

TWO INTERESTING SPECIES OF AESHNA Fabricius
FROM ZAMBIA (ODONATA: AESHNIDAE)

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ABSTRACT

Both species were collected in North Mwinilunga Province in recent years. One, represented by a single example of each sex, is evidently a new species, now named *Aeshna moori* spec. nov., of the *rileyi* group; the other, consisting of two males, is *A. wittei* Fraser, hitherto known from a single incomplete male holotype from Zaire.

INTRODUCTION

During a general entomological expedition to North Mwinilunga's Ikelenge District in April-May 1972, my companion and colleague F. C. de Moor captured single males of two very interesting *Aeshna* Fabricius (1775) on separate days. Both were placed in envelopes to be examined later in camp, whilst general collecting proceeded. Unfortunately, both became rapidly stained by postmortem changes probably due to their alimentary contents being affected by the high humidity and temperatures prevailing, particularly at the camp site at the Upper Zambezi rapids. Fortunately, I made a note of general colours in life and a colour photograph was taken of the first specimen before the changes took place.

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DESCRIPTIONS

I had suspected that the first male might be Fraser's *wittei*, described originally from a male lacking the important anal appendages. I now consider this to be a correct identification.

AESHNA WITTEI Fraser

Fig. 1

Fraser, 1955: 15

Fraser's holotype ♂ and allotype ♀ had lost appendages in both sexes. They were captured in Upemba National Park, Shaba, 19th February 1948. This is in the same faunistic region as North Mwinilunga. It was also the only recorded *Aeshna* of the Afro-tropical region not previously obtained for the National Museum except for *A. meruensis* Sjöstedt (1899) known only from a type male from Mount Meru, N.E. Tanzania, collected in January 1906. A list of species, hitherto known, is to be seen in Pinhey (1962), except that it is now believed that *subpupillata* McLachlan (1896) should be separated from *rileyi* (Calvert, 1892). This will be done in another paper with press.

Fraser's description of the holotype male *wittei* was hindered not only by lack of appendages but also by staining. When I examined it in Tervuren's Musée Royal de l'Afrique Centrale in 1964 it was, moreover, found to be juvenile.

A comparison between features in Fraser's description with this Mwinilunga specimen shows compatibility, except where otherwise stated (in brackets):

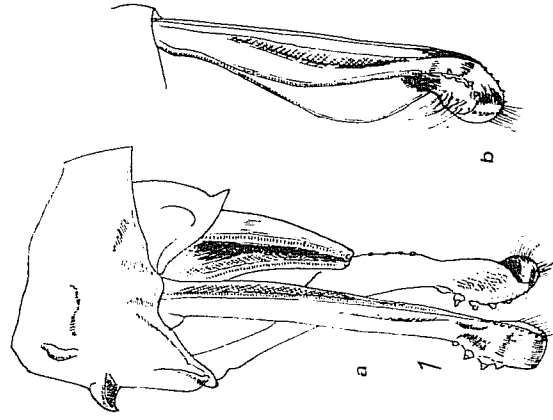
Wings of type hyaline, the membranule white; pterostigma short, covering 3-4 cells. Anal triangle with only two cells; anal loop (hindwing) of 10 cells; 2-3 hyper-trigonal cross-veins (similar, but right forewing with 4). Forewing with 6-7 Cuq, hindwing with 4-5. Discoidal triangles with 5 cells in forewing, 4 in hindwing (similar, but right forewing with 4). Only 2 rows of cells between forks of IR₃ (but in Mwinilunga example 3 rows in forewing, 2-3 in hindwing); a maximum of 4 rows in Rsp1 loop. Base of hindwing only slightly convex. Costa yellow (costa black, enclosing a fine yellowish line). Oreillets triangular. Pterostigma yellowish (deep ferruginous).

The few divergencies in the comparison are less significant than the similarities. The minor differences in cross-veins or number of cells in a triangle in one wing can be ignored. The yellow pterostigma (yellowish brown in my interpretation) and the yellow costa of the type are signs of immature condition. The one dissimilarity in the rows of cells between the forks of IR₃, is, perhaps, an uncertain character, but not a vital one. Fraser did not say whether the two rows referred to all wings and I did not examine this condition in 1964.

Fraser recorded the dimensions as: abd. 56 mm, hindw. 50 mm. He normally included length of superior appendages and, since these were missing in the type, I believe he may have allowed for such a length, because my measurements for the type were abd. 50 mm, hindw. 49 mm.

