TAIWAN
(ANISOPTERA: CORDULIIDAE)**

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The new sp. is described and illustrated from a single ♂ (holotype): Taiwan, Hsinchu Hsien, Chienshih, nr Yuan Yang Lake, alt. 1670 m, 11-VIII-2000; to be deposited at Taiwan Forest Res. Inst., Taipei. It is compared with *S. dido* Needham.

INTRODUCTION

One of the present authors, (HY), visited northern Taiwan in August 2000 and caught a corduliid male near Yuan Yang Lake in Hsinchu Hsien. It proved to belong to the genus *Somatochlora* which is new to the Taiwanese fauna. It has many features closely related to *S. dido*, described by NEEDHAM, (1930) from two males collected in Szechuen, Continental China, but it can be distinguished by the shape of the caudal appendages and the orange tint at the base of hindwings. It is also related to *S. graeseri aureola*, from which it can be easily distinguished by the shape of the caudal appendages and the yellow stripes on the thorax. This male was caught flying near the lake, outside the protected area, and its habitat is considered to be the lake, where entrance is strictly regulated and collecting is prohibited.

The odonate fauna of Taiwan has 140 species and 4 subspecies, including this new species.

SOMATOCHLORA TAIWANA SP. NOV.

Figures 1-6

Material. — **Holotype** ♂: near Yuan Yang Lake, alt. 1670 m, Chienshih, Hsinchu Hsien, Taiwan, Republic of China, 11-VIII-2000, Hiroshi Yokota leg.; to be deposited in the Museum of the Taiwan Forest Research Institute in Taipei.



Fig. 1. *Somatochlora taiwana* sp. n., ♂ lateral view.

E t y m o l o g y. — The name refers to the geographical provenience of the type.

MALE. — **H e a d** shining black with yellow markings: antefrons shining black, lateral and ventral sides of antefrons yellow; postclypeus black, anteclypeus yellow, labrum black, lateral and median lobe of labium yellow.

T h o r a x. — Prothorax black, its anterior lobe yellow.

Pterothorax shining greenish black, a large yellow marking on posterior half of metepimeron, obscure yellow marking on

mesepimeron which might be obvious in younger males.

Wings with pale brownish tint and somewhat damaged, presumably because of age. Small orange yellow marking in forewing, remarkable orange marking in hindwing base, reaching near midrib of anal loop

Antenodals (anx): forewing 8/8, hindwing 5/5; postnodals (pnx): forewing 6/6, hindwing: 7/7; pterostigma black and short, the length in hindwing one sixth of the distance between nodus and proximal side of pterostigma; arc straight and oblique, radial sector and anterior media arise at the posterior part of arc; one Bq in forewings, one in right hindwing and two in left hindwing; forewing triangle with one crossvein, supertriangle without crossvein, cubital space with one crossvein, subtriangle three-celled, divided by Y-shaped crossveins; hindwing triangle at the position of arc, distal edge straight, with one crossvein; supertriangle without crossveins; cubital space joined to subtriangle, with two crossveins; anal loop boot-shaped with a midrib; anal angle angulated, anal triangle two-celled; membranule large.

A b d o m e n. — Predominantly shining black with yellow marking on second segment, yellow ring on posterior part of the same segment; superior caudal appendages undulate when seen dorsally, apices directed inward, inner edge almost

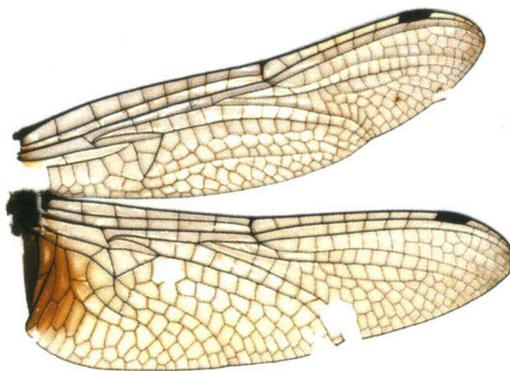


Fig. 2. *Somatochlora taiwana* sp. n., ♂ wing venation.

straight; a spine near base when seen laterally; shape of superior appendages getting broader distally and broadest at half the length where there is another spine; apex coiled upward; inferior caudal appendage subtriangular and relatively long, longer than three-fourths of the superiors.

M e a s u r e m e n t s (mm). — Length abdomen (incl. app.) 34.8, — hindwing 33.

FEMALE unknown.

DISCUSSION

The features described above agree with those of the species in genus *Somatochlora*, while LIEFTINCK et al. (1984), CHANG & WANG (1997) and WANG (2000) mention no species of this genus in Taiwan. The present species can easily be distinguished from the species in *Hemicordulia*, *Procordulia* and *Cordulia* by the existence of a crossvein in the hindwing triangle. Thus, it obviously belongs to the genus *Somatochlora*.

Comparison with the known *Somatochlora* species has led us to the conclusion that *S. taiwana* is most closely related to *S. dido* Needham, known from two males, collected in Szechuen, Continental China. NEEDHAM (1930, pl. 11, fig. 4) illustrated caudal appendages in lateral view. His figure shows that in *S. dido* the distance between the base of the superiors and the basal spine is one-third the total length of the superiors, while it is one-sixth in *S. taiwana*. The broadest part of the superiors, with the second spine, is situated distally in *S. dido*, while it reaches just half the length in the Taiwanese species.

