

**A NEW SPECIES OF *MACROMIA* FROM NEPAL
(ANISOPTERA: CORDULIIDAE)**

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M. sombui sp.n. is described and figures from a single male which was taken near to the Royal Chitwan National Park of Nepal in November 1986. The new sp. is compared with the sp. to which it appears to be closest, viz. *M. malleifera* Lieft. (described from Fukien Province, China).

INTRODUCTION

Until 1986 the only species of *Macromia* which had been found in Nepal was *M. moorei* Sel., a species which is moderately common in the warm-temperate forest near Godavari (in the Kathmandu Valley) at altitudes between 1500 and 1800 m; it has also been reported (from larval material) at Bhainse Dobhan (750 m) by ST. QUENTIN (1970) and at Pokhara (915 m) by the present writer.

In November 1986 Sombu Paryar, who was working for Colin Smith of the Annapurna Regional Museum in Pokhara, was collecting dragonflies in the tropical forests in the vicinity of the Royal Chitwan National Park (200 m). Two male specimens of *Macromia* were present amongst the material which was sent on to me. Morphologically, the differences in the shapes of the accessory genitalia, the anal appendages and the dorsum of the tenth tergite clearly indicated that the two specimens belonged to separate species. Furthermore, both specimens are morphologically distinct from *M. moorei* (VICK, 1987).

One specimen is very close to *M. flavocolorata* Fras., a taxon described from Bengal but with a widespread distribution from Western India to Thailand (FRASER, 1936) and I hope to return to this point in the future when more material becomes available.

The other specimen, which is the subject of this paper, appears to be quite

distinct from any other described members of the genus although it bears some resemblance to a much larger species, *M malleifera* Lieft., which was described from East China, Fukien Prov., Kuatan (LIEFTINCK, 1955), especially in the form of the hammer-shaped apex to the genital hamulus. In other respects, important structural differences separate the new taxon from this species.

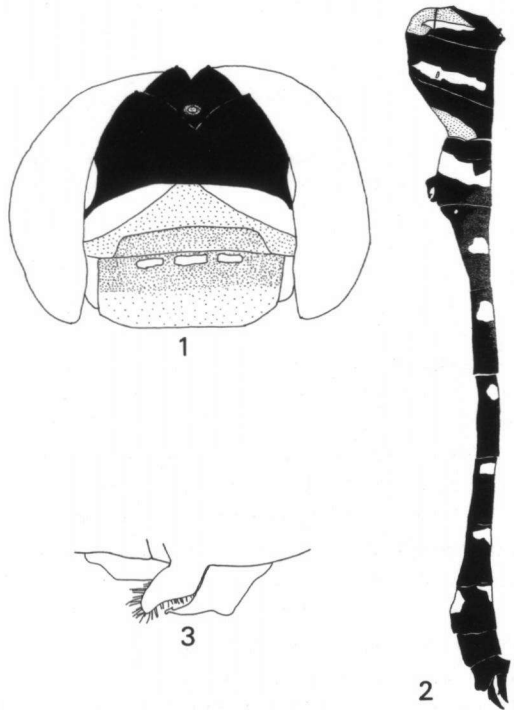
DESCRIPTION

MACROMIA SOMBUI SP. N.

Figures 1-4, 6-7

Material — **Holotype:** ♂, Nepal, near Royal Chitwan National Park, 8-XI-1986, in author's collection. Collected by Sombu Paryar, after whom the species is named. Some post-mortem discoloration evident, ♀ unknown.

MALE: Head — Figure 1. Width across the eyes 7.5 mm. Colour of eyes in life not known. Labium mostly brown but post-mortem discoloration prevents more detailed description. Mandible pale brown with prominent yellow basal spot and dark reddish-brown teeth. Labrum with apical half pale brown and basal half dark reddish-brown, marked with three yellow transverse spots. Anteclypeus dark brown. Postclypeus dark brown, marked laterally with two yellow wedge-shaped spots which widen almost to the full height of the postclypeus on the lateral margin. Frons black with metallic blue reflections and with large yellow lateral spots confluent with the yellow of the postclypeus; pyramidal processes acute with the height of the frons just less than half the overall width; a

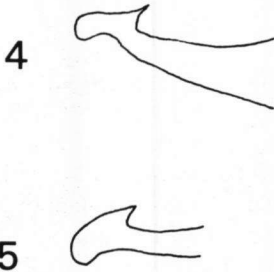


Figs 1-3. *Macromia sombui* sp. n., holotype (Royal Chitwan National Park, Nepal): (1) Head, frontal view; — (2) Pterothorax and abdomen, lateral view; — (3) Accessory genitalia, right lateral view. — In Figs (1) and (2): dark areas: black; — stippled areas: brown; — unmarked areas: yellow. — Except eyes, the colour of which is unknown.

trace of reddish-brown around the apex of the pyramidal processes. Vertex all black, bearing two nipple-shaped processes and a deep median groove. Rear of head entirely shiny black.

