

**CASTORAESCHNA DECURVATA SPEC. NOV., A NEW DRAGONFLY
FROM ARGENTINA, WITH A KEY TO THE GENUS
(ANISOPTERA: AESHNIDAE)***

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C. decurvata sp. n. (holotype ♂ ; Fla. St. Coll. Arthropods, Gainesville, Florida, USA) is described from 15 males collected at Alta Gracia, Cordoba Province, Argentina, in January 1979. The new sp. is similar to *C. januarina* (Hag.) but differs in having downcurved nearly hairless male cerci, wider green stripes on the thorax, and the radial sector vein (Rs) forked asymmetrically. A key to adults of the 7 described spp. of *Castoraeschna* is presented.

INTRODUCTION

CALVERT (1956) listed 5 species in the exclusively neotropical genus *Castoraeschna*. JURZITZA (1979) described *C. margarethae*, and we add here a seventh species, *C. decurvata*.

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Figures 1-3

Material. — Holotype male: Argentina, Cordoba Province, Alta Gracia (31.42S, 64.25W) S. Bolle, January 1979 (exact date unknown). Deposited in Florida State Collection of Arthropods (FSCA), Gainesville. Paratypes: Fourteen males with same data as holotype, 1 in FSCA, others currently in author's collections.

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The name "decurvata" refers to the species' most distinctive character, the downcurved male cerci.

DESCRIPTION OF MALE

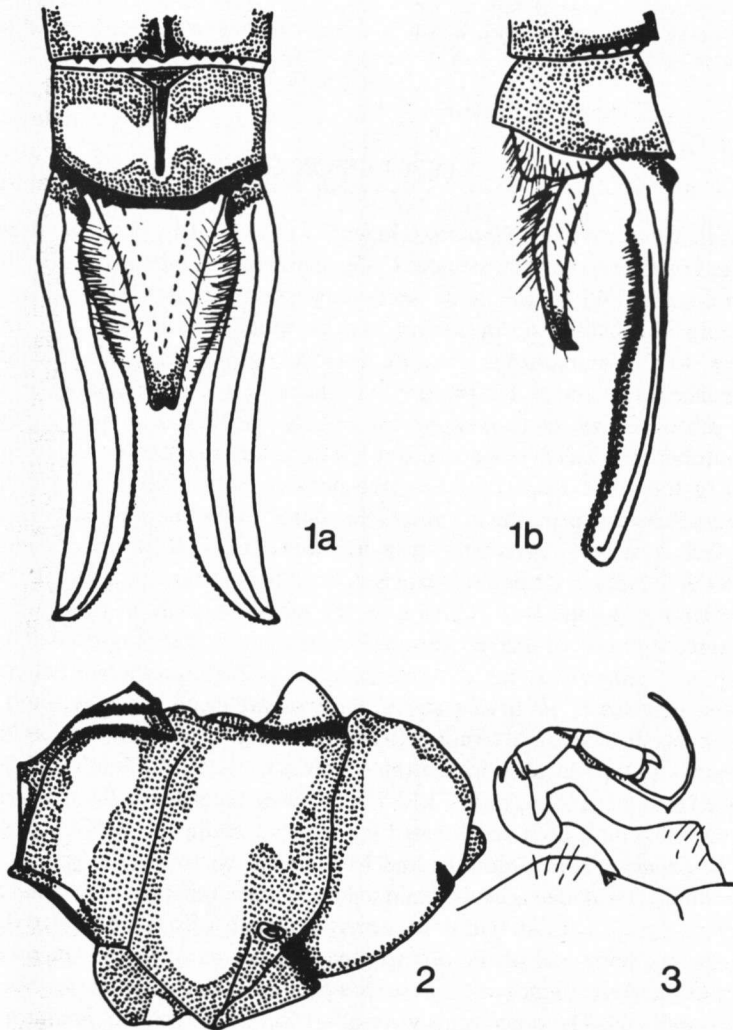
Labrum and labium dull yellow, or labial palps may be tinted green. Clypeus and frons yellow-brown, rugose anteriorly, with no trace of T-spot. Antennae black, vertex bilobed and black. Occiput brown with a flat-topped inferior-medial protuberance. Rear of head black medially and dorsally, yellow laterally.

