DESCRIPTION OF *SIMULIUM* (*CHIROSTILBIA*) *FRIEDLANDERI* PY-DANIEL, 1987 (INSECTA: DIPTERA: SIMULIIDAE) FEMALE.

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Biota Neotropica v3 (n2) –http://www.biotaneotropica.org.br/v3n2/pt/abstract?short-communication+BN00203022003

Date Received 03/27/2003
Revised 05/18/2003
Accepted 07/01/2003

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Abstract

In this paper, the female of *S. friedlanderi*, collected near São Carlos, State of São Paulo, Brazil, is described and additional information on the male and immature stages are provided.

Key words: *Simulium friedlanderi, Simuliidae, female description.*

Resumo

Neste artigo é feita a descrição da fêmea de *Simulium friedlanderi*, coletada no Córrego da Lagoa, em São Carlos, no Estado de São Paulo, Brasil, e são fornecidas informações adicionais sobre os machos, os imaturos e do criadouro da espécie.

Palavras-chave:*Simuliidae, Simulium friedlanderi, descrição da fêmea.*

Introduction

The family Simuliidae (Diptera: Nematocera) has 31genera, 53 subgenera and 1787 species in the world. Until the present, 4 species of *Lutzsimulium* d'Andretta & d' Andretta, 1947 genus and 83 of *Simulium* Latreille, 1802 have been reported from Brazil (Crosskey & Howard 1997; Crosskey 2002).

The Neotropical subgenus *Chirostilbia* was divided by Coscarón (1987) in two species-groups: *pertinax* and *subpallidum*. The *pertinax* group is composed of 10 species and the *subpallidum* group of three (Crosskey & Howard 1997). *Simulium friedlanderi* Py-Daniel, 1987, belongs to the *pertinax* group, together with *S. distinctum* Lutz, 1910, *S. empascae*, Py-Daniel & Moreira, 1988, *S. laneportoi*, Vargas, 1941, *S. obesum*, Vulcano, 1959, *S. pertinax*, Kollar, 1832, and *S. riograndense*, Py-Daniel, Souza & Caldas, 1988; *S. serranus*, Coscarón, 1981; *S. spinibranchium*, Lutz, 1910 and *S. strignotum* (Enderlein 1934). According to Coscarón (op. cit.), species in the *pertinax* species-group are black, females have tarsal claws with basal tooth and the gonostylus of males does not have a longitudinal ridge on the latero-superior region.

S. friedlanderi is known only from its original description, which was based on the larval and pupal stages and on an male adults extracted from its pupal involucre. The present study provides the description of the female and morphological additional characteristics of the male.

Material and Methods

The larvae and pupae (Fig. 17) of *S. friedlanderi* were collected in a small stream (Lagoa stream) located in the experimental farm of CPPSE - EMBRAPA (São Carlos County, São Paulo, Brazil - 21º56'12'' S and 47º 54'15'' W), during the dry season of 2002 and preserved in 70% ethanol. Pupae containing pharate adults were reared in plastic vials containing wet filter paper to obtain the adults that were stored in 70% ethanol, with the pupal exuviae. The adults were dehydrated in ethyl glycol (Cellosolve) and xylol (Sabrosky 1966) and then pinned; head and genitalia were clarified in 10 % KOH and mounted between slide and coverslip, using Euparal ®.

Simulium friedlanderi Py-Daniel

(Fig. 1-18)

Simulium friedlanderi Py-Daniel, 1987: 331, Figs 1-31.

Male (complementary information) (n = 1): general body color black, body length: 2.94 mm; thorax general color dark brown, lateral thorax length: 1.07 mm. Wing length: 2.52 mm, width: 1.26 mm. Scutum black with golden reddish hairs (Fig. 18b). Leg color pattern as the female.

