

## Taxonomy of *Simulium guaporense* Py-Daniel (Diptera: Simuliidae) from Brazil, with the first description of males and females

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### Abstract

We describe *Simulium guaporense* Py-Daniel adults and redescribe some morphological characters of its larvae and pupae based on specimens collected near the type locality in Rondônia State, Brazil. We report this species for the first time in Mato Grosso State. This species was placed originally in the *S. siolii* species group of the subgenus *Psaroniocompsa*; however, the thoracic pattern of the adults of *S. guaporense* is similar to that of species in the *S. auristriatum* species group. The immature stages were found on deciduous leaves and trailing vegetation in sandy-bottomed streams. Females were collected biting humans.

**Key words:** Aquatic insects, black fly, Neotropical region, taxonomy, *Psaroniocompsa*, *Simulium guaporense*

### Introduction

The species of the subgenus *Psaroniocompsa* Enderlein are widely distributed in the Neotropical Region (Coscarón 1987). Crosskey & Howard (1997, 2004), in their world inventory of the Simuliidae, listed 41 morphospecies in *Psaroniocompsa* and recognized five species groups in this subgenus (*amazonicum*, *auristriatum*, *incrustatum*, *quadrifidum*, and *siolii* species groups). They also regarded 10 other species as “species unplaced to group” in this subgenus.

*Simulium guaporense* was described based on larvae and pupae collected in the state of Rondônia by Py-Daniel (1989), who placed this species in the *siolii* species group together with *S. damascenoi* Py-Daniel, *S. siolii* Py-Daniel, and *S. lourencoi* Py-Daniel

(Py-Daniel 1988). Later, Hamada (2000) described *S. tergospinosum* from the state of Amazonas and included it in the *siolii* species group.

The objectives of the present study are to describe, for the first time, the adults of *S. guaporense*, to redescribe some morphological characters of its larvae and pupae, and to discuss its taxonomic affinity with other simuliid species in the Neotropical Region.

## Materials and Methods

The techniques for collection, rearing, and dissection are those detailed by Hamada (2000) and Hamada *et al.* (2003). Measurements of specimens and terminology used in the species descriptions are detailed by Shelley *et al.* (1997, 2000), Hamada *et al.* (2003), and Adler *et al.* (2004). Descriptions of the thoracic patterns were based on specimens recovered from alcohol, using the technique of Sabrosky (1966). Most of the images illustrating the morphology were obtained directly from specimens, using a Synoptics composite system, at The Natural History Museum (BMNH) (Hernández & Shelley 2005a, 2005b). The remaining photographs were taken with an Olympus digital camera attached to a dissecting or a compound microscope. We followed the classification of Crosskey & Howard (1997, 2004) for the treatment of *S. guaporense* in the subgenus *Psaroniocompsa*. Specimens were collected in July 2002 and July 2004 (examined material). Voucher specimens are deposited in the Invertebrate Collection of Instituto Nacional de Pesquisas da Amazonia (INPA), Manaus, Amazonas, Brazil and in the Entomology Department of The Natural History Museum (BMNH), London, United Kingdom.

### *Simulium (Psaroniocompsa) guaporense* Py-Daniel (Figs 1-33)

*Simulium guaporense* Py-Daniel, 1989: 502-508. HOLOTYPE pupa (on slide, INPA 5849-1), BRAZIL: Rondônia State, Igarapé Ponte de Pedra, km 27 da rodovia RO-399, Fazenda Régis; 14.vi.1981 (V. Py-Daniel) (INPA) [Examined]

*Simulium (Psaroniocompsa) siolii* Py-Daniel, 1988: 294-300. [In part]

