

SHORT COMMUNICATION

THE MALE SEX OF *APHYLLA ALIA* CALVERT AND *A. BOLIVIANA*  
BELLE (ANISOPTERA: GOMPHIDAE)

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The male abdominal segments of *A. alia* and the male of *A. boliviana* are described and illustrated for the first time.

INTRODUCTION

This small contribution fills two gaps in our knowledge of the species of the genus *Aphylla* SELYS, 1854. The male of *A. alia* CALVERT, 1948 is hitherto known only from an incomplete specimen, lacking the abdominal segments 5 to 10, whereas the male of *A. boliviana* BELLE, 1972 is still undescribed. The receipt of several males pertaining to these two species enables me to describe the unknown abdominal segments of *A. alia* and the male of *A. boliviana*.

*APHYLLA ALIA* CALVERT, 1948

Figures 1-2

*Aphylla alia* CALVERT, 1948: 49, 62, 66-67; pl. 1, figs. 16-19 (♂); – BELLE, 1970: 60-61; fig. 93 (♀).

Material. – *Venezuela*: Delta Amacuro, Curiapo, 17.XII.1952, 1 ♂ (teneral and much broken), F. Fernández Yépez leg., (Museo de Biología, Caracas); Delta Amacuro, Guiniquina, 20.VIII.1954, 1 ♂, (author's collection); 29.VIII.1954, 1 ♂, (Museo de Biología, Caracas), both Cermeli leg.; Delta Amacuro, Cano Guayo, 29.XII.1960, 1 ♂, R. Lichy & A.T. Perez leg., (Instituto de Zoología Agrícola, Maracay).

The present males are slightly larger than the holotype from adjoining Guyana. The measurements are: total length 52-53 mm; abdomen 40-41 mm; hind

wing 29-30 mm; costal edge of pterostigma in fore wing 3.7-3.9 mm.

The venation is very similar to that of the type. The triangle is three-celled in one fore wing, two-celled in the other wings; the subtriangle is two-celled in all fore wings, one-celled in all hind wings; and there is one supratrangular cross-vein in all wings.

The unknown abdominal segments of the male may be described as follows: Segments 5 and 6 dark brown on dorsal side, the lateral sides with orange basal spot reaching to submedian transverse carina. Segment 7 orange on basal half, dark brown on apical half. Segments 8 and 9 dark brown on dorsal side, orange on lateral sides; the lateral dilatations orange, narrow, and without denticles; the ventral side orange. Segment 10 brownish orange on dorsal side, orange on ventral side; the dorso-apical rim of segment 10 a quarter the length of segment, becoming dark brown at level of base of superior caudal appendages; the posterior dorsal margin of segment 10 devoid of denticles, and with semi-circular median excision. Superior caudal appendages dark brown.

I add figures of the apical abdominal segments and the specifically important caudal appendages of the male collected in Cano Guayo.

### *APHYLLA BOLIVIANA* BELLE, 1972

Figures 3-5

*Aphylla boliviana* BELLE, 1972: 222-224; figs. 9-10 (♀).

Material. — Bolivia: Dept. Santa Cruz, Buena Vista, IV.1933, 1 ♂, F. Steinbach leg. — Peru: Rioja, no date, 1 ♂, P. Martin leg., (British Museum (Natural History)). — Ecuador: Prov. Napo, Limoncocha (lake edge), 22.VIII.1971, 1 ♂, (author's collection); 25.VIII.1971, 1 ♀, both D.L. Pearson leg.; Limoncocha on Rio Napo (elev. 300 m), 8.XI.1973, 1 ♂, Boyce A. Drummond III leg., (Paulson's collection).

The male from the type locality in Bolivia is described below.

