

Downeshela oliveirai, a new neotropical predaceous midge from northern Brazil (Diptera, Ceratopogonidae)

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ABSTRACT. A new species of *Downeshela* Wirth & Grogan, 1988, *D. oliveirai*, is described and illustrated based on male and female characteristics. The specimens were collected in Rondônia and Pará states, northern Brazil.

KEY WORDS. *Downeshela*, Neotropical Region, Rondônia, Pará, new species.

RESUMO. *Downeshela oliveirai*, uma nova espécie neotropical de ceratopogonídeo predador para a região norte do Brasil. Uma nova espécie de *Downeshela* Wirth & Grogan, 1988, *D. oliveirai*, é descrita e ilustrada baseada nas características dos machos e fêmeas. Os espécimes foram coletados nos estados de Rondônia e Pará, região norte do Brasil.

PALAVRAS-CHAVE. *Downeshela*, Região neotropical, Rondônia, Pará, espécie nova.

WIRTH & GROGAN (1988) in their revision of the predaceous midges of the world placed the species of the *Monohelea multilineata* group in a new genus, *Downeshela*, which includes 30 neotropical species. BORKENT & SPINELLI (2000) listed 18 species south of the United States of America. Six of them were originally described from Brazil and only two, *D. cebacoi* (Lane & Wirth, 1964) and *D. guianae* (Wirth, 1953), are reported from northern Brazil.

Material from light trap collections from Rondônia and Pará states included an undescribed species of *Downeshela* that we describe herein.

The terminology used is that adopted by WIRTH & WILLIAMS (1964) for North American species of *Monohelea* Kieffer, 1917, LANE & WIRTH (1964) for Neotropical species, and RATANAWORABHAN & WIRTH (1972) for Oriental species. The terms of wing veins follow the system of the Manual of Nearctic Diptera (MAC ALPINE *et al.*, 1981), with modifications proposed by SZADZIEWSKI (1996). All measurements are in micrometers, except those of the wings which are in millimeters.

Downeshela oliveirai Felipe-Bauer, sp.nov.

(Figs 1-15)

Diagnosis. *D. oliveirai* has similar wing pattern and the same geographic distribution of *D. guianae*. It can be distinguished by its greater size (wing length 1.35 mm; 1.10 mm in *D. guianae*) and peculiar aspect of parameres and aedeagus.

Female. Wing length 1.08-1.46 (1.35; n=9) mm; breadth 0.42-0.62 (0.52; n=8) mm.

Head. Brown. Eyes (Fig. 4) bare, narrowly contiguous in lower portion. Antenna (Fig. 3) brown except on basal portion of flagellomeres; flagellomeres cylindrical, with mean lengths of 59-40-42-43-43-48-48-48-75-75-80-80-101 μ m (n=9), Antennal Ratio (11-15/3-10) 1.08-1.17 (1.11; n=9). Palpus (Fig. 5) uniformly brown,

longer than proboscis; lengths of segments 29-48-74-42-58 μ m; 3rd segment cylindrical, slightly swollen distally, with a moderately deep sensory pit in mid portion; Palpal Ratio 2.2-2.8 (2.6; n=9). Mandible with 11 teeth.

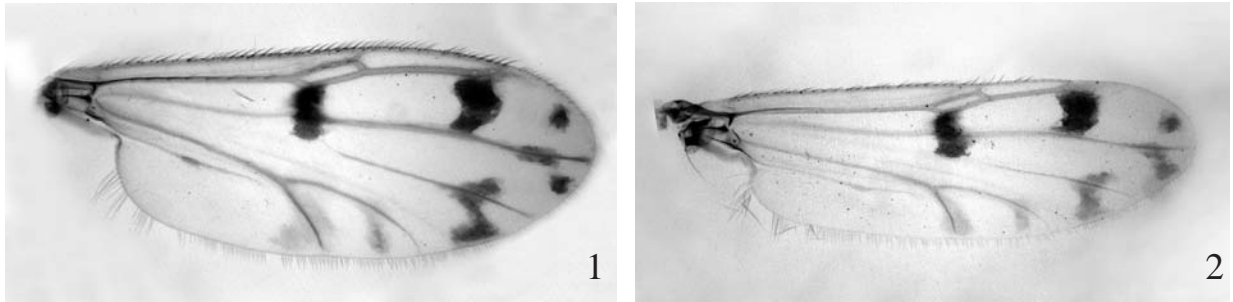
Thorax. Brown, without definite pattern in slide mounted specimens. Legs (Fig. 8) brown, the hind slightly darker; knees yellowish; fore and hind tibiae with apical spur, longer in fore leg; hind tibial comb with six bristles; lengths of trochanters, femora and tibiae of fore, mid and hind legs 117-533-522, 117-640-608, 128-746-683 μ m (n=10). Tarsi (Fig. 7) pale, pilose; ventral palisade setae in one row on hind basitarsus; fore and hind basitarsi with one basal and one apical spine; mid basitarsus with 2 basal, 2 apical and 3-4 ventral spines; apical spines of tarsomeres 2-4 of fore, mid and hind legs as follows: 1-1-1, 2-2-1, 1-1-2, basal spines absent; lengths of fore, mid and hind tarsomeres 245-117-74-53-106, 309-128-74-53-96, 458-192-117-85-85 μ m (n=10); fore, mid and hind tarsal ratios 2.3, 2.4, 2.2 (n=6); claws of fore and mid legs paired, equal sized, about 0.6 times as long as 5th tarsomere; hind leg with a single claw, about 1.1 times as long as 5th tarsomeres. Wing (Fig. 1) hyaline, scattered macrotrichia distally in cell r_3 and m_1 , microtrichia absent; 2 conspicuous dark spots, one locate on the r-m crossvein reaching the medial fork, the other in cell r_3 , extending from the end of 2nd radial cell to vein M1; six inconspicuous grayish, diffuse areas in apical portions of cells r_3 , m_1 , m_2 (this one reaching to vein M2 and extending from cell m_1), cua_1 (this one reaching vein CuA_1) and veins M1 and CuA_2 ; 2nd radial cell nearly twice as long as 1st; costal ratio 0.77-0.81 (0.79, n=9).