Prothorax dark brown. Pterothorax brown ventrally, with wide brown stripes mid-dorsally, on humeral sutures, and on second lateral sutures. Rest of pterothorax gray-green (may be bright green in life), including antealar sinuses and interalar sclerites. Mid-dorsal carina brown edged with green. Mid-dorsal brown stripe bell-shaped or triangular, spreading downward to collar. Antehumeral green stripe at mid-height about 2 mm wide. Humeral brown stripe about 1/3 narrower at its upper end than at lower end. Mesothoracic green stripe wider than brown stripe just posterior to it which covers second lateral suture. Mesothoracic green stripe has thumblike projection extending toward spiracle (cf. Fig. 2) in holotype and 8 paratypes. "Thumb" reduced to small isolated spot in 2 paratypes, obsolete in 4 paratypes. Legs red-brown from base to distal ends of femora and black beyond, except for prothoracic femora which are black below.

Wings with costal vein and nodus brownish yellow, pterostigma yellow-brown, membranule white, remainder of venation black. Radial sector (Rs) forks at about level of proximal end of pterostigma, with anterior branch meeting posterior branch at 60-80 degree angle, causing fork to be asymmetrical. There are 3, occasionally 4, rows of cells within fork of Rs at level of distal end of pterostigma. Forewing (FW) cubito-anal crossveins 4-6, hindwing (HW) cubito-anals 3-5, 3-5 cells in triangles, 2-4 cells in supratrangles, 2 cells in anal triangles, anal loop with 10-13 cells. FW antenodal crossveins 16-20, HW antenodals 11-14, FW postnodals 11-15, HW postnodals 13-17, 2-3 bridge crossveins, 3-5 crossveins behind pterostigma. Pterostigma usually lacks a true brace vein; rather the functional brace vein is offset up to 1/3 of a cell proximally. In 2 paratypes brace vein at proximal end of pterostigma in 1 wing each.

Abdominal segment 1 with bulging, hairy, postero-dorsal transverse ridge, and hairy mid-ventral tubercle. Postero-ventral process of tergite 1 rounded and roughened, but without denticles. This process projects 0.28-0.32 mm ventrally, and genital lobe projects about 0.28 mm ventrally, as seen in lateral view. Spines of anterior lamina 0.56-0.60 mm long. Penis illustrated in Figure 3. Auricles with 3-4 fanglike teeth, the outermost small if present. Abdomen widens from segment 3 to segment 10 as seen in dorsal view. In lateral view cerci curve ventrally, with low inferior protuberance at 1/5 length (Fig. 1a). In dorsal view lateral margins of cerci slightly concave, and mid-dorsal carina extends full length of blades. Blades

of cerci with maximum width of 1.04–1.20 mm. Medial margins of blades practically without hairs, but some hairs proximal to blades (Fig. 1b). Medial edges of cerci from inferior protuberance to tip roughened with numerous flat-topped black denticles. Epiproct 2/5 as long as cerci.



Figs 1-3. *Castoraeschna decurvata* sp. n. male: (1) abdominal segment 10 and appendages in left lateral view (a) and dorsal view (b); - (2) pterothoracic color pattern in left lateral view; - (3) penis and genital lobe in left lateral view.

Color pattern of abdomen in available specimens not well preserved, but seems brown with gray-green markings as follows: Segments 2-6 with large antero-lateral spots which occupy area anterior to transverse carinae. Small triangular mid-dorsal spots on 3-7. Large rounded postero-dorsal spots, which may be confluent dorsally, on 2-10.

Measurements of holotype with size ranges of 15 males in parentheses: Total length including cerci 79.4 (74.8-86.0) mm, abdomen without cerci 52.0 (50.8-57.0) mm, cerci 7.0 (7.0-7.4) mm, hindwing 48.0 (46.0-52.0) mm.

Female, larva, and biology unknown.