The lengths for the Mwinilunga specimen are: abd. 50 mm, hindw. 47 mm. The length of the superior appendage is 6 mm, which would account for Fraser's 56 mm.

The similarities in overall size, nearly every venational feature and the oreillets, indicate that the Mwinilunga example is conspecific. A second male was captured a few years later by Alan Heath of Zambia, but somehow or other it became both



1. *Aeshna wittei* a. Segment 10 and anal appendages, from right; b. right superior appendage, from above.

crushed and shattered, except, surprisingly, for the anal appendages which are intact and serve adequately for identification!

A description of the complete Mwinilunga specimen, including colours in life, but omitting features already compared, can serve to complete the picture:

Mature ♂ (Ksombo Sombo). Entire face, in life, and frons grass green; eye dark green above, pale blue in front, yellow-green below. Basal black mark on frons a broad "T". Fraser only said the type had a basal spot in a yellow frame, but when I examined it in 1964 the mark was T-shaped. The yellow frame could be an immature condition.

Thorax ferruginous. Thoracic and abdominal pale colours bright grass-green. Synthorax with narrowish, rather curved antehumeral stripe; a continuous even band on mesepimeron; a broader metathoracic band, pointed below and severed at halfway by an oblique brown line.

Legs blackish brown, femora mainly ferruginous.

Abdomen ferruginous; constricted on segment 3, then cylindrical like most Afro-tropical species. Segment 1 with narrow transverse posterior stripe; segment 2 with two transverse bands, a broad anterior and a narrow posterior one. Segment 3 (in photograph) is partly obscured by base of hindwing, but there is a green basal mark and a small postero-dorsal hemisphere; 4-7 with oblique line on transverse carina and a narrower postero-dorsal fascia than on segment 3; segment 8 similar but both markings reduced; 9 with only a postero-dorsal trace. Segment 10 and anal appendages as in Fig. 1. Segment 10 has a prominent mid-dorsal tumour. Superior appendage club-shaped, twisted, with robust sub-terminal teeth. Genital lobe not prominent.

Material examined.

Tervuren Museum: Holotype ♂ Kaziba; Allotype ♀ Kalumengongo, Upemba National Park, Zaire, 19 Feb 1948.

National Museum: ♂ Ksombo-Sombo River, near Isombo River, North Mwinilunga, Zambia, 15 Apr 1972 (F. C. de Moor); 1 ♂ (fractured) Isombo River, 20 Apr 1978 (A. Heath).

The second male captured by de Moor in Mwinilunga is a larger species and a female was collected some years later by Alan Heath. This represents a new species which I take pleasure in naming after my one-time colleague, Ferdinand C. de Moor.

AESHNA MOORI spec. nov.

Fig. 2

By anal appendages and the long, protruding genital lobes on abdominal segment 2 this species is in the *rileyi* group. The frons mark, however, is distinctly T-shaped and not ocellated as in this group. I am indebted to Alan Heath of Mufulira who collected the female of this new species, as well as the second male *wittei* mentioned above.

Holotype, mature ♂. Colours in life: the labrum yellow, green in centre, face and frons green. Eye green, yellow post-ventrally. Synthorax bright green, abdominal markings (now obscured) pale green.

Post mortem colours: Labium ochreous, posterior lobe more reddish brown. Labrum yellow, with green central zone; rest of face olive. Frons above green, with a thick-stemmed black "T", the stem slightly more swollen near base and edged with yellow. Vertex black.

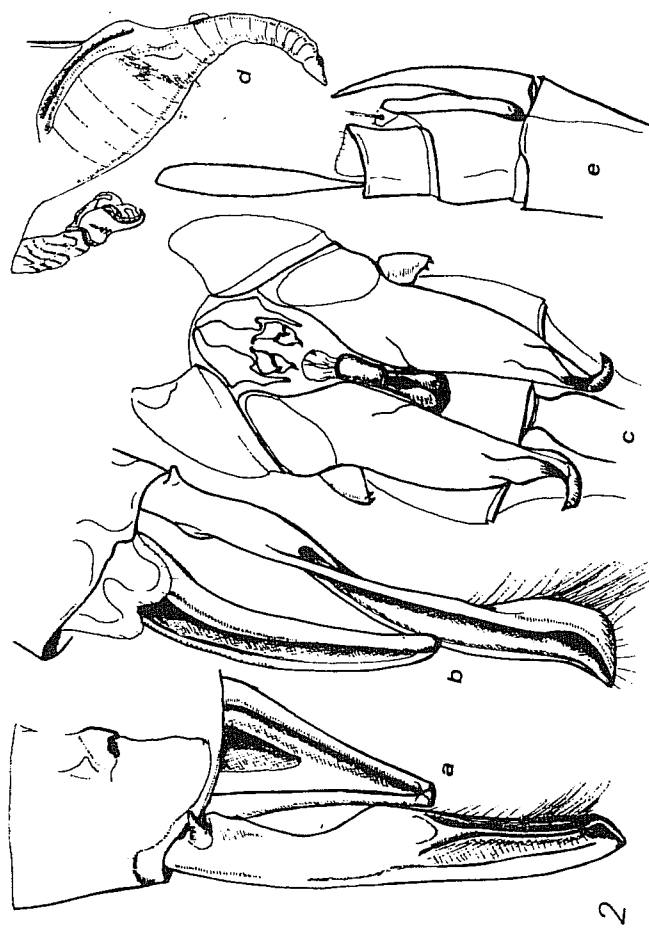
Thorax dark ferruginous, paler laterally and ventrally, with the usual three green stripes, antehumeral and two lateral, all slender.