Prothorax — not examined.

Pterothorax — Figure 2, black with metallic bluish-green reflections and marked as follows: — ante-alar sinus pale-yellow (but ante-alar carina black and apical carina pale-yellow, darkening towards lateral margins); mesepisternum ventrally brown with deep-yellow ante-humeral stripe approximately 1 mm wide, narrowing dorsally and extending from basal carina to about two-thirds of distance to ante-alar carina; mesinfraepisternum brown, bordered narrowly with black, marked dorsally with beak-like extension of the ante-humeral stripe; mesosternum brown; metepisternum with deep-yellow lateral stripe of irregular



Figs 4-5. Details of hamulus: (4) *Macromia sombui* sp. n. (holotype); — (5) *M. malleifera* Lieft. (after LIEFTINCK, 1955).

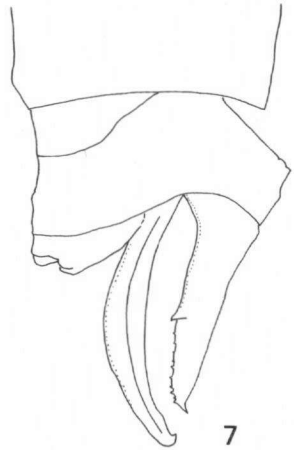
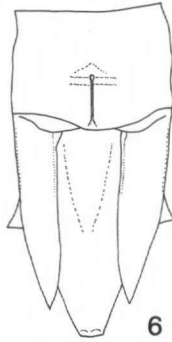
width, slightly wider on average than ante-humeral stripe, enclosing metaspiracle, extending from just below dorsal ridge to metinfraepisternum; metepimeron brown in caudal third and entirely brown on ventrum; metasternum and poststernum brown; dorsum of thorax with a transverse deep-yellow stripe running across the dorsal sclerites between the wing bases and almost continuous with the lateral stripes on the metepisterna.

Legs — long and slender, the posterior femur (inc. trochanter) 10.5 mm long, reaching back as far as the genital hamule. Black, marked as follows: — coxae entirely reddish-brown except for external surfaces of hind-coxa and base of mid-coxa; trochanter of fore-leg yellow, marked with brown; fore-femur marked with a basal yellow spot, confluent with the yellow of the trochanter. Tibial keel of the fore-leg black, short (about $\frac{3}{8}$ of length of tibia), marked with fine yellow line. Tibial keel absent on middle-leg. Tibial keel on hind-leg yellow, commencing about 1 mm from base and extending along entire length of tibia.

Wings — membrane hyaline with trace (scarcely visible) of dark brown basal suffusion in all wings. Veins black. Pt black, 2.5 mm long. Nodal index $\frac{5:13:13:4}{9:9:9:9}$. Triangles uncrossed; t in forewing with lengths of sides — apical: basal: costal in ratio 1.37: 1.24: 1 resp.; t in hindwing with lengths of sides — costal: apical: basal in ratio 1.55: 1.30: 1 resp.; supratrangles $\frac{2:3}{2:2}$; CuX $\frac{4:5}{3:3}$. Discoidal field of fore wing widening from 2 to 8 cells, that of hindwing widening from 2 to 10 cells; MA and R₄₊₅ in hindwing meeting the hind margin of the wing at just less than a right angle; anal loop with 6 cells, lacking a central cell; anal triangle crossed by single veinlet, slightly nearer to apex than costal side of triangle; anal angle not strongly angulated (similar to that of *M. splendens* Pictet); membranula white,

shading to pale brown apically, extending to within 1 mm of apex of anal triangle.

