

**NOTES ON MACROMIA FROM HONG KONG,  
WITH A DESCRIPTION OF *M. KATAE* SPEC. NOV.  
(ANISOPTERA: CORDULIIDAE)**

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*Macromia cantonensis* Tinkham, 1936 is assigned as a synonym of *Macromidia rapida* Martin, 1906. *Macromia berlandi* Lieft. and *M. urania* Ris are recorded from Hong Kong for the first time. *M. katae* sp.n. is described and illustrated from Sha Lo Tung, Hong Kong.

INTRODUCTION

The Odonata fauna of Hong Kong has been documented by ASAHINA (1965, 1987, 1988), MATSUKI et al. (1990), HÄMÄLÄINEN (1991) and LAI (1971), the latter containing a number of misidentifications. None of these papers have recorded the presence of any *Macromia* species in Hong Kong or made reference to TINKHAM (1936) who designated the female allotype of *Macromia cantonensis* Tinkham from specimens caught in Hong Kong.

*MACROMIDIA RAPIDA* MARTIN

*Macromidia rapida* MARTIN, 1906, pp. 79-80, figs 92-93, pl. 3, fig. 18: "♂, type-loc. Tonkin"; – ASAHINA, 1965, p. 500: "1 ♂, 1 ♀, Ho Chung, Hong Kong"; – ASAHINA, 1988, pp. 696-697: "1 ♀, Tai Po Kau, Hong Kong"  
*Macromia cantonensis* TINKHAM, 1936, pp. 457-459: "♂, Canton, ♀, Hong Kong" (syn. nov.)

A careful examination of the original description of *Macromia cantonensis* given by TINKHAM (1936) and comparing it with specimens of *Macromidia rapida* MARTIN (1906) reveals that the species is in fact a synonym of *Macromidia rapida*.

The *cantonensis* male holotype was obtained from Guangzhou (Canton) and the female allotype from a mountain stream in Hong Kong. The holotype, allotype and paratypes were deposited in the collection of the Lingnan Natural History Survey and Museum. I have not been able to examine these specimens but I am quite satisfied from the description given by Tinkham that the individuals described do not belong to *Macromia* but to its near ally *Macromidia* and specifically to *Macromidia rapida*.

The description given by Tinkham is compared with the description given by ASAHINA (1988) for *Macromidia rapida*. It differs significantly only in that Tinkham describes, "a mid dorsal median line on segment 3, segment 6, and basal portions of 7 yellow". Asahina's description and the specimens I have examined of *rapida* have a mid dorsal line from the distal end of segment 2-7 but the line, which is discontinuous, is faint on segments 4 and 5 of some male specimens. Tinkham's description of the female, however, includes a mid-dorsal line of the abdomen with a fine yellow line from the base of segment three to basal half of 7, the line missing on parts of segments 5 and 6. This agrees fully with Asahina's description and illustration of the female.

Tinkham's description of the male anal appendages is typical of *Macromidia* and complies fully with *Macromidia rapida* the only *Macromidia* species recorded from Hong Kong. I therefore assign *Macromia cantonensis* as a synonym of *Macromidia rapida* Martin.

COMPARISON OF TINKHAM'S (1936) ORIGINAL DESCRIPTION  
OF *MACROMIA CANTONENSIS*  
WITH ASAHINA'S (1988) DESCRIPTION OF *MACROMIDIA RAPIDA* MARTIN, 1906

*Macromia cantonensis* Tinkham

Male

Abd. 36-37 mm  
hindwing 32-34 mm

Pterothorax: Metallic green a little reddish brown just above the meso-legs. No antehumeral stripe or humeral stripe but the second lateral stripe, broad, canary yellow, passing from below up through the metinfraepisternum to encircle the thorax just to the rear of the bases of the fore wings.

Posterior lateral borders of the metepimeron yellow, the yellow extending forward on the sternum so that the metallic band is considerably narrower below that on the sides of the metepisternum just caudad of the yellow second lateral stripe. Synthorax with a brown pilosity.

Labium: Pale testaceous brown.

*Macromidia rapida* Martin

Male

Abd. + app. 38 mm  
hindwing 32 mm

Pterothorax: Shining metallic green, lower portion of mesepisternum dark reddish brown. A broad stripe present broadly covering metepisternum; posterior margin of metepimeron and meta- postepimeron, as well as interalar sclerite, entirely yellow.