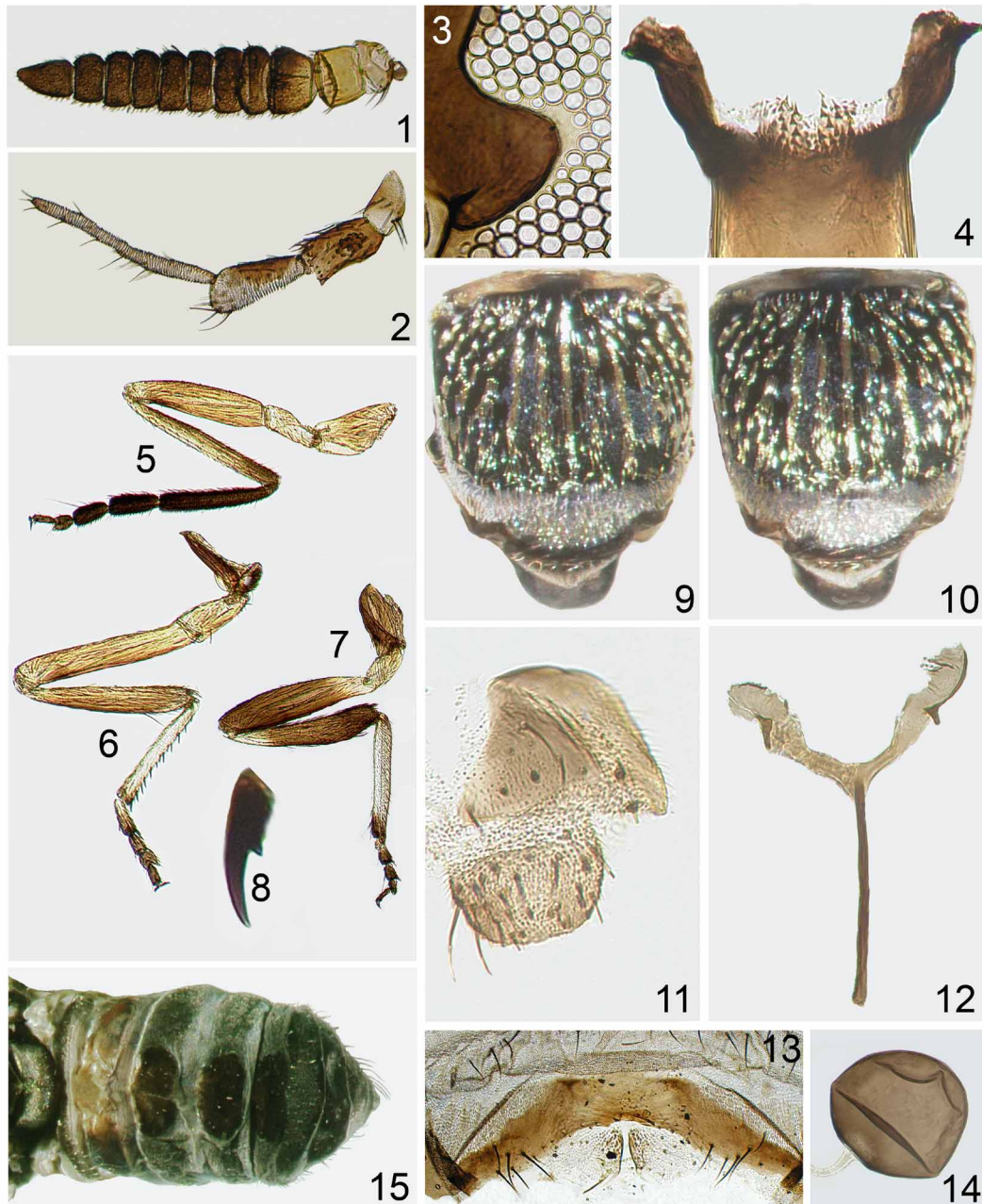
**Female.** General body color black. Body mean length (specimens pinned) 1.67 mm (SD = 0.05,  $n = 5$ ), wing mean length 1.7 mm (SD = 0.09,  $n = 5$ ), wing mean width 0.7 mm (SD = 0.03,  $n = 5$ ).

Head dichoptic with dark eyes and nudiocular area small (Fig. 3). Frons, clypeus, and occiput pollinose with metallic reflections; clypeus, frons, and occiput bare in all specimens examined. Antenna length 0.25 mm; scape and pedicel yellowish brown, flagellum dark brown (Fig. 1). Palpus brown (Fig. 2); sensory vesicle occupying less than

half length of third palpomere, with short neck; palpomere V approximately 2.5 times as long as palpomere III and 1.9 times as long as palpomere IV. Mandible with 6-8 external serrations and 28-30 internal teeth. Lacinia with 21-23 retrorse teeth. Cibarium with sclerotised cornuae and prominent teeth in central trough [triangular small teeth are in membrane of pharynx and in anterolateral margin of cornuae] (Fig. 4).