Abdomen. Brown. Two subspherical spermathecae (Fig. 6) slightly unequal, measuring 69 by 53 μ m and 57 by 45 μ m; a vestigial 3rd present, 16 μ m long.

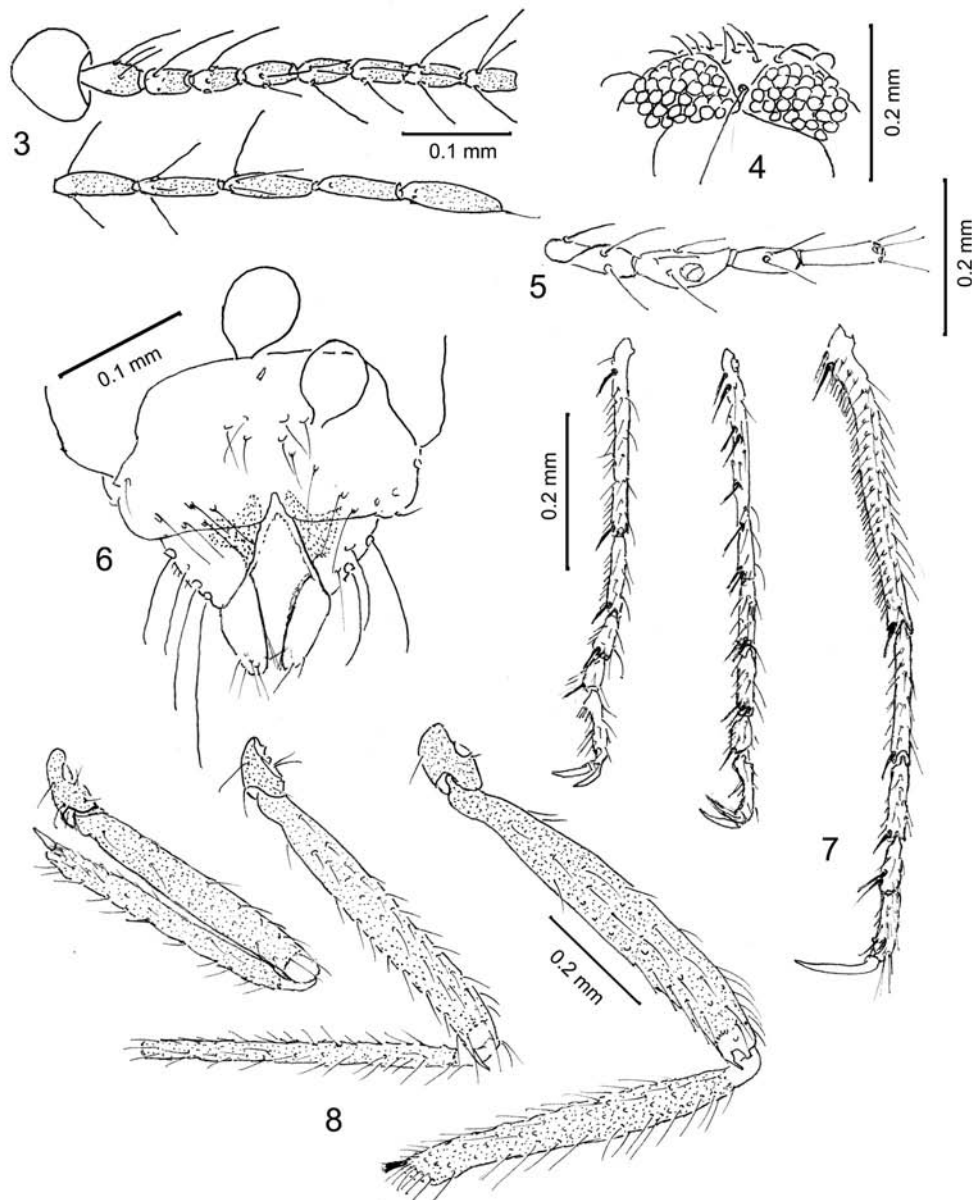
Male. Wing length 1.13-1.32 (1.27, n=5) mm; breadth 0.40-0.46 (0.43, n=5) mm. Similar to female with usual sexual differences; eyes as in figure 10; antenna (Fig. 9) with brown pedicel, flagellomeres 13-15 brown; 4-11