Wings fumose. Pterostigma 3 mm, red-brown. No basal wing markings. Membranes grey, cream anteriorly. Forewing with 19 Ax on left, 20 on right, on both sides with two of the veins Y-forked; 1st and 7th cross-veins being primaries; 11 and 12 Ax. Costa black, enclosing a fine yellow line. Forewing triangle with 6 cells. Hindwing, anal triangle of 3 cells; anal loop of 9 (left) and 10 cells.

Legs black; hind and middle femora ferruginous on basal three-quarters, fore femur more extensively black.

Abdomen sharply constricted on segment 3, broadened posteriorly on 4-6, then tapering; flat ventrally. Orellets small, conical, with two small teeth. Abdomen ferruginous, the markings indistinct through staining; segment 2 has an angular lateral stripe; segments 3-4 (probably also 5 to 7) pale at base, and with a pale triangle immediately distal to the transverse carina. Segment 9 has an oblique dorso-lateral streak. Segment 10 with mid-dorsal tooth (Fig. 2a).

Superior appendage (Fig. 2a, b) with small dorso-basal tooth; the shaft expanding into a blade, which has an inner ridge; the apex down-turned, hollowed-out below; a tuft of long sub-apical hair on inner edge. Inferior appendage two-thirds as long



2. *Aeshna moori* Holotype: a. left half of segment 10 and anal appendages from above; b. anal appendages from left; c. segment 2 in entirety, from below, to show orellets, the elongated genital lobes and other accessory genitalia; d. prophallus and left genital lobe, from left, more enlarged and in greater detail. Allotype: e. terminal segments of abdomen, from right, with cercus and ovipositor sheath.

as superior. Accessory genitalia (Fig. 2c, d) with elongated, protuberant genital lobes as in *rileyi* (Calvert, 1892), but these tapering to a curved point; a minute ventral tumour at halfway. Prophallus as in fig. 2d.

Abd. (without append.) 48 mm, superior append. 6,5 mm, hindw. 49 mm.

Allotype, mature ♀. Labium ochreous, posterior lobe slightly shaded with reddish brown. Face, frons, thorax and legs as in holotype male.

Wings fumose. Pterostigma as in male. Membranes mainly cream, grey-brown distally. Forewing with 19 Ax, none branched; 11 Px. Anal loop with 11 cells.

Abdomen cylindrical, broad at base, constricted on segment 3. The green markings are faintly visible in some parts through the staining; segment 1 with ventro-lateral fascia; segment 2 with green stripe edging entire proximal edge of transverse carina; segments 3-7 at least partly green at base before transverse carina and just after this carina a dorsal triangle which is divided by the mid-dorsal carina; segments 9-10 with dorso-lateral fascia at distal end. Cerci (Fig. 2e) long, 7,5 mm, foliate, the apex oblique.

Abd. (without cerci) 50 mm, hindw. 54 mm.

This species is easily distinguished in the male by the protruding genital lobe, similar to the *rileyi* group but differing from this section by the tapering of this genital lobe to a slender, down-curved point; and by the marking on the frons being T-shaped instead of ocellate. The female, from the same area, agrees in general features with the male and is distinct from others of the *rileyi* group by its longer cerci.

Material. Holotype ♂ Kamankundju River, Sakeji-Shaba road, North Mwinilunga, 19 Apr 1972 (F. C. de Moor); allotype ♀ Isombo River, west Ikelenge, North Mwinilunga, 8 Mar 1979 (A. Heath). Type series in the National Museum, Bulawayo.

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