Thorax with scutum black covered by recumbent, brass-colored scale-like setae, with greenish and bluish reflections with some light. Scutum, independent of light incidence, black without pattern, covered with evenly arranged scale-like setae forming 5 longitudinal lines, 1 median and 2 + 2 submedian, on central region of scutum extending from anterior to near posterior margin of scutum, and groups of setae in clumps that form broken lines diverging from anterior to lateral margins; posterior margin with single, recumbent, unevenly arranged whitish hairs (Figs 9, 10); humeri silver pruinose [best seen in specimens devoid of setae]; lateral and posterior margins silver pruinose [best seen with light incidence posterior and specimens tilted laterally]. Scutellum dark brown, devoid of hairs in few specimens examined. Postnotum dark brown to black with distinct silver pruinosity. Pleura and sterna black with silver pruinosity. Costa of wing with sparse distribution of spines and setae (Fig. 20); subcosta without hairs or spines (Fig. 20); radius with single row of spines toward apex, basal section of radius bare (Fig. 20); basal tuft of long, dark setae. Coloration and proportions of legs as in Figs 5-7. Foreleg (Fig. 5) with coxa, trochanter, femur, and dorsal margin of tibia yellowish brown; ventral margin of tibia whitish; basitarsus and tarsomeres I-IV black. Middle leg (Fig. 6) with coxa, apical one-third of basitarsus and tarsomeres I-IV dark brown; trochanter, femur and tibia yellow; two-thirds of basitarsus whitish. Hind leg (Fig. 7) with coxa, two-thirds of femur and tibia, apical one-third of basitarsus and tarsomeres I-IV dark brown; trochanter, basal one-third of femur and tibia yellow; basal two-thirds of basitarsus whitish [silver pruinose in pinned specimens]. Femur and tibia of hind legs covered with lanceolate scale-like setae interspersed with erect black hairs. Calcipala as broad as long, reaching pedisulcus. Tarsal claws curved with basal tooth (Fig. 8). Halteres lemon yellow with dark brown base.

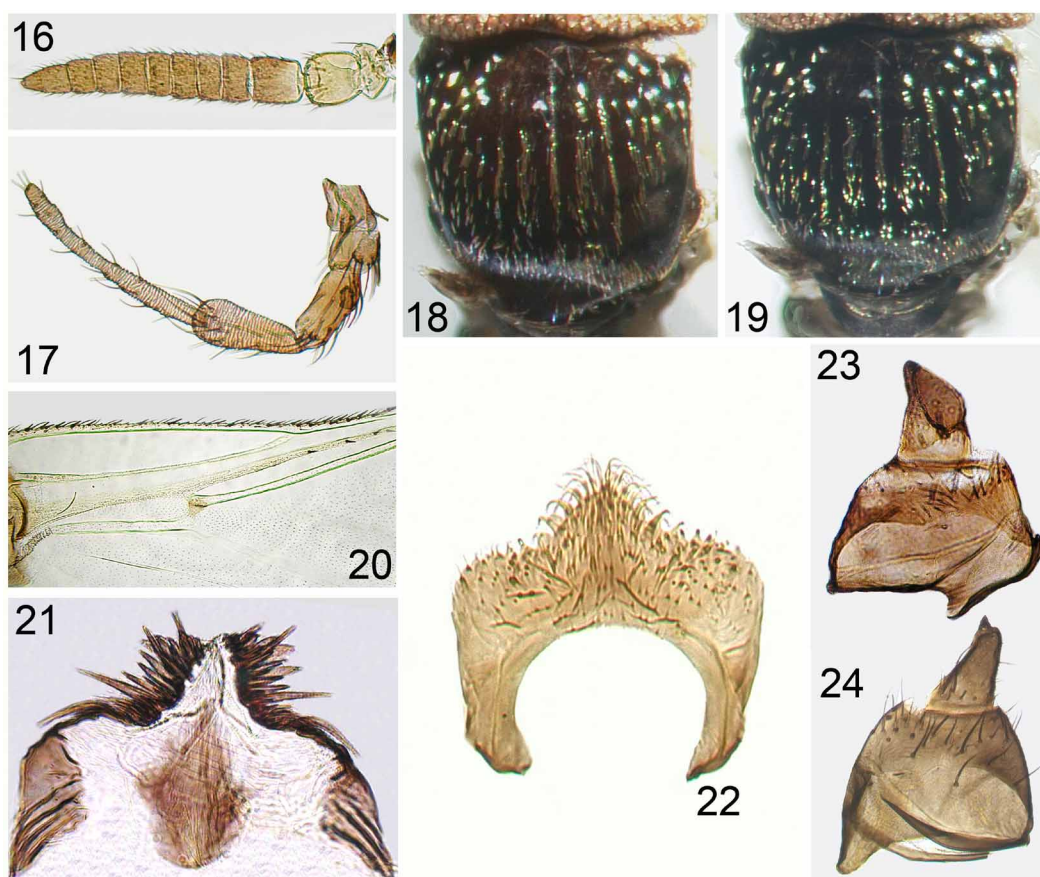
Abdomen (Fig. 15) with tergites I, III-V velvet dark brown, VI-IX shiny black; tergite II brown on median region with silver pruinosity on lateral margin; basal fringe with long, brown hairs. Tergal plates developed. Sternites greyish; genitalia dark brown to black. Hypogynial lobes (= gonapophyses) subtriangular, covered by small microtrichia, mainly membranous but sclerotised on inner margins (Fig. 13). Cercus suboval, covered with long, brown setae; anal lobe (= paraproct) about 1.5 times longer than wide at mid point, covered with long hairs (Fig. 11). Genital fork with slender, weakly sclerotised stem; termination of lateral arms with anterior margin nearly straight and well developed; anterior processes well developed and rounded apically; posterior processes poorly developed (Fig. 12). Spermatheca (Fig. 14) oval without external sculpturing; internal spicules arranged in groups of 2 or 3; area of insertion of spermathecal duct membranous, nearly one-third maximum width of spermatheca.