Labium: Pale brownish.

Frons: lower edge and sides dark testaceous brown.

Abdomen: First and second abdominal segments dull metallic green, third segment shining black, segments 4-6 duller black and segments 7-10 matt black.

Posterior edge of first abdominal segment, narrow dorsal median line on segment 3, segment 6, and basal part of inferior border of segment 7, yellow.

Anal appendages: White, the white slightly infumated with gray at the base and with the outer edge of the apical third, black.

Inferior anal appendage dull blackish white.

Head: Dark reddish brown upper part of antefrons part of antefrons and postfrons dark metallic green.

Abdomen: Bronze black, paler in proximal three segments.

Yellowish stripes on middorsal line, and lateral side of basal two segments.

Anal appendages: Typical macromiid type, the superior dark yellowish with dark base and apex. Inferior appendage pale brownish with dark tinted apex.

### MACROMIA'S NEW TO HONG KONG

Having established that no bona fide *Macromia* species have been previously recorded from Hong Kong I now provide details of three species found during the spring and summer of 1992. The material collected included two male specimens of *Macromia berlandi* Lieftinck 1941, a number of *M. urania* Ris, 1916 and a single *Macromia* male which appears to represent a distinct new species. I was also able to photograph a female of the new species but alas the specimen managed to escape capture.

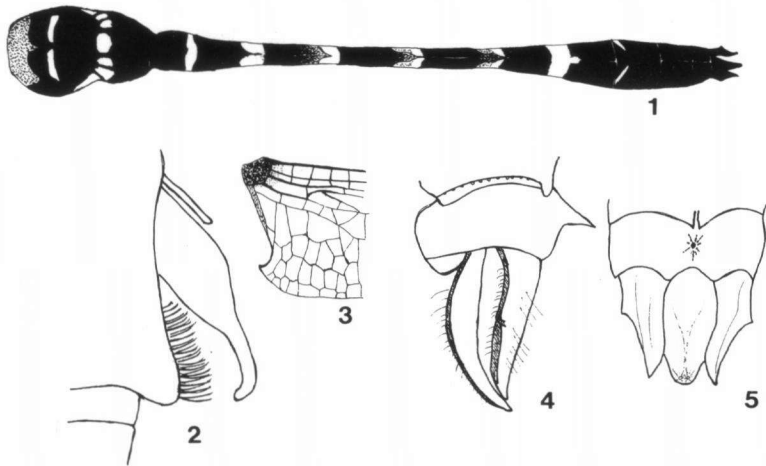
#### MACROMIA BERLANDI LIEFTINCK Figures 1-5

*Macromia borneensis* MARTIN, 1906, p. 69, fig. A: "1 ♂, Tonkin"

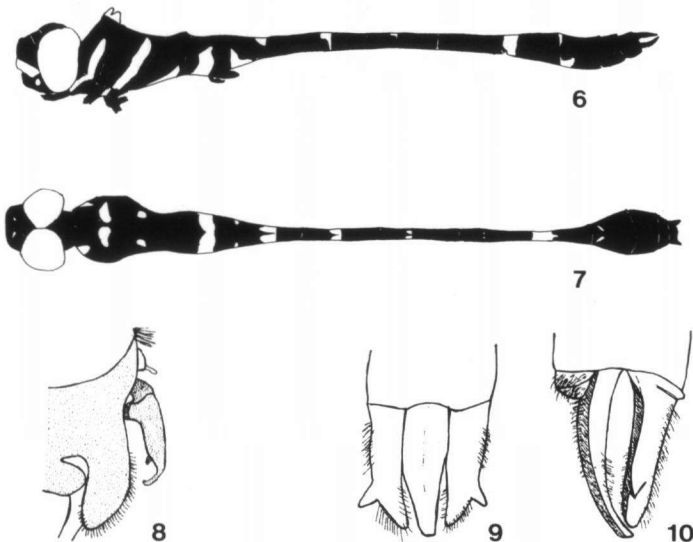
*Macromia berlandi* LIEFTINCK, 1941, pp. 94-98, figs 1(a, c): "1 ♂, type-loc. Tonkin"

Material. — Coll. Wilson: 1 ♂, Sha Lo Tung, 20-VI-1992; — Do., 26-VI-1992.