DISCUSSION

C. decurvata keys to *C. januarina* (Hagen) in CALVERT (1956); we present a key based on Calvert's which includes *C. decurvata* and *C. margarethae* following this discussion. While the male secondary genitalia and the epiproct are practically identical in *C. decurvata* and *C. januarina*, the cerci are notably different. In *C. decurvata* the cerci are downcurved in lateral view, the inferior prominence is low and at 1/5 the length of the cerci, and the medial edges of the blades are not hairy. In *C. januarina* the cerci are upcurved in lateral view, the inferior tubercle is well developed and at 1/4 the length of the cerci, and the blades medial to the mid-dorsal carinae have a dense growth of long black hairs. *C. decurvata* has a less prominent genital lobe than *C. januarina*; it projects ventrally about 0.28 mm in *C. decurvata* in lateral view, 0.33-0.40 mm in *C. januarina* (CALVERT, 1956), but this difference is difficult to quantify because of the lack of good reference points. In *C. decurvata*, the terminal cornu of the penis has a prominent point at its dorsal curvature (Fig. 3) which is absent or present only as a bump in *C. januarina*. Other differences, in the pterothoracic color pattern and venation, between *C. decurvata* and *C. januarina* are given in the key; and these will probably also be found to apply to the females. *C. decurvata* is so far known only from the type locality in central Argentina. JURZITZA (1981) listed *C. januarina* from Argentina, and CALVERT (1956) recorded it from Brazil and Paraguay. We have seen specimens from these 3 countries. MARTIN (1908) listed *C. januarina* from Colombia and Mexico but without more specific data.

The family Aeshnidae is usually said to have a brace vein at the proximal end of each pterostigma. The fact that brace veins are usually offset (not located directly under the proximal end of the pterostigma and not parallel with the proximal margin of the pterostigma) in *C. decurvata* prompted us to look at this character in other aeshnids. The brace veins were offset in 17 of 19 male *C. januarina* and 1 male of *C. castor* (Brauer), but 2 male *C. coronata* (Ris) had sinuate brace veins. An examination of a few specimens of each of the 33 aeshnid genera available revealed that 12/33 or 36% typically had offset brace veins.

KEY TO ADULT *CASTORAESCHNA*

- 1A T-spot on dorsal frons absent, or at most represented by a narrow or obscure brown line at the junction of the dorsal and anterior surfaces of the frons2
- 1B T-spot complete, or only its head present3
- 2A(1A) Male cerci decurved in lateral view with a low inferior prominence at 1/5 their length, blades not hairy on medial edge in dorsal view. Antehumeral green stripe 2 mm wide at mid-height, mesothoracic green stripe wider than adjacent posterior brown stripe. Fork of Rs asymmetrical, branches meeting at a 60-80 degree angle.
Female unknown *decurvata* sp. n.
- 2B Male cerci upcurved in lateral view with a well developed inferior tubercle at 1/4 their length, blades densely hairy medially in dorsal view. Antehumeral green stripe less than 1.4 mm wide, mesothoracic green stripe equal to or narrower than adjacent posterior brown stripe. Fork of Rs symmetrical, branches meeting at about a 30 degree angle *januaria* (Hagen)
- 3A(1B) Head of T-spot present, stem absent. Female unknown4
- 3B T-spot complete, stem triangular and wider anteriorly5
- 4A(3A) Postero-dorsal pale spots well developed on abdominal segments 2-10. Male cerci with rounded tips. Fork of Rs includes 4 rows of cells at level of distal end of pterostigma *longfieldae* (Kimmins)
- 4B Postero-dorsal pale spots reduced to narrow transverse stripes on 4-8, vestigial or absent on 9 and 10. Male cerci with an acute lateral angle at tip in both lateral and dorsal views. Fork of Rs with 2-3 rows of cells *coronata* (Ris)
- 5A(3B) Male cerci without an inferior sub-basal tubercle. Postero-dorsal pale abdominal spots small, present on segments 2-6. Female unknown *margarethae* Jurzitza
- 5B Male cerci with an inferior sub-basal tubercle. Postero-dorsal pale abdominal spots large, present on segment 1 or 7-9 in addition to other segments6
- 6A(5B) Postero-dorsal pale spots well developed on abdominal segments 1-5 of both sexes. Postero-ventral processes of abdominal tergite 1 of male 0.32-0.73 as wide as long in profile view, apex without denticles. Size larger: male abdomen excluding appendages 53-57 mm, female 50-58 mm; male hindwing 50-53 mm, female 51-53 mm *castor* (Brauer)
- 6B Postero-dorsal pale spots well developed on 2-10 in male, 3 or 4-9 in female. Processes of abdominal tergite 1 of male 0.14 as wide as long, apex with denticles in both lateral and ventral views. Size smaller; male abdomen 42 mm, female 48 mm; male hindwing 40 mm, female 45 mm *colorata* (Martin)

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