**FIGURES 1-15.** Female of *Simulium guaporense*. **1.** Antenna (length = 0.25 mm). **2.** Maxillary palp (fifth palpomere length = 0.17 mm). **3.** Fronto-ocular triangle (nudiocular area). **4.** Cibarium (distance between apices of arms = 0.11 mm). **5.** Foreleg (femur length = 0.32 mm). **6.** Middle leg (femur length = 0.34 mm). **7.** Hindleg (femur length = 0.40 mm). **8.** Tarsal claw. **9.** Scutal pattern (anterior illumination) (scutal median dorsal length = 0.63 mm). **10.** Scutal pattern (posterior illumination). **11.** Cercus and anal lobe, lateral view (cercus basal length = 0.05 mm). **12.** Genital fork (stem length = 0.10 mm). **13.** Hypogynial lobe, ventral view. **14.** Spermatheca (width of membranous insertion area = 0.02 mm). **15.** Abdomen, dorsal view (median dorsal length = 0.97 mm).

**Male.** General body color black. Body mean length (specimens pinned) 1.61 mm (SD = 0.03,  $n = 3$ ), wing mean length 1.5 mm (SD = 0.02,  $n = 3$ ), wing mean width 0.7 mm (SD = 0.03,  $n = 3$ ).

Head holoptic with dark red eyes. Antenna mean length 0.25 mm, scape and pedicel yellowish brown, flagellum dark brown (Fig. 16). Palpus (Fig. 17) brown, palpomere V approximately 2.3 times as long as palpomere III and 2.1 times as long as palpomere IV; sensory vesicle small, subspherical. Rest of head and scutum coloration (Figs 18, 19) as in female; humeri weakly pruinose; lateral margins black. With light source posterior to specimen, humeri and lateral margin silver pruinose. Scutellum dark brown with long, brown, erect setae on posterior margin. Postnotum dark brown with silvery grey pruinosity. Wing setation as in female (Fig. 20). Leg coloration and setation as in female (Figs 5–7), but tarsal claw without basal tooth.



**FIGURES 16–24.** Male of *Simulium guaporense*. **16.** Antenna (length = 0.25 mm). **17.** Maxillary palp (fifth palpomere length = 0.16 mm). **18.** Scutal pattern (anterior illumination). **19.** Scutal pattern (posterior illumination) (scutal median dorsal length = 0.63 mm). **20.** Wing base (subcosta length = 0.37 mm). **21.** Paramere and median sclerite (median sclerite length = 0.075 mm). **22.** Ventral plate (widest width = 0.079 mm). **23.** Gonocoxite and gonostyle, dorsal view. **24.** Gonocoxite and gonostyle, ventral view (gonostyle length = 0.057 mm).

Abdominal tergites dark brown, basal fringe with thin, long, brown hairs and golden highlights; tergite II with silver pruinosity; tergites III–VIII with silver pruinosity on lateral margin, extent of pruinosity on tergites VI and VII being larger. Gonocoxite subquadrangular nearly as long as wide; gonostyle subtriangular, 1.5 times shorter than gonocoxite, terminating in 1 distinct apical spine and bearing 1 longitudinal ridge (Fig. 23); gonocoxite and gonostyle covered with long setae (Figs 23, 24). Ventral plate (Fig. 22) subrectangular, weakly sclerotised, with well-developed body, distinctly raised at its center; lateral arms developed and wide apically; main body of ventral plate covered by numerous setae. Median sclerite (Fig. 21) suboval. Paramere (Fig. 21) with well-developed and sclerotised basal process and numerous long spines.

**Pupa.** Cocoon length dorsally 2.1–2.4 mm ( $n = 2$ ), ventrally 2.4–2.6 mm ( $n = 2$ ); pupa length 1.3–1.8 mm ( $n = 2$ ); gill length 2.1–2.4 mm (mean = 2.3 mm, SD = 0.10,  $n = 10$ ). Cocoon slipper shaped, pale brown, composed of thick coalesced fibers, without anterior projection; anterior margin reinforced (Fig. 27).

