

**A DESCRIPTION OF THE FEMALE
OF *AESHNA DRACO* RACENIS, 1958
(ANISOPTERA: AESHNIDAE)**

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The allotype is described and figured (Venezuela, Estado Bolivar, Mount Roraima, alt. 2800 m, 25-VII-1991, G.S. Vick leg.), and notes are provided on identification of the sp. and on its habitat requirements and distribution.

INTRODUCTION

RACENIS (1958) described the type, a male, of *Aeshna draco* from Auyan-tepui, in Estado Bolivar, Venezuela (alt. 1700 m, 15-IX-1958, Trebbau leg.). The species appears to be one of the 'pantepuyan' elements of the Venezuelan fauna (DE MARMELS, 1989) and a brief explanation of this term is given below.

MAYR & PHELPS (1967) provide a summary of the geography of the region, with an analysis of the avifauna. The sandstone tabletop mountains which occur in southern Venezuela, and adjacent border regions of Brazil and Guyana, are called by the Pemon Indian name of tepui. There are about a hundred tepuis, most rising abruptly from the surrounding lower land to a height of about 2000 m. They are made up of the extremely hard and erosion-resistant remains of the pre-Cambrian Guyana Shield, a sandstone plateau once covering the entire area. This has been extensively eroded to leave the tepuis standing as 'islands' of sub-tropical climate, surrounded by lower areas of tropical forest or savanna. MAYR & PHELPS (1967) called this region of sandstone tabletop mountains 'Pantepui'. There is a high degree of faunal endemism at specific and sub-specific levels. A number of endemic elements of the fauna and flora occurs only on the summits and lower slopes of many of the tepuis of the region; these are the 'pantepuyan' species. An excellent account of the region for general readers was

published by GEORGE (1989).

J. De Marmels (in litt.) has provided me with a list of all known sites for the species. Other localities in the main group of tepuis in Eastern Bolivar from which the species are known are Roraima (2810 m), Ptari tepui (2620 m), Guaiquinima (1800 m) and Chimanta-tepui (2000 m). The altitudes given are approximately those of the highest point of the tepui. In the West, in Amazonas Territory, *A. draco* has been found on Marawaka at 2600 m and Arakamuni, and on the Cerro Neblina (DE MARMELS, 1989), where it was taken between 1800 and 2100 m. It has not been found outside Venezuela.

Although males have been found and the larva was described by DE MARMELS (1990), a female has never been captured before. In July 1991, I was a member of an expedition which climbed Mount Roraima. In the bare rock pools on the summit I collected two larvae which were easily recognisable as *A. draco* by the spiniform epiproct. As the conditions were very cool, windy and dull, and adults were not expected, no net was available when a female was seen ovipositing on the mossy margins of one of the pools. Fortunately, I was able to make a capture by hand. Allowing for natural sexual differences, the specimen agrees very closely in markings, structure and wing-venation with Racenis' type male and I have no hesitation in determining it as *Aeshna draco*.

As I had been unable to obtain acetone in Venezuela, the specimen was soaked in iso-propyl alcohol for 8 hours; colour preservation was poor. Fortunately, colour slides were taken of lateral, dorsal and anterior views of the insect while still alive. These have preserved an accurate record of colour which has been of great value in producing the description and colour plate. In the allotype specimen, the regions described as sky-blue below have faded to a dull bluish-grey.