Female (n = 1): general body color black; body length: 3.0 mm; thorax general color dark brown; lateral thorax length: 1.23 mm. Wing length: 2.85 mm, width: 1.36 mm. Frons and occiput dark brown with silver pruinosity; clypeus grayish with silver pruinosity; frons as large as wide; fronto-ocular triangle well developed (Fig. 1). Antenna length: 0.5 mm; pedicel, scape and all flagellomeres pale yellowish brown (Fig. 2). Maxillary palpus dark brown; sensory vesicle occupying ¼ of palpomere III (Fig. 3), palpomere V 2.9 times as long as palpomere IV and 2.6 times as long as palpomere III. Mandibles with 11-12 external serrations. Lacinia with 27 retrorse teeth. Cibarium without teeth (Fig. 4). Scutum black with golden reddish hairs, unevenly distributed; these golden reddish hairs form a U letter pattern when observed with frontal light (Figs 5, 6, 18a). Katepisternum dark brown. Scutellum pale yellow, with brown hairs; postnotum black with silver pruinosity. Wing veins yellowish brown; setae and spines brown; Sc and R bare (Fig. 7). Halter with basal region brown; terminal whitish. Fore leg with coxa, trochanter and femur pale yellowish brown, tibia pale yellowish brown with distal apex dark brown; all tarsal segments dark brown (Fig. 8). Middle leg with coxa, trochanter, femur, tibia and proximal half of basitarsus pale yellowish brown, distal half of basitarsus and other tarsal segments dark brown (Fig. 9). Hind leg with coxa and femur pale yellowish brown, tibia and 2/3 proximal basitarsus yellowish brown and 1/3 distal dark brown; other tarsal segments dark brown (Fig. 10). Tarsal claws with one basal tooth (Fig. 11). Calcipala and pedisulcus well developed (Fig. 12). Femur and tibia with scale-like setae distributed among the filiform setae (Fig.13). Abdominal sclerites brown with silver pruinosity, except tergite II that is yellowish brown. Abdominal segments ventrally whitish. Cercus semicircular; paraproct 2.3 times longer than width at its base (Fig. 14); hipogynial lobes subtriangular, without microtrichia, with internal marginal area sclerotized (Fig. 15). Genital fork (Fig. 16) with stem long and slender. Spermatheca subspherical and bare; spermathecal duct and area of attachment unpigmented.

Larva (n=13): body length: 6.44 – 7.63 mm; cephalic capsule width: 0.63 – 0.68 mm; pos-gena length: 0.48 – 0.50 mm.

Pupa (n=17): dorsal length: 5.5 – 6.04 mm; ventral length – base: 3.34 – 4.16 mm. Ventral length - anterior segment: 1.46 – 1.67 mm; gills length maximum: 1.15 mm.

Material examined: BRAZIL, SP, São Carlos, Córrego da Lagoa, CPPSE- EMBRAPA: 1 pinned female with pupal exuvia and cocoon; head and genitalia on permanent slide mount, 30 Aug. 2002, Pepinelli, M; 1 pinned male with pupal exuviae and cocoon; head and genitalia on permanent slide mount, 18 Sept. 2002, Pepinelli, M.; 9 pupae and 5 last-instar larvae stored in 70% ethanol, 10 Aug. 2002, Pepinelli, M.; 8