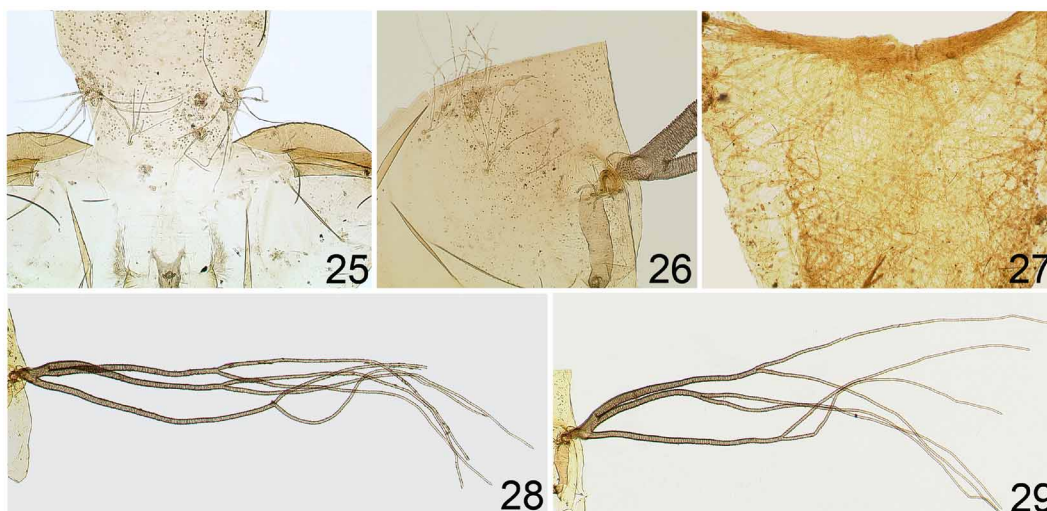
Gill configuration with short petiole and  $(2 + 2) + 2$  filaments (Figs 28, 29). The dorsal branch divides into 2 secondary branches on basal one-third, 1 anterior and 1 posterior, each bifurcating at different heights at some distance from gill base. The ventral primary branch bifurcates into 2 secondary branches nearly at midpoint of gill length, often nearly at same level as anterior secondary branch. Variation in this pattern occurs with ventral primary branch bifurcating more apically than anterior and posterior secondary branches, and anterior and secondary branches bifurcating at same level. Filaments slender, with rounded ends, edges crenate, covered by small, dark, spicules; all filaments approximately of same length.

Head with  $2 + 2$  long, quadrifid frontal and  $1 + 1$  long, quadrifid, dorsal (= facial) trichomes; frontoclypeus with faint group of platelets mesally and  $1 + 1$  dorsolaterally in frontal region, respectively; rounded and pointed tubercles sparsely to densely distributed over entire surface (Fig. 25).

Thorax with  $5 + 5$  dorsal bifid and quadrifid trichomes located near dorsal cleft and  $1 + 1$  bifid trichome on central region; tubercles rounded (some pointed), densely distributed anteriorly and scarce on posterior region of thorax (Fig. 26).

Abdominal tergite I with  $1 + 1$  lateral, long, simple or bifid trichomes; tergite II with  $3 + 3$  median, simple, small trichomes in longitudinal row,  $3 + 3$  simple, small, trichomes to outmost trichomes unevenly arranged and  $1 + 1$  sublateral, small, simple trichomes; tergites III and IV with  $4 + 4$  submedian, simple hooks in longitudinal row,  $1 + 1$  small, simple trichomes anterior to outer hooks, and  $2 + 2$  submedian and  $1 + 1$  sublateral, simple or bifid trichomes on posterior margin; tergites V, VI, and VII with spine combs on anterior margin, sometimes developed into sclerotised spines centrally and with  $1 + 1$  or  $2 + 2$  small, simple, trichomes on posterior margin; sternite VIII with small spine combs; sternite IX weakly sclerotised and  $1 + 1$  small terminal spine. Abdominal sternite III with  $2 + 2$  sublateral, simple trichomes; sternite IV with  $2 + 2$  submedian, simple or bifid, and 2

+ 2 lateral, single trichomes; sternite V with 2 + 2 median, close, bifid or quadrifid hooks in longitudinal row, 2 + 2 simple, small trichomes anterior to outer hooks; sternite VI and VII with 4 + 4 well-separated hooks, innermost trifid and outermost on right side bifid and on left side simple; sternite VIII with single, small, simple trichomes on posterior margin; sternite IX weakly sclerotised. Spine combs distributed on anterior margin of abdominal sternites III–VIII.