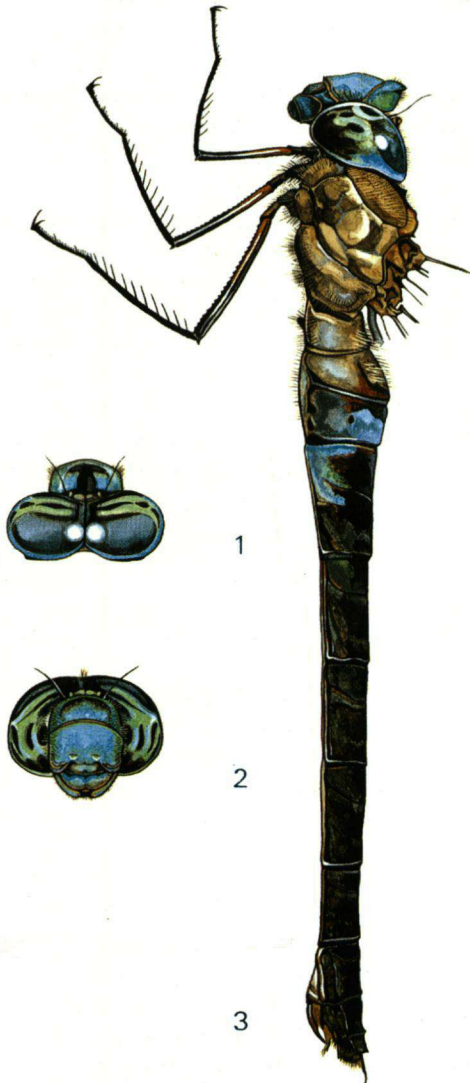
AESHNA DRACO RACENIS

Figures 1-6

Material. — Allotype ♀: Venezuela, Bolivar State, Mount Roraima, alt. 2800 m, 25-VII-1991, G.S. Vick leg.

FEMALE (allotype). — Abdomen + appendages 58 mm; — hindwing 55.5 mm.

Head (Figs 1, 2). — Labium sky-blue with dark-brown basal and apical margins; mandibles sky-blue, apical teeth black; labrum sky-blue shading to dull greyish-brown ventrally; anteclypeus greyish-blue (duller than colour on disc of postclypeus); postclypeus sky-blue, shading to a dull greyish-blue on facial lobes; frons with anterior surface sky-blue, dark-brown on cross-ridge, and dorsal surface sky-blue marked with dark-brown T which is widest at base and narrows to about 0.7 of basal width at point where it joins the cross-piece on the ridge; vertex black around median ocellus and vesicle raised, curved, lacking prominent notch, greenish-blue marked with brown basal band which widens to enclose lateral ocelli; antennae black, last two segments of flagellum pale green; occiput greenish-blue on dorsal surface; rear of head glossy black.



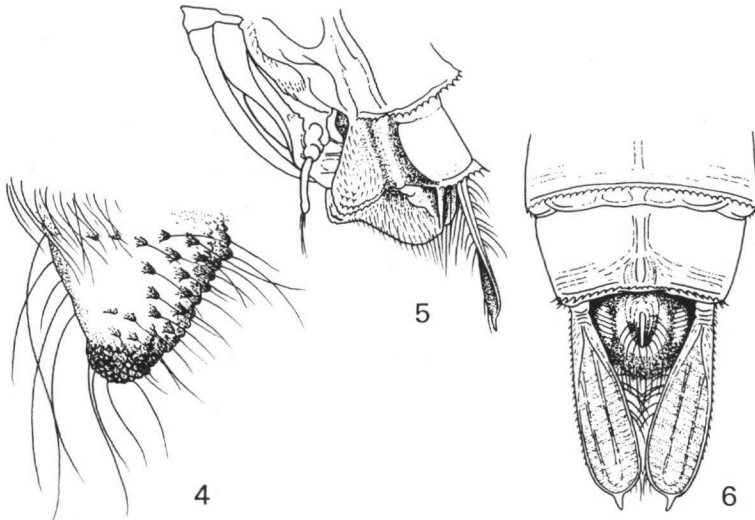
Figs 1-3. *Aeshna draco* Racenis, ♀ (Mount Roraima, Venezuela, 25-VII-1991): (1) head, dorsal view; - (2) head, anterior view; - (3) head, thorax and abdomen, lateral view.

Prothorax. — not examined.

Synthorax (Fig. 3). — Almost entirely dull reddish-brown, unmarked with blue except for spots on axillary plates; dorsal carina, sub-alar and ante-alar ridges, humeral and metapleural sutures all finely lined in dark-brown.

Legs. — Coxae dark-brown; trochanters and femora reddish-brown, shading to black apically; tibiae black; tarsi black with claws reddish-brown basally; all spines black except for 9 reddish-brown apical spines on fore-tibia which form 'comb'.