The type specimen of *M. berlandi* was originally described by MARTIN (1906), but he did not consider the male involved to be a distinct species from *M. borneensis* Krueger, a synonym of *M. cincta* Rambur. LIEFTINCK (1941) examined the specimen from Mount Mauson, Tonkin, named it *M. berlandi* and provided a supplement to Martin's description. The pterothorax and abdomen of the Hong Kong male is illustrated in Figure 1 and the anal angle of the wing, which is remarkably produced to form a point, Figure 3. On the second abdominal segment both the Tonkinese and the Hong Kong specimens have yellow spots which almost come to a point above the auricles which are yellow. The abdomens are similarly marked although the ground colour of the basal half of



Figs 1-5. *Macromia berlandi* Lieftinck, ♂, Sha Lo Tung, Hong Kong: (1) body markings, dorsal view; - (2) secondary genitalia; - (3) hindwing; - (4-5) caudal appendages.



Figs 6-10. *Macromia urania* Ris, ♂, Tai Tong, Hong Kong; ♀, Sha Lo Tung, Hong Kong: (6) male body markings, lateral view; - (7) female body markings, dorsal view; - (8) male secondary genitalia; - (9-10) male caudal appendages.

segments 3-6 is dark brown not black. There are slight differences in the secondary genitalia, illustrated in Figure 2. The posterior hamulus of the Hong Kong specimen is slightly longer and the anterior hamulus is not swollen distally as illustrated

in the Tonkin specimen. The anal appendages, Figure 4-5, and the abdomen and hindwing measurements are similar. Overall the differences are minor and the Hong Kong specimens are undoubtedly *berlandi*.

Measurements (Hong Kong). — abd. + app. 52.0 mm; — hw 47.0 mm.

*MACROMIA URANIA* RIS

Figures 6-10

*Macromia urania* RIS, 1916, pp. 66, 68-70, figs 42-43 & pl. 3, figs 2-3: "2 ♂, 1 ♀, type-loc Tonkin"; — LIEFTINCK, 1929, pp. 68, 104-106, fig. 22: "1 ♀, Tonkin"; — NEEDHAM, 1931, p. 231: 2 ♀, Hainan; — ASAHINA, 1940, p. 24: "Taiwan"; — LIEFTINCK, 1950, pp. 702-704, figs 8, 18-19, 22, 30: "♂, ♀, Fujian, Hainan"; — ASAHINA, 1964, p. 109, figs 5, 13, 18: "♀, Japan"; — MATSUKI & LIEN, 1982, p. 19 (larval key); — LIEFTINCK, 1984, pp. 42-43, "Taiwan"

Material. — Coll. Wilson: 3 teneral ♀, Tai Tong (emerged VI-1992 from final instar larvae collected 24-VI-1992; 1 ♂, Ping Yeung, 30-V-1992; 1 ♀, Sha Lo Tung, 14-VI-1992.

*M. urania* was first described by RIS (1916) from two males and a female from Tonkin. It has also been described by LIEFTINCK (1929), and recorded from Hainan by NEEDHAM (1931), from Taiwan by ASAHINA (1940), from Hainan and Fujian by LIEFTINCK (1950), from Japan by ASAHINA (1964) and again in Taiwan by LIEFTINCK et al. (1984). There is a very good match with the Hong Kong material with the description given by LIEFTINCK (1950). However, only in ASAHINA's (1964) paper is the dorsal view of the female abdomen illustrated and clearly segment 7 of the Japanese specimen is much more expanded than the Hong Kong specimen, Figure 7. The male Hong Kong head, pterothorax, abdomen, anal genitalia and secondary genitalia are illustrated in Figures 6, 8-10.

The Hong Kong female from Sha Lo Tung was taken ovipositing in a narrow stream in a shallow riffle section.

*MACROMIA KATAE* SP. N.

Figures 11-17

Material. — Holotype ♂: Sha Lo Tung, Hong Kong, 3-VII-1992; at present in the collection of the author but will be deposited with the BMNH, London. — ♀, photographs only.

MALE. — Head. — Front of head illustrated in Figure 16. Labium dark brown, lateral margins lemon yellow. Mandibles conspicuously marked lemon yellow at their base and reddish brown at the tip. Labrum blackish brown marked with yellow spot on anterior lateral margin. Anteclypeus blackish brown. Dorsal half of postclypeus dark brown with ventral margin dull brownish yellow. Frons

rugosely punctate, black with bright metallic blue reflections with two brownish yellow triangles at the base of the pyramidal processes. Vertex black and occiput shining black.