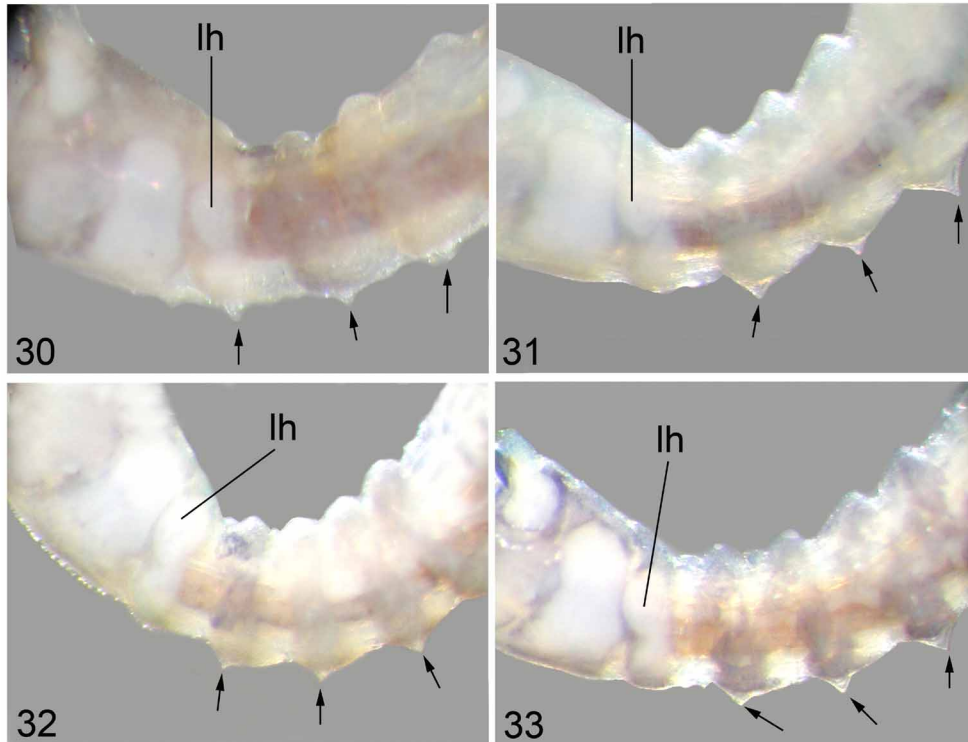
**FIGURE 25-29.** Pupa of *Simulium guaporense*. **25.** Part of cephalic plate (frontoclypeus basal width = 0.24 mm). **26.** Thorax (length of gill trunk = 0.182 mm). **27.** Anterior region of cocoon. **28-29.** Gill filaments (total length = 2.3 mm).

**Larva.** In general, as in original description (Py-Daniel, 1989), but first pair of dorsal tubercles located on third thoracic segment, not on first abdominal segment (Fig. 30); abdominal segments I–IV with 2 pairs of tubercles, 1 dorsal and 1 lateral; abdominal segment V with 1 pair of dorsal tubercles. Subesophageal ganglion not pigmented. Anal papillae with 3 branches, each with 14–16 digitiform lobes.

**Taxonomic Discussion.** *Simulium guaporense* was described by Py-Daniel (1989) from larvae and pupae collected in the state of Rondônia, Brazil. In his 1989 paper, Py-Daniel mentioned that in the original description of *S. siolii* (Py-Daniel 1988), one larva he collected in Rondônia State, Igarapé da Cachoeira, Bacia do rio Guaporé matched the morphology of *S. guaporense*. The second author (LMH) of the present paper examined the holotype of *S. guaporense*, which is housed in INPA.

*Simulium guaporense* was placed in the *siolii* species group of the subgenus *Psaroniocompsa* by Py-Daniel (1989), based on the presence of dorsal and lateral tubercles and multiple branched scale-like setae on the larval body. However, the presence of these tubercles (or protuberances) is apparently not restricted to this species group in the

Neotropical Region. Shelley *et al.* (2002) described similar tubercles in two populations of the relatively well-studied species *Simulium guianense* Wise (species complex) collected in Rio Verdão and Rio Doce, Goiás State, Brazil. Similar variation in tubercles is also seen in larvae of the *S. damnosum* complex in Africa, in which variation in tubercle size ranges from absent to well developed. In some cases, these tubercles may be associated with cytotype or occur in populations of a single cytotype (Shelley *et al.* 2002).



**FIGURES 30-33.** Lateral view of thoracic and first three abdominal segments of larva. **30.** *Simulium guaporense* (distance between first and second dorsal tubercles = 0.346 mm). **31.** *Simulium damascenoi* (distance between first and second dorsal tubercles = 0.269 mm). **32.** *Simulium siolii* (distance between first and second dorsal tubercles = 0.288 mm). **33.** *Simulium tergospinosum* (distance between first and second dorsal tubercles = 0.298 mm). Notes: lh = hind leg histoblast, located on the third larval thoracic segment; arrows indicate the location of the three first pairs of dorsal tubercles.