Wings. — Hyaline with a rich warm-brown basal suffusion extending to sub-triangle in median and cubital spaces and to nodus in costal space; neuration very dark brown; Pt dark-brown dorsally, golden ventrally, subtending 2 cells, length 3.0 mm in fore-wing, 2.7 mm in hindwing; membranule uniformly dark-brown, extending to fourth marginal cell; IR3 bifurcating well before Pt (at 12-13th post-nodal in hindwing), 3 cells wide at level of basal end of Pt (increasing to 4 at level of apical end in both right-hand wings); 7 doubled cells between Cu2 and A1 in hindwing; nodal index 16:20:22:13 / 17:13:13:17; primary antenodals are 1st and 9th in forewing, 1st and 7th in hindwing; triangle 2-1-1 and 2-1-1-1 in forewing, 2-1-1-1 in both hindwings, proximal side about 0.6 of posterior side; transverse veins in hypertriangle 3:3 / 2:3; anal loop with 10 cells and 3 rows on left, 12 cells and 4-3 rows on right; cubito-anal cross-veins 7:8 / 6:6 (including 2-celled sub-triangle).



Figs 4-6. *Aeshna draco* Racenis, ♀ (Mount Roraima, Venezuela, 25-VII-1991): (4) detail of tubercle on first sternite, lateral view; — (5) anal appendages and ovipositor, lateral view; — (6) anal appendages, dorsal view.

A b d o m e n (Figs 3-5). — Except where stated, very dark-brown, with apical and basal segmental ridges and supplementary transverse carinae finely lined in black; segment 1 pale reddish-brown, bearing a ventral tubercle and a dark-brown dorsal ridge, the tubercle (Fig. 4) reddish-brown bearing numerous black spinules which are smaller and more numerous medially and long black hairs which are 0.8 length of segment 1; segment 2 with anterior half of tergite reddish-brown, mid-segmental ridge black, posterior half of tergite extensively sky-blue, bearing a short black lateral band on dorsum and several small black spots on sides, a small raised area on sternite close to large tubercle on segment 1; segment 3 marked with sky-blue on lateral surfaces of tergite with 3 sky-blue bands amalgamating ventrally; segments 8 and 9 with sternites, genital valve (including styli) and ovipositor reddish-brown, the latter strongly curved and reaching to middle of segment 10 (Fig. 5); dentigerous plate reddish-brown with fine black teeth; segment 10 with weak dorsal longitudinal ridge.

A p p e n d a g e s (Fig. 6). — Length equal to that of segment 9, lanceolate with apices drawn out into fine projections; dorsal surface roughened, flat.

DISCUSSION

Identification of *Aeshna draco* should be a straightforward matter as it possesses a unique set of characters: a uniformly-coloured thorax, an almost entirely blue head, an unusual pattern of abdominal markings and the apices of the female appendages strongly drawn out into a point.

It possesses all the characters of the subgenus *Hesperaeschna* Cockerell, 1913, given by CALVERT (1956), except that it lacks the lateral stripes on the thorax. In particular, there is close agreement in the following respects: a ventral tubercle is present on the first abdominal segment; there is a mid-dorsal carina on the tenth segment; supratrangular cross-veins are present; the male appendages are not bifurcated nor with an ante-apical point. There is good agreement in all venational characters. However, the lack of any stripes on the thorax and the shape of the vertex, which is scarcely notched, are at variance from the subgeneric definition as was pointed out by RACENIS (1958).

The summit of Roraima is a swampy plateau. Large numbers of huge rocks, which have been eroded into curious shapes, are exposed on the surface. The habitat where I found *A. draco* consists of standing water in bare rock pools, mostly devoid of any submerged vegetation. Shelter from the strong winds seems to be provided by the surrounding rocks. Mosses form the predominant marginal vegetation but bromeliads, sundews and the sun-pitchers are common. Much of the substrate of the pools consists of fragments of the hard crystalline rock. The water is perfectly clear and it was easy to see the larvae swimming in the pools when the water was disturbed. The captured female was ovipositing on the mossy margins of one of the pools during a brief period when the mist cleared and

sunshine was seen. The temperature was not measured but I would estimate that it was about 17°C when the female was flying. No other odonates were seen.

It appears that *A. draco* is fairly tolerant in its habitat requirements as RACENIS (1958) reported it from running water in dense cloud-forest at 1700 m (the type locality). DE MARMELS (1989) saw males patrolling a creek on the Cerro de la Neblina at 2085 m but in a more sheltered situation than described on Roraima. It would appear to be a relatively tolerant member of the 'pantepuyan' fauna and could be expected to occur on most of the tepuis which have permanent water.

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