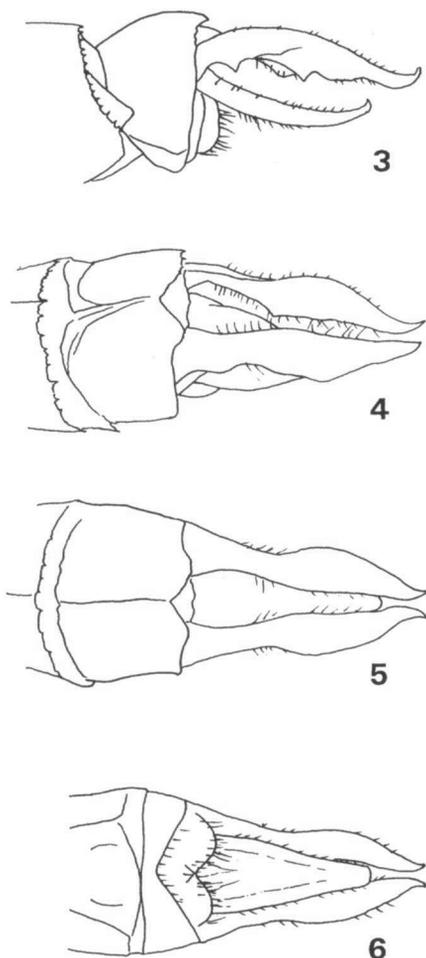
According to NEEDHAM (1930), *S. dido* type specimens are deposited in the U.S. National Museum. Dr Oliver Flint of the National Museum of Natural History kindly informed us that the holotype is in the collection of the Museum, but the paratype is not there. He also told us the holotype had been studied and photographed by Dr Everett D. Cashatt. Cashatt was very kind to send us many photographs. He also informed us that Dr Timothy E. Vogt had made some measurements.

In dorsal view, according to the photograph taken by Dr Cashatt, the basal third of the total length of the superior appendages in *S. dido* undulates inward. The middle third is directed outward. The basal and middle parts are similar in width. The apical third is convergent to apices and directed again inward. In *S. taiwana*, only the outer margin of the superiors undulates, while the inner margin is almost straight, thus the width of the superiors is getting narrower to the point of one-third the total length, then getting broader towards the second one-third.

In *S. dido*, wings are slightly flavescent at the base of the forewing, more extensively so in the hindwing out to the base of the anal loop. In *S. taiwana*, the forewing base is tinted orange yellow, and the hindwing base is remarkably tinted orange out to the midrib of the anal loop.

The thorax has laterally two yellow stripes in *S. dido*, one between the first and second lateral sutures, and one on the hind margin. In *S. taiwana* the first yellow stripe is visible only in the upper half, and the second stripe is somewhat reduced.

Abdominal length of *S. dido* is 34 mm in NEEDHAM's (1930) description, but it



Figs 3-6. *Somatochlora taiwana* sp. n., ♂ tip of abdomen: (3) lateral view; – (4) dorso-lateral view; – (5) dorsal view; – (6) ventral view.

amounts to 31.6 mm according to Dr Vogt's measurement. It is 34.8 mm in *S. taiwana*. Hindwing length of *S. dido* is 32 mm in Needham's description, but it is 30.8 mm according to Dr Vogt's measurement. It is 33.0 mm in the Taiwanese species.

S. taiwana is also related to *S. graeseri aureola* Oguma, 1913, of northern Japan. They are distinguished by the following features:

- In dorsal view, superior caudal appendages of *S. g. aureola* resemble those of *S. dido*, though the apical third is laid parallel, while it is directed inward in *S. taiwana*;
- In lateral view, the ventral margin of the superiors has a heel-like projection in *S. g. aureola*, while no such structures appear in *S. taiwana*;
- Inferior caudal appendages are reaching up to two-thirds the length of the superiors in the former, while they are longer than three-fourths of the superiors in the latter;
- There are no yellow lateral thoracic stripes in *aureola*, while they do occur in *taiwana*.

When we talk about Taiwanese corduliids, we cannot neglect an old record of KANO (1930). He reported that he caught a corduliid dragonfly in Taiwan, but it escaped before identification. This was considered as a doubtful record by LIEFTINCK et al.

(1984). The original text of Kano runs as follows:

"I caught a corduliid, very likely a *Cordulia* sp., at a wet marsh in Numanohira, Alishan at an elevation of 2240 m in July 1928. It was kept in a killing jar, but the potassium cyanide was not effective, and the dragonfly flew away when I opened the container. I visited the same place again and again, but in vain. On August 22 the same year, I found a similar insect soaring at the top of Nanhutashan (alt. 3797 m) but failed to catch it. Thus I cannot identify the species, but it is quite certain that a corduliid species inhabits Taiwan".

The escaped specimen may have been referable to *S. taiwana*, as the distance

between Kano's collecting locality and the present lake is about 150 km and the distance between the other locality where Kano observed the species and the present lake is about 24 km, though the description of the environment of the habitat is somewhat different.

ENVIRONMENT OF THE HABITAT

S. taiwana was caught near the lake, not on the lake, but most likely it breeds in the lake.

Yuan Yang Lake is situated at 24°34'46"N and 121°23'51"E in the central eastern Hsinchu Hsien, close to the border with Ilan Hsien. The length of the lake is 585 m from West to East, and the width is 135 (broadest)-20 m (narrowest) from South to North, covering an area of 3.74 ha, at an elevation of 1670 m. Maximum depth near the outflow is 4.3 m. The lake is surrounded by dense forest. There is the inner gate at the northeastern side of the lake, the entrance is strictly regulated and insect collecting is prohibited. In the area between the inner and the outer gate, collecting is possible with a licence.

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