Adults reared from pupae collected near the type locality of *S. guaporense* do not resemble those of the *siolii* group. The females in the *siolii* group are distinguished by having the thorax black with a pattern consisting of 1 + 1 silver pruinose bands that extend from the anterior to the posterior margins [light source anterior]. In males, the thorax is also black with a pattern consisting of 1 + 1 sublateral, silver pruinose cunae [light source anterior] [BMNH Digital Images Archive; Hamada 2000]. The adults of *S. guaporense*

externally resemble species in the *auristriatum* species group by having the thorax covered with brass-colored, scale-like, recumbent setae arranged in lines in the central region of the scutum and grouped in clumps forming broken lines from the anterior to lateral margins (Figs 9, 10, 18, 19). The morphology of the female and male genitalia of *S. guaporense* agrees with the characters given by Coscarón & Wygodzinsky (1984) and Coscarón (1987, 1991) for species in the subgenus *Psaroniocompsa*. At this stage, we prefer to regard *S. guaporense* as a “species unplaced to group”, but near the *auristriatum* species group in *Psaroniocompsa*.

The thoracic pattern of females and males of *S. guaporense* resembles that of other species in the *auristriatum* species group (*S. auristriatum* Lutz; *S. anamariae* Vulcano; *S. brevifurcatum* Lutz; *S. schmidtmummi* Wygodzinsky; and *S. stellatum* Gil-Azevedo, Figueiró & Maia-Herzog), from which the species can be separated by the number and configuration of gill filaments and the cocoon shape. The pupa of *S. guaporense* has six filaments, which separate it from *S. auristriatum* (two filaments), *S. schmidtmummi*, and *S. stellatum* (both with four filaments). *Simulium anamariae* and *S. brevifurcatum* also have six filaments; however, *S. brevifurcatum* can be identified by having all filaments originating from a small stem and bifurcating basally, whereas *S. anamariae* has a distinct bifid protuberance on the anterolateral margin of the cocoon. In *S. guaporense*, all filaments bifurcate at some distance from the gill base and the cocoon lacks the distinct bifid protuberance on the anterolateral margin.

The females of *S. guaporense* might also be confused with females of *S. incrustatum* by the thorax having numerous hairs forming a longitudinal line running the length of the scutum. However, *S. incrustatum* can be identified by the scutum having only one median longitudinal line of hairs and 1 + 1 silver pruinose cunae on the anterior one-third [light incidence posterior] (Shelley *et al.* 2000: 192, Figs 42–43). The males of *S. guaporense* have an arrangement of hairs similar to that of the females. The males are reliably separated from those of *S. incrustatum* by the structure of the ventral plate and the gonostyle. The ventral plate in *S. guaporense* is subrectangular and weakly developed centrally. The gonostyle is triangular, terminating in a well-developed spine and bearing one longitudinal ridge. In *S. incrustatum*, the ventral plate is subtriangular, with the main body not developed centrally, and the gonostyle is rectangular, terminating in a poorly developed spine (Shelley *et al.* 2000: 200–201, Figs 103, 113). Both species cannot be reliably identified based on the pupal gill configuration. Another species with similar branching pattern is *S. angrense* Pinto. However, *S. angrense* can be recognized by the considerably longer gill filaments (length 4.3 mm). In *S. guaporense*, the gill length ranges from 2.1 to 2.4 mm.

Variation in the pupal gill configuration and the setation on abdominal sternites V, VI, and VII was seen in specimens of *S. guaporense* we examined. The filaments of the primary and dorsal branches can bifurcate at the same level or at different heights (Figs 28, 29), whereas the hooks on abdominal sternites V–VII can be simple to trifid.

In the original description of *S. siolii*, *S. damascenoi*, and *S. lourencoi*, Py-Daniel (1988) reported the presence of one pair of tubercles, on the dorsal region of the first larval abdominal segment. However, when he described *S. guaporense* (Py-Daniel 1989), he changed his description of the location of these paired dorsal tubercles in *S. siolii*, *S. damascenoi*, and *S. lourencoi* to the second larval abdominal segment. He believed that *S. guaporense* larvae had their first paired dorsal tubercles on the first abdominal segment. Hamada (2000) also placed the first pair of dorsal tubercles on the second abdominal segment in her description of *S. tergo-spinosum*. After close examination of larvae of *S. guaporense*, *S. siolii*, *S. damascenoi*, and *S. tergo-spinosum*, we realized that the location of the first pair of dorsal tubercles of these species needs to be reassigned. We did not examine larvae of *S. lourencoi*. In the larvae of *S. guaporense*, the first pair of dorsal tubercles is located on the third thoracic segment (Fig. 30). Figure 30 also shows the first dorsal tubercles on the same segment as the hind leg histoblast. Figures 31-33 show the location of the first pair of dorsal tubercles on the first abdominal segment of the larvae of *S. damascenoi*, *S. siolii*, and *S. tergo-spinosum*, respectively.