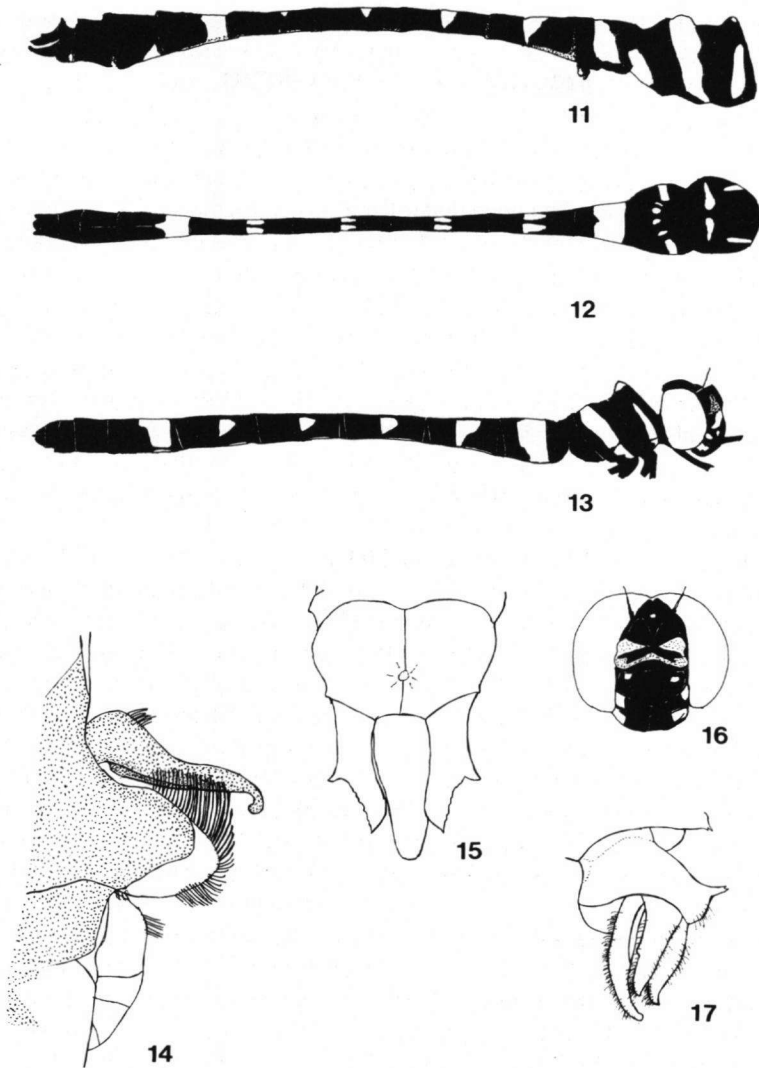
**Pterothorax** (Fig. 11). — Black with metallic green reflection and marked with a pair of sharply defined narrow antehumeral bands which narrow dorsally, are pointed above and extend up from the mesinfraepisternum as far as the ventral border of the latter. Ante-alar sinus bright yellow. Thoracic yellow stripe of metepisternum is sharply defined and forms broad bright yellow band across spiracle. It is widest at the dorsal margin approximately 1.5 mm. The metepimeron is bright yellow at the caudal margin and entirely bright yellow on the ventrum.

**Legs**. — Long and slender. Legs are black. The tibia of fore-leg and hind-leg possess a white keel while the mid-leg is without. The fore-leg keel is restricted to the distal half of the tibia and is approximately 7/16 of the tibia length. Tibial keel of hind leg commences approximately 1 mm from its base and extends to within 0.5 mm of the distal end. The hind femur extends to the mid point of abdominal segment 3 beyond the genital lobe. Posterior femur including trochanter 12.5 mm long.

**Wings**. — Nodal index: 9.17:17.9/11.12:12.11. — Anal loop 7.7 with no central cell. Pterostigma black 3 mm. Veins black. The central groove of the costa on the fore and hindwings is coloured yellow to produce a fine yellow line when viewed from the front. All triangles free from cross veins. Forewing supra-triangle 4.4., hindwing 2.3. CuX forewing 7.5., hindwing 4.4. Discoidal field of forewing widening from 2 to 14 cells and that of the hindwing from 2 to 12 cells. Membranule whitish gray. First cell distal of the first antenode at base of forewing closest to the costa suffused with an amber colouration occupying basal 4/5 of cell. At the extreme base of wing membrane cells coloured dark brown. The cells forming the anal angle, beyond the anal loop, and the extreme tips of the wings are very slightly suffused with amber. The anal angle of the wing is rounded.