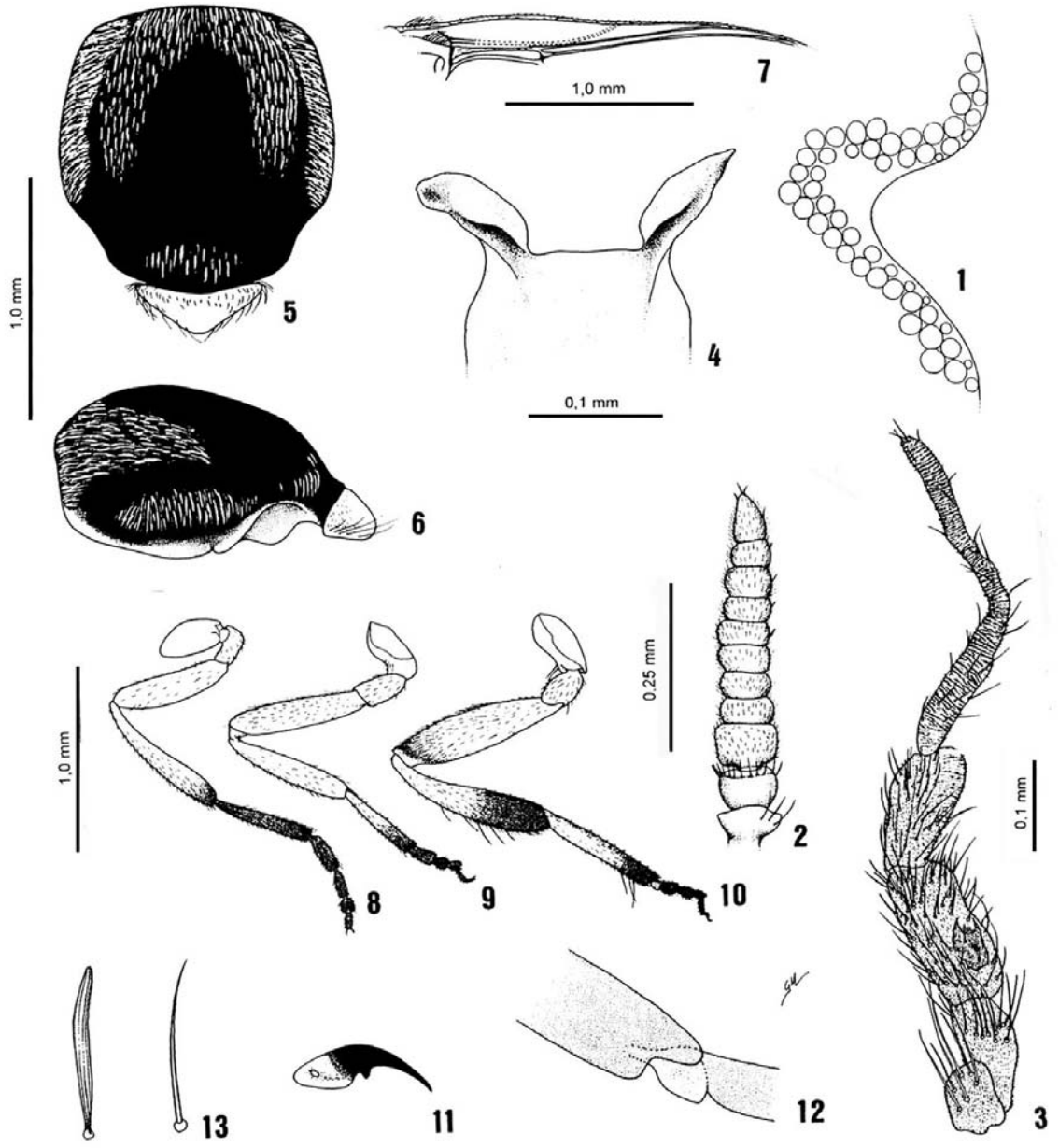

Fig.1-13. Simulium friedlanderi female. 1. Fronto-ocular triangle. 2. Antenna. 3. Maxillary palpus. 4. Cibarium. 5. Scutum, dorsal view. 6. Scutum, lateral view. 7. Wing. 8. Fore leg. 9. Middle leg. 10. Hind leg. 11. Tarsal claw. 12. Calcipala. 13. Filiform and scale-like setae from legs.