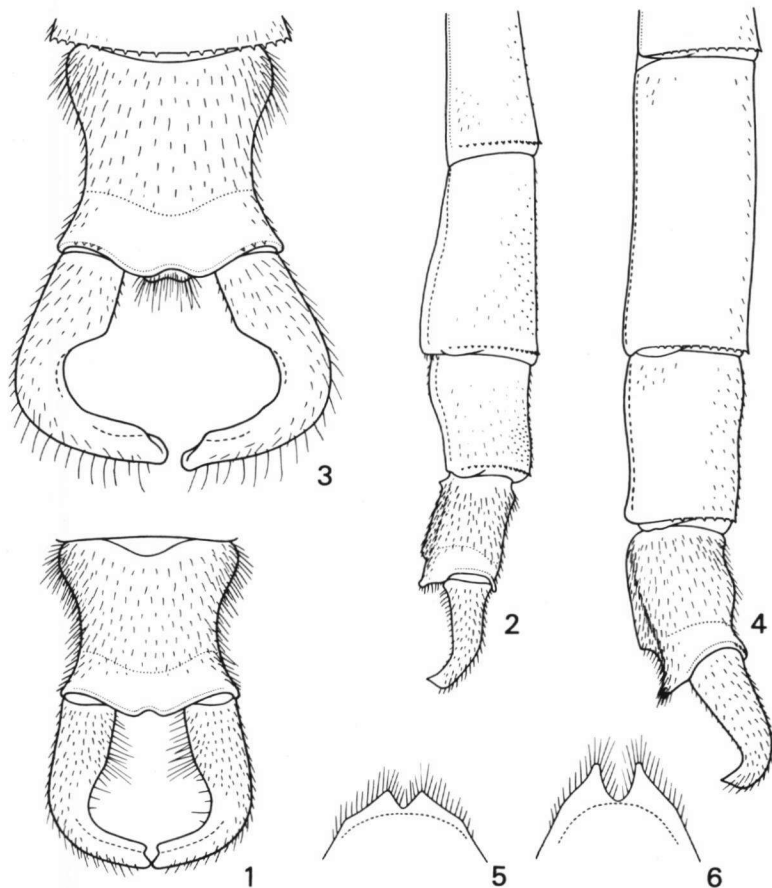
Male (hitherto unknown). — Total length 64 mm; abdomen 50 mm; hind wing 37 mm; costal edge of pterostigma in fore wing 5.0 mm.

Similar to holotype female regarding stature and coloration but abdomen more slender, first green antehumeral stripes slightly connected with green area of collar, and green band of superior surface of frons almost twice as narrow in middle as at level of lateral ocelli.

Abdomen predominantly dark brown. Venter and sides of segments 8 to 10 orange. Dorso-apical rim of segment 10 dark brown. Accessory genitalia of common type. Vento-tergal margins of segments 8 and 9 unexpanded and not denticulated. Greatest width of dorso-apical rim of segment 10 about one-third the length of segment. Dorsal posterior margin of segment 10 distinctly excised in middle and with a few black denticles at level of base of superior caudal appendages. Apical inferior angles of segment 10 markedly prolonged backward

in a point. Superior caudal appendages dark brown, shaped as shown in accompanying figures, the tips acutely pointed below.

Basal subcostal cross-vein wanting in left hind wing. Antenodal and postnodal cross-veins of first series 13:19-20:14/14:14-16:15 in fore and hind wings, respectively. Second primary antenodal cross-vein the sixth in right hind wing, the fifth in other wings. Intermedian cross-veins 10-12/6-8 in fore and hind



Figs. 1-6. Structural features of three *Aphylla* species: Figs. 1-2: *Aphylla alia* Calvert, male: (1) tenth abdominal segment and caudal appendages, dorsal view; – (2) apical segments of abdomen and caudal appendages, left lateral view. – Figs. 3-5: *Aphylla boliviana* Belle, male: (3) tenth abdominal segment and caudal appendages, dorsal view; – (4) apical segments of abdomen and caudal appendages, left lateral view; – (5) hood of penile peduncle, posterior view. – Fig. 6: *Aphylla producta* Selys, male, hood of penile peduncle, posterior view.

wings, respectively. Supratrangles two-celled. Triangle in fore wings three-celled, in hind wings two-celled. Subtriangle in right fore wing two-celled, in left fore wing three-celled, the cross-veins tri-radiate from centre. Subtriangle in hind wings open. Hind wings with four paranal cells, four postanal cells, a two-celled anal loop, and with a four-celled anal triangle.

The male from Peru is an old specimen, as apparent from the very brown wings. The first pale antehumeral stripes are not connected with the pale collar. The third pale lateral stripe of the pterothorax is much broader than in the male from Bolivia and nearly reaches the aslant hind border of the metepimeron. The abdomen is apparently discoloured and brown-red, but the nodules of the end segments are black, and the dorso-apical rim of the tenth segment is dark brown.

The males from Ecuador have the dark parts of the body almost black, and the first pale antehumeral stripes also unconnected with the pale collar.

*A. boliviana* is apparently an Andean species. It is closely related to *A. producta* SELYS, 1854 but the male is distinguished from *A. producta* by the following combination of features:

(1) Superior caudal appendages stouter and more thick-set than in *A. producta*; each appendage with the shoulder (thickened basal part) better developed and the acutely pointed, inferior apical tip longer than in *A. producta*.

(2) Vestigial inferior caudal appendage better "developed" than in *A. producta*, its posterior margin with a distinct median excision.

(3) Vento-tergal margins of abdominal segments 8 and 9 completely unexpanded; slightly expanded in *A. producta*.

(4) Transverse lamella of hood of penile peduncle small and with a small, V-shaped, median excision; this lamella much better developed and medially deeply excised in *A. producta* (Fig. 6).

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