**Abdomen** (Fig. 11). — Slender, black with no apparent metallic reflections. Segment 2 is marked on the dorsal surface with two triangular, bright yellow spots, separated at the median, which widen laterally to form a band covering the auricles. The dorsums of segments 3-7 have two yellow spots, located at the median, separated by a fine isosceles triangle with the produced angle pointing apically. The size of the spots decrease from segments 3 to 6. Segment 7 has a broad basal ring slightly produced apically on the dorsum. Segments 8-10 are clear on the dorsum but 8 has a small, lateral, triangular spot on the ventrum. The mid dorsum is carinated to form a mountain shaped prominence which is produced into a long spine. The spine of the specimen examined is bifurcate at the tip.

**Accessory genitalia** (Fig. 14). — The posterior hamulus and the genital lobe are unusual for *Macromia*'s in that they are angled almost perpendicularly from



Figs 11-17. *Macromia katae* spec. nov., ♂, Sha Lo Tung, Hong Kong; ♀, Sha Lo Tung, Hong Kong: (11) male body markings, lateral view; – (12) female body markings, dorsal view; – (13) female body markings, lateral view; – (14) male secondary genitalia; – (15, 17) male caudal appendages; – (16) male head markings.

the body. A very thick fringe of long, black hairs are located on the anterior margin of the genital lobe. Apically a third of the genital lobe is coloured bright yellow.

Anal appendages (Figs 15, 17). — Superior appendages matt black, fairly stout, acutely pointed apically, each with a latero-ventral tooth located just beyond the mid-point towards the tip. The inferior appendage extends well beyond the inferiors and has a shining black dorsal surface.

Measurements. — Abd. + app. 55.0 mm; — hw 46.5 mm.

FEMALE (Figs 12-13). — Photographs only examined. Head patterned as male. Pterothorax, as male. Abdomen dorso-laterally compressed and marked similarly to male but yellow spots more extensive on segments 4-5. Hind femur long, extending beyond midpoint of second abdominal segment.

## DISCUSSION

I have referred to DAVIES & TOBIN (1985) and TSUDA (1991) for information regarding the occurrence and distribution of *Macromia*'s in Asia. *M. katae* sp.n. possesses a well defined antehumeral stripe on the pterothoracic dorsum and a well developed spine on the dorsum of the 10th abdominal segment. These two features serve to separate *katae* from all the known Chinese and Vietnamese species. The Chinese and Vietnamese *Macromia*'s: *M. calliope* Ris (LIEFTINCK, 1929), *M. cingulata* Rambur (FRASER, 1936), *M. chui* ASAHINA (1968), *M. clio* Ris (ASAHINA, 1968), *M. flavocolorata* FRASER (1936), *M. hamifera* LIEFTINCK (1955), *M. malleifera* LIEFTINCK (1955), *M. manchurica* ASAHINA (1964), *M. urania* RIS (1916), *M. septima* Martin (LIEFTINCK, 1929) and *M. westwoodii* Selys (LIEFTINCK, 1929) all possess antehumeral stripes on the dorsum of the pterothorax but all these species have no process on the 10th abdominal segment or if present not produced into a spine. The remaining Chinese and Vietnamese species, *M. berlandi* LIEFTINCK (1941), *M. cincta* Rambur (LIEFTINCK, 1929), *M. icterica* LIEFTINCK (1929), *M. moorei* Selys (FRASER, 1936) and *M. pyramidalis* MARTIN (1906) are without the antehumeral stripe on the pterothoracic dorsum. Comparison of the secondary genitalia of *M. katae* sp.n. with the Chinese and Vietnamese species and other Indo-Chinese and southeast Asian *Macromia*'s reveals no close allies with respect to the prominent and perpendicular genital lobe and the upright angle and structure of the posterior hamulus.

I intend to describe the larvae of *berlandi* and *katae* in a future paper. I have live material of large final instar *Macromia* larvae which I hope to rear out to adult stage to confirm identity.

## ACKNOWLEDGEMENTS

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