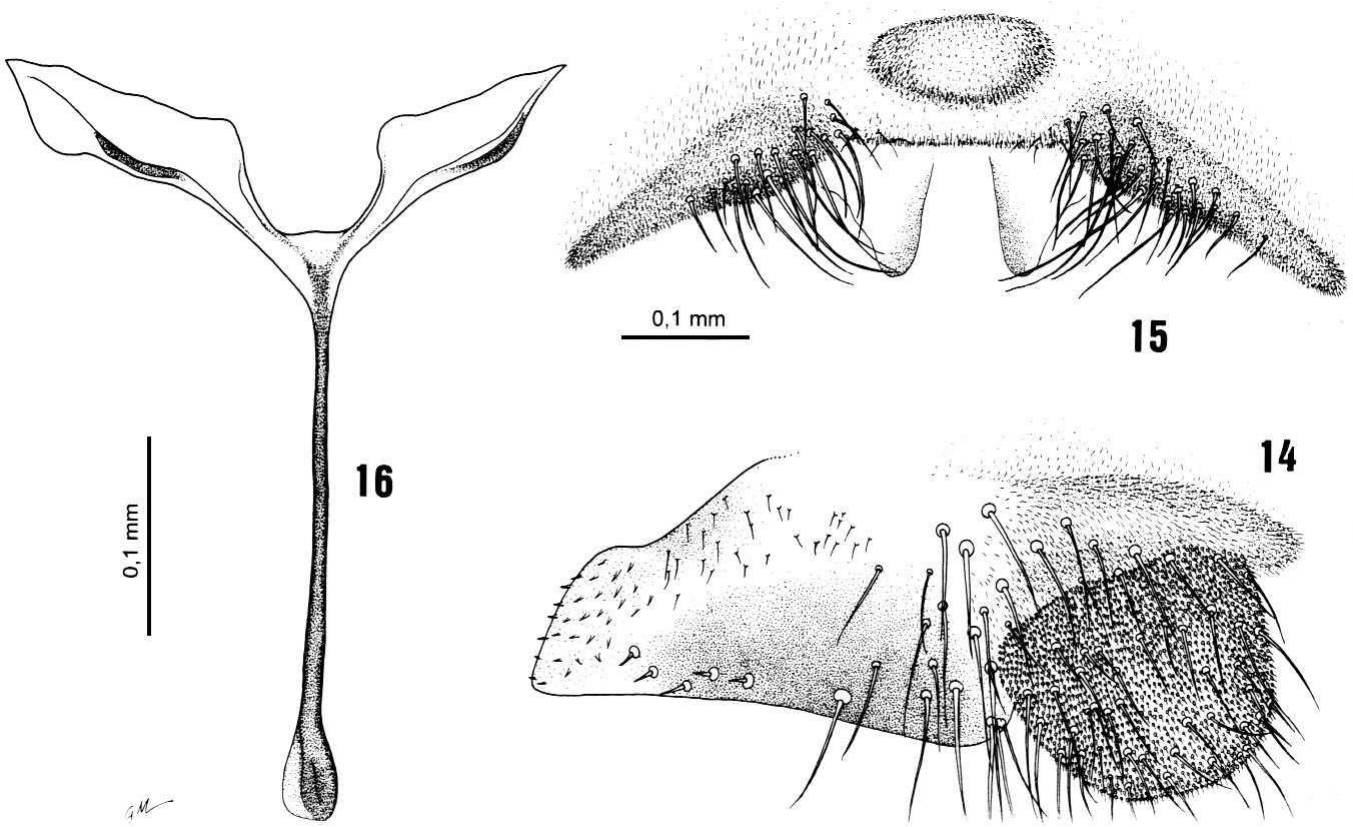

Fig. 14 - 16. Simulium friedlanderi female. 14. Cercus and paraproct, lateral view. Fig. 15. Hipogynal lobes, lateral view. Fig. 16. Genital fork.

Fig. 17. Simulium friedlanderi. a. Larva. b. Pupa and cocoon.

Fig. 18. Simulium friedlanderi. a. Female. b. Male.

pupae and 8 last-instar larvae stored in 70% ethanol, 18 Sept. 2002, Pepinelli, M.

Ecological notes

The larvae and pupae of *S. friedlanderi* were collected in Lagoa stream near the city of São Carlos, located in area with semidecidous forest in an enclave of Cerrado in the central region of São Paulo State. The immature stages of this species live attached to rocks in areas of the stream with faster water and with complete canopy cover. Of the total of 48 pupae collected and reared only 2 adults were obtained. This small number of adults obtained is explained by the difficulty to collect the pupae from natural substrate without damaging them. The Lagoa stream is a first order stream with large pebble and coarse sand bed and bolder substrate in the small waterfall areas. Stream water had pH = 7.06; electrical conductivity = 2.0 μS/s and temperature = 18.3 °C. During the fieldwork, no females were collected biting humans, suggesting that *S. friedlanderi* is not anthropophilic.

Acknowledgements

We thank all the people who collaborated with this study.

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Biota Neotropica, Vol. 3 (number2): 2003
http://www.biotaneotropica.org.br/v3n2/pt/abstract?short-communication+BN00203022003

Date Received: 03/27/2003 - Revised: 05/18/2003
Accepted: 07/01/2003

ISSN 1676-0611