

**DOWNESHELEA BICORNIS, A NEW NEOTROPICAL PREDACEOUS MIDGE FROM BRAZIL (DIPTERA: CERATOPOGONIDAE)**

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*A new Brazilian species of Downeshelea Wirth & Grogan, D. bicornis, is described and illustrated from a male specimen.*

Key words: Neotropical predaceous midge – *Downeshelea bicornis* sp. n. – Brazil

Studying material from light trap collections made by the Fundação Estadual de Engenharia do Meio Ambiente (FEEMA) in Rio Bonito, Rio de Janeiro, Brazil, we found a new species of *Downeshelea*, described here based on a male specimen.

As the genus *Downeshelea* previously included the species of the *Monoshelea multilineata* Group, we used in our descriptions the terminology explained in *Monoshelea* revisions by Wirth & Williams (1964) for Northamerican species, Lane & Wirth (1964) for Neotropical species, and Ratanaworabhan & Wirth (1972) for Oriental species.

*Downeshelea bicornis* Felipe-Bauer & Quintelas,  
new species  
(Figs 1-11)

*Type locality:* Rio Bonito, Rio de Janeiro, Brazil.

*Male Holotype:* wing length 1.08 mm; breadth 0.36 mm.

*Head:* eyes (Fig. 5) black, widely separated, bare. Antenna (Fig. 2) pale brown except on the pedicel, submedian portion of the 3rd segment and the last 3 segments, which are brown; flagellar segments 4-11 somewhat barrel shaped, 12 about 3 times as long as wide, 13-15 elongated; lengths of segments 3-15 in proportion of 55-17-17-18-17-16-16-15-

17-21-50-43-47; antennal ratio (12-15/3-11) 0.86. Palpus (Fig. 4) uniformly brown; lengths of segments in proportion of 10-16-24-13-21; 3rd segment swollen, with a small moderately deep rounded sensory organ in mid portion; palpal ratio 2.1.

*Thorax:* mesonotum (Fig. 11) brown with grayish and dark brown rounded areas; scutellum yellowish with a median brown band; postscutellum and pleura dark brown. Legs (Fig. 3) brown, paler on fore leg, darker on hind leg; knees yellowish; fore tibia with a slender spur, fore and hind tibiae with a patch of packed bristles on subapical portion; hind tibia with a short apical spur, hind tibial comb with 6 spines; trochanters, femora and tibiae of the fore, mid and hind legs with lengths respectively in the following proportions: 11-48-46; 10-57-52; 11-61-54. Tarsi (Fig. 8) pale and pilous; hind basitarsus (Fig. 7) with one row of ventral palisade setae; basitarsi of fore and hind legs with 1 basal and 1 apical spine; basitarsus of mid leg with 2 basal, 2 apical and 2-3 ventrally scattered spines; apical spines of tarsomeres 2-4 of fore, mid and hind legs as follow: 1-1-1, 2-2-2, 1-1-1; basal spines ab-



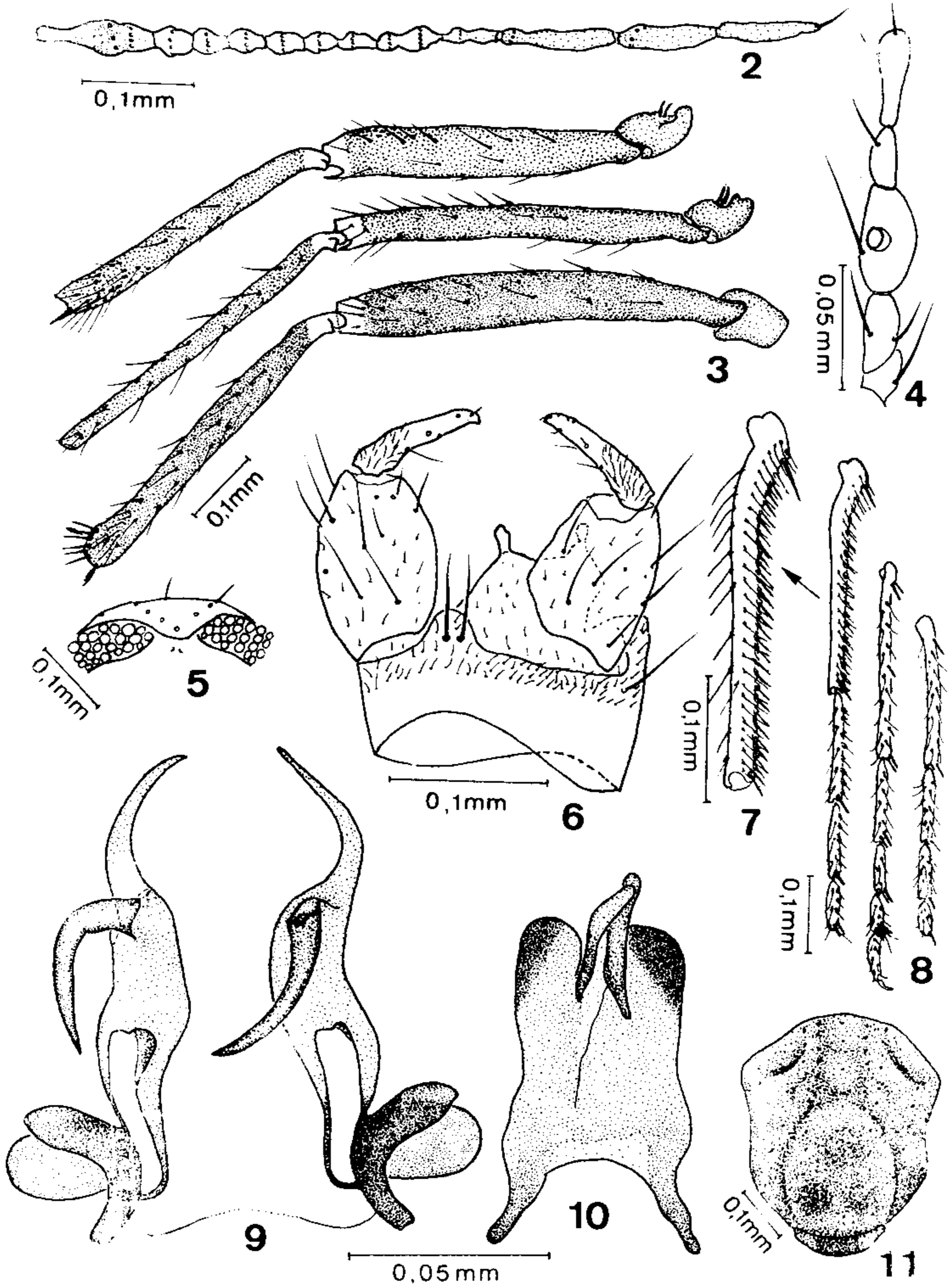
Fig. 1: wing photograph of male of *Downeshelea bicornis* sp. n.