somewhat barrel-shaped, 12 nearly twice as long as wide, 13-15 elongated, lengths of flagellomeres 122-42-42-41-40-40-40-40-62-135-115-112 μm ; Antennal Ratio (12-15/3-11) 0.94-0.99 (0.95, $n=5$); palpus as in figure 11. Lengths

of trochanters, femora and tibiae of fore, mid and hind legs 117-501-480, 106-586-533, 117-650-586 μm ($n=7$) (Fig. 15). Tarsi (Fig. 12) pale, pilose; fore and hind basitarsus with one basal and one apical spine; mid basitarsus with



Figs.1-2. Wing photographs of *Downshelea oliveirai* sp.nov.: 1, female; 2, male.



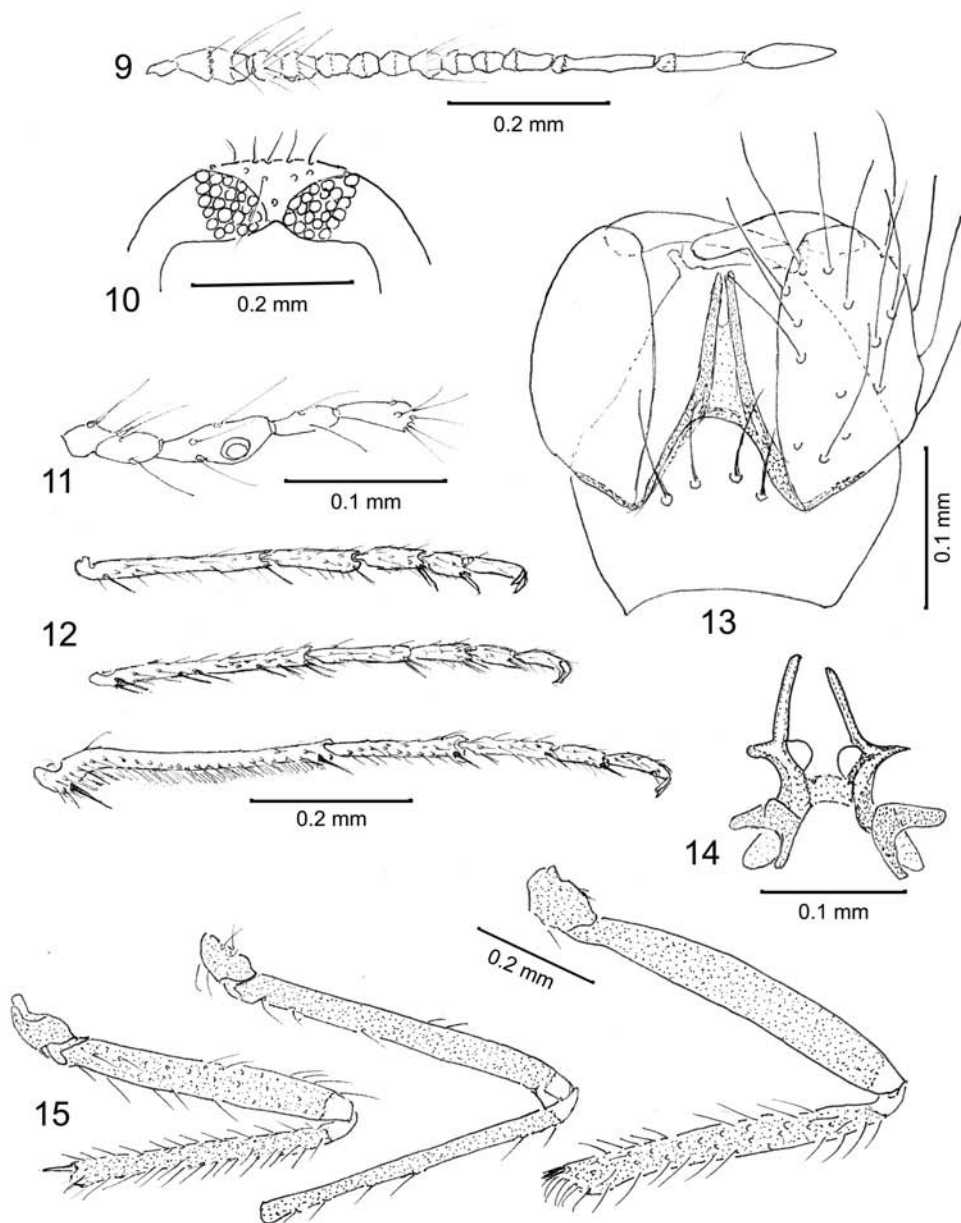
Figs. 3-8. *Downshelea oliveirai* sp.nov., female: 3, antenna; 4, dorsal portion of head capsule, in anterior view; 5, palpus; 6, terminalia, showing spermathecae; 7, tarsi (left to right) fore, mid and hind; 8, legs (left to right) fore, mid and hind.