**Distribution.** *S. guaporense* has been recorded only from Brazil in the state of Rondônia (Crosskey & Howard, 1997, 2004). In this paper, we report this species for the first time in Mato Grosso State.

**Biology.** The immature stages of *S. guaporense* are found in sandy-bottomed streams in forest or open areas that were formerly forested, with mean width of 2.1 m (SD = 0.63,  $n = 4$ ), mean water temperature of 22.5 °C (SD = 1,  $n = 4$ ), mean pH of 5.1 (SD = 0.24,  $n = 4$ ), and electrical conductivity of less than 10 “S/cm. Larvae and pupae were collected from deciduous leaves and trailing vegetation. More than one hundred females were collected biting humans in Igarapé da Roda d’Água, Mato Grosso State, during early morning (about 8:00-9:00 AM).

## Material Examined

*Simulium (Psaroniocompsa) guaporense* Py-Daniel, 1989

### TYPE MATERIAL

Brazil, Rondônia State, Estrada RO 399, Ig. Ponte de Pedra, Vilhena, RO; [Without date or collector’s name] - 1 pupa [HOLOTYPE, 5849-1] 1larva [PARATYPE, 5849-2] (INPA), mounted on slide [The slide has a white label attached to it by a transparent tape and handwritten on one side of the slide in black ink “5849-1”. On the side of the slide there are handwritten labels “HOLOTYPE, PARATYPE”. We have added a white label in Luis Hernandez’s writing “Digitally photographed by L.M.Hernández 2005”.]

### OTHER MATERIAL

**Brazil, Rondônia State**, Vilhena County, Estrada Velha Colorado d’Oeste/ Nova Conquista, entrance at approximately 23 km of the BR 364; 12°54’S 60°14’W;

11.viii.2002, (*N. Hamada*) - 1 Male (= M), 1 Female (= F) (reared but not associated with pupa) (pinned) (INPA); 1M, 1F (reared) (slide) (BMNH); 8 pupae (slide) (INPA); 2 pupae (ethanol) (BMNH); 23.vii.2004, (*N. Hamada*) -1F, 1M without head (reared, associated with pupa) (pinned) (INPA); 1F, biting humans (slide) (INPA); 2 larvae (ethanol) (INPA). Dirt road to Usina do Rio Vermelho, (no. 14), 12°54'S 60°14'W; 12.viii.2002, (*N. Hamada*) - 1M, 1F (reared but not associated with pupa) (pinned) (INPA); 25.vii.2004, (*N. Hamada*) - 3F, 2M (reared, associated with pupa) (pinned) (INPA). **Mato Grosso State**, Juina County, road Vilhena - Juina, BR 174, Roda d'água, (no. 10), 11°51'S 59°20'W; 6.viii.2002, (*N. Hamada*) - 2F (reared but not associated with pupa), 1M (reared) (pinned) (INPA); 1F (reared but not associated with pupa) (slide) (INPA); 9F (biting humans) (slide) (INPA); 27.vii.2004, (*N. Hamada*) - 1F (reared, associated with pupa) (pinned) (INPA). Comodoro County, small stream on the entrance road to PCH Cabixí II, 12°58'S 60°07'W, 26.vii.2004, (*N. Hamada*) - 1F, 1M (reared, associated with pupa) (pinned) (INPA).

#### OTHER SPECIES EXAMINED

*Simulium (Psaroniocompsa) damascenoi* Py-Daniel, 1988

Brazil, Amapá state, Amapá County, BR 156 (Macapá- Oiapoque), Igarapé Davi Grande, 01°55'N 50°51'W; 18.vi.2001 (*N. Hamada*, *R. Ale-Rocha*) - 2 larvae (ethanol) (INPA).

*Simulium (Psaroniocompsa) siolii* Py-Daniel, 1988

Brazil, Mato Grosso state, Pontes e Lacerda County, Córrego Pindaituba, 15°00'S 59°17'W; 20.vii.2004 (*N. Hamada*) - 2 larvae (ethanol) (INPA).

*Simulium (Psaroniocompsa) tergospinosum* Hamada, 2000

Brazil, Amazonas state, Apuí County, rio Apuí, 07°12'S 59°54'W; 1-2.viii.1998. (*F.F. Xavier Filho*) - 2 larvae (ethanol) (INPA).

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