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*Downeshelea bicornis* sp. n., male. Fig. 2: antenna. Fig. 3: legs (top to bottom) fore, mid and hind. Fig. 4: palpus. Fig. 5: eyes separation. Fig. 6: genitalia, aedeagus and parameres removed. Fig. 7: hind basitarsus. Fig. 8: tarsi (left to right) hind, mid and fore. Fig. 9: parameres. Fig. 10: aedeagus. Fig. 11: mesonotum.

sent; tarsomer 5 of the fore and hind legs missing; lengths of fore, mid and hind tarsal segments in the following proportions: 25-12-10-7; 30-14-9-7-7-; 36-17-12-9; fore, mid and hind tarsal ratios 1.96, 2.14, 2.12. Mid claws paired, equal, about 0.3 times the length of 5th tarsal segment, each one with external basal tooth. Wing (Fig. 1) hyaline with a few scattered macrotrichia on the margin, dark bristles on the costa; 2 irregular dark spots, one located on r-m crossvein extending over the fork of vein M1 and M2, the other in cell R5 extending from the end of the 2nd radial cell to the vein M1; 4 inconspicuous grayish areas, one near the apical portion of vein M1, one near the apex of cell m1, one near apex of vein M2 and one on the fork of veins Cu1 and M3+4 extending on these veins; 2nd radial cell nearly twice longer than 1st; costal ratio 0.71. Halter pale, knob dorsally brown.

*Abdomen:* dark brown, terga with faint basal grayish bands. Genitalia (Fig. 6): 9th sternum spiculate, except on basal portion, posterior margin with a narrow, short and convex median lobe, with 2 long hairs; 9th tergum tapered with a pair of apicolateral processes. Gonocoxite moderately stout, nearly 1.8 times as long as basal wide; gonostylus nearly straight, gradually narrowed to apex, about 0.74 times the length of the gonocoxite, moderately pilous on basal portion with some delicate hairs on the lateral ventral face. Aedeagus (Fig. 10) rectangular, basal portion with a deep quadrate excavation forming 2 lateral slightly sclerotized arms, apex with a deep mesal excavation forming 2 long, narrow sclerotized lobes, apical lateral areas rounded and greatly sclerotized. Parameres (Fig. 9) elongated each with a sclerotized trilobed base connected with each other by a membranous ligament: submedian area with a channel, mid portion swollen, apex with 2 slender and long horn-like processes, measuring 0.38 times the length of the parameres; paramere length nearly 1.2 times the length of the aedeagus.

*Female:* unknown.

*Distribution:* Brazil (Rio de Janeiro).

*Type:* Holotype ♂ (no. 208) R. Getúlio Vargas 109, Centro, Rio Bonito (42°37' W, 22°43' S), *Rio de Janeiro, BRAZIL*, 29.III.1989. FEEMA coll., deposited in the Instituto Oswaldo Cruz (IOC), Rio de Janeiro, Brazil.

*Etymology:* the name of this species is based on the presence of 2 horn-like processes on the parameres of the male specimens.

*Discussion:* *D. bicornis* most closely resembles *D. multilineata* (Lutz) and *D. carioca* (Tavares & Pereira) by the general aspects of the wings which do not have the dark spot on the end of cell R5. On the legs, *bicornis* and *multilineata* differ from *carioca* by the presence of 6 spines on the hind tibiae (7 in *carioca*).

Regarding the male genitalia, the shape of the aedeagus of *bicornis* is rectangular as in *multilineata* (triangular in *carioca*). *D. bicornis* differs from both species by the more prominent posterior lobe of the 9th sternum which presents 2 long hairs (5-6 in *multilineata*, 6 in *carioca*) and by the presence of 2 apical horn-like processes on the parameres.

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