2 basal, 2 apical and 3-4 ventral spines; apical spines of tarsomeres 2-4 of fore, mid and hind legs as follows: 1-2-2, 2-2-1, 1-1-1, basal spines absent; lengths of fore, mid and hind tarsomeres 266-117-85-64-69, 309-128-85-64-69, 395-192-128-75-85 μm ($n=7$); fore, mid and hind tarsal ratios 2.1, 2.3, 2.0; claws paired, equal-sized, about 0.50 times as long as 5th tarsomeres. Wing (Fig. 2) hyaline, dark spots as in female, costal ratio 0.73 ($n=5$). Terminalia (Fig. 13): 9th sternum spiculate except on basal portion, posterior margin with a large, greatly convex median lobe bearing 4 long hairs; 9th tergum tapering, with a slender and moderately pair of apicolateral processes. Gonocoxite twice as long as basal width; gonostylus nearly straight, 0.66 times as long as gonocoxite, moderately pilose basally. Aedeagus (Fig. 13) nearly triangular, basal arch extending to 0.37 of total length; lateral arms strongly sclerotized, nearly straight, ending in two pointed processes in distal

portion, each with blunt apex. Parameres (Fig. 14) 0.94 times as long as aedeagus, broadly joined basally; stem curved in proximal portion; mid portion with a membranous, semicircular ventral lobe and a pointed process, externally directed, sometimes not so pointed due to assembly position; distal portion tapered to simple pointed apex, extending to 0.40 of the total length of paramere.

Distribution. Brazil (Rondônia and Pará).

Types. Holotype ♂, BRASIL, **Rondônia**: Rio Pacaás Novos, 08.IX.1999, N. Hamada & U. Barbosa col., light trap. Allotype ♀, BRASIL, **Pará**: Belém, Floresta da Área de Pesquisas Ecológicas do Guamá (APEG Forest), II, 1970, THG Aitken col., light trap., "terra firme". Paratypes 11♂, 9♀ as follows: 10♂, 3♀ same data as holotype; 4♀ same data as allotype; ♂, 2♀ same data as allotype except VI.1970; VII. 1970, sticky trap. Holotype (Dip.Cer. 423), allotype (Dip.Cer. 424) and 10 paratypes (Dip.Cer. 425-434)



Figs. 9-15. *Downshelea oliveirai* sp.nov., male: 9, antenna; 10, dorsal portion of head capsule, in anterior view; 11, palpus; 12, tarsi (top to bottom) fore, mid and hind; 13, terminalia, parameres removed; 14, parameres; 15, legs (left to right) fore, mid and hind.

deposited in Ceratopogonidae Collection of Instituto Oswaldo Cruz (IOC), Rio de Janeiro, Brazil; 10 paratypes: 4♂, 2♀ same data as holotype, deposited in Instituto Nacional de Pesquisas da Amazônia (INPA); 2♂ same data as holotype, 2♀ same data as allotype, deposited in Museu de La Plata, La Plata, Argentina (♂, ♀) and Faculdade de Saúde Pública, Universidade de São Paulo, São Paulo, Brazil (♂, ♀).

Etymology. This species is named in honor to Dr. Sebastião José de Oliveira in recognition of his important contributions to the study of the Brazilian Chironomidae.

Discussion. *D. oliveirai* most closely resembles *D. guianae* by similar wing pattern and they can be easily separated by the shape of aedeagus and parameres. *D. oliveirai* has a triangular aedeagus, while in *D. guianae* it is nearly rectangular. Also, in *D. oliveirai* the parameres have a median lobe and a pointed process in mid portion, absent in *D. guianae*; the apex is long and tapered in *D. oliveirai* and with foot-shaped aspect in *D. guianae*.

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