Abdomen — Figure 2. Slender, black with bluish-green reflections, most evident on basal segments, marked with yellow as follows: — 2 with large diamond-shaped spot on dorsum, confluent with a lateral spot which forms a basal band running over the auricles; 3 with a pair of small basal spots laterally and a pair of separated median spots dorsally; 4 with a pair of confluent dorsal spots in the



Figs 6-7. *Macromia sombui* sp. n. (holotype), anal appendages: (6) Dorsal view; — (7) Lateral view.

basal half; 5 and 6 with a pair of narrowly separated spots in the basal half; 7 with a broad basal ring bearing a slight apical projection; 8 with a basal triangular spot on dorsum and a pair of basal spots towards ventrum. Dorsal surface of 10 strongly raised and longitudinally carinate, enclosing an angle of about 100 degrees in lateral aspect, rising to a strong mid-dorsal prominence (but lacking a pair of tubercles on either side of it) and strongly transversely rugose in apical half.

Accessory genitalia — see Figure 3-4.

Anal appendages — Figure 6-7 — superior appendages matt black, tapering, acutely pointed apically, each bearing a strong latero-ventral tooth situated just beyond half-way from the base and a series of small ventral teeth apical to this; inferior appendage dark reddish-brown to black, strongly curved, longer than the sup. apps. and bearing a pair of blunt tubercles at the apex.

Measurements — abd. + app. 42 mm; hw 35 mm.

DISCUSSION

LIEFTINCK (1955) described *Macromia hamifera* and *M. malleifera* from Eastern China; both taxa are clearly closely related and the accessory genitalia (especially the hammer-shaped tip to the hamulus) and the anal appendages are similar in the two species. However strong differences between the two taxa also exist; for example, *malleifera* possesses a more prominent genital lobe, a strongly angulated keel on the 10th segment (only a blunt tubercle in *hamifera*) and the superior appendage possesses an apical point which is strongly upcurved (a weak

point in *hamifera*); only *hamifera* possesses a keel on the mid-tibiae.

The new species bears a considerable resemblance to *malleifera* in the formation of several structural characters; the accessory genitalia are fairly similar and the genital lobe is of a similar shape and size; the keel on the 10th segment is angulated to the same degree; the superior appendages bear a strong tooth in the same position; the size of the tibial keels (and the lack of one on the mid-legs) is the same.

Structural differences between the new species and *malleifera* include the following: *sombui* is a much smaller insect (hw 35 mm comp. with 51 mm); the triangles of both wings are uncrossed (crossed in fw in *malleifera*); the anal loop contains 6 cells (comp. with 9 cells); the nodal index is much lower (12:16:16:12 / 13:10:10:14 in *malleifera*); the 10th segment lacks a pair of blunt tubercles on either side of the angulated keel which are present in the *malleifera*; the exact shape of the hamulus and its apex differ (see Figs 4-5); the apex of the superior appendage is only drawn out into a weak point in *sombui*.

The new species and *malleifera* also differ in their markings; the mandible of *sombui* possesses a prominent yellow basal spot which is lacking in the larger taxon and the postclypeus is only partially yellow while that of *malleifera* is entirely yellow. Also the ninth abdominal tergite of the new taxon is marked with yellow whereas that of *malleifera* is all black.

Four other Asiatic taxa in the genus also possess a hamulus with a hammer-shaped tip: *clio* Ris, *cydippe* Laidlaw, *amphigena* Selys and *fraenata* Martin. The male of *clio* (from Taiwan) was described by ASAHINA (1968); the tip of the hamulus is similarly formed to that of the new species but *clio* has the dorsum of segment 10 less strongly angulated, the genital lobe weaker, a 7-9 celled anal loop and a much shorter inferior appendage which only just exceeds the superior appendages. In fact, LIEFTINCK, LIEN & MAA (1984) suggest that *clio* may be conspecific with *hamifera*. LIEFTINCK (1929) gives a full description and drawings of the Malaysian *cydippe* which differs from the new species in many respects e.g. abdominal segments 2-6 are unicoloured, the face is differently marked, the apices of the superior appendages are strongly divergent. In *amphigena* (from Japan) and *fraenata* (from Korea), the dorsum of abdominal segment 10 is smoothly curved and quite different from that of *sombui*.

Recently I received for determination a female *Macromia* specimen taken in Nepal (further data not to hand) from Mr Mahato of Kathmandu which accords very well with the material of *M. cingulata* in the BMNH Coll. from Mysore and N. India. Unfortunately, females of this genus lack many of the crucial features necessary for determination but this specimen is so distinctively marked (especially the extensively yellow facial markings and characteristically-marked labium) that it seems likely that it belongs to this taxon. However, four species of the genus have now been found in Nepal and, with further exploration of the tropical and sub-tropical regions, this number could doubtless be increased.

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