

DESCRIPTION OF A NEW SPECIES OF THE BLACK  
FLY SUBGENUS *SIMULIUM* (*ECTEMNASPIS*)  
FROM THE ANDES OF ECUADOR (DIPTERA:  
SIMULIIDAE)

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**Abstract:** *Simulium* (*Ectemnaspis*) *pautense* sp. n. was described based on female, male, pupal and larval specimens collected in small streams of Andean region in Ecuador. This new species is close to *S. (E.) gabaldoni* Ramírez Pérez from Venezuela by having the 6-filamented pupal gills, but differs in the female from the latter species by lacking denticles in the cibarium and by the coloration of the legs.

INTRODUCTION

Coscarón (1984) revised a neotropical simuliid fauna, and assigned 37 black fly species into the subgenus *Simulium* (*Ectemnaspis*) Enderlein. Of these, eight species have been reported from Ecuador (*S. ignescens* Roubaud, *S. lutzianum* Pinto, *S. lewisi* Ramírez Pérez, *S. pseudoantillarum* Ramírez Pérez and Vulcano, *S. dinelii* (Joan), *S. shewellianum* Coscarón and *S. bicoloratum* Malloch, *S. romanai* Wygodzinsky (e.g., Coscarón, 1984; Takaoka and Hirai, 1987).

Recently, an additional undescribed species of this subgenus was collected from the high Andes of Ecuador. This bears a combination of the following features: the adult scutum and abdomen colored partially yellowish, subtriangular paraprocts, female claws with a small subbasal tooth, and short, subcylindrical male style. All these fit the definition of the subgenus *Simulium* (*Ectemnaspis*), given by Coscarón (1984).

In this paper, this is below described as a new species.

DESCRIPTION

*Simulium* (*Ectemnaspis*) *pautense* sp. n.

Female. Wing length 2.4-2.6 mm. Head brown; proboscis, maxillary palps and antennae dark brown to black. Frons and clypeus with silvery pollinosity. Scutum orange, ornamented as in Figure 1, and greenish yellow laterally. Scutellum greenish yellow. Postscutellum velvet black with 1+1 small greyish patches. Pleura mostly pale yellow with a small elongated brown stripe over the pleural membrane, and brown basally. Wing hairs brown. Legs dark brown with concolored hairs. Abdominal tergites I-IV yellow, with tergal plates III and IV

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pale brown; tergal plates V-IX blackish brown, waxy bright except plate V velvet bright (Fig. 2). Frons convergent below (Fig. 3); frontal angle 78 degrees. Frontoocular triangle as wide as high (Fig. 4). Mandible with 29-33 teeth. Maxilla with 24 or 25 teeth. Sensory organ of maxillary palp shorter than 1/2 of basal segment. Basal portion of cibarium with reinforced border, and without denticles (Fig. 5). Basal section of R bare. Sternite VIII with darker middle area, and with about 27 hairs on each side; gonapophyses reinforced on the internal border (Fig. 6); paraproct about as long as wide at base (Fig. 7); cercus with straight border; genital fork with middle branches heavily sclerotized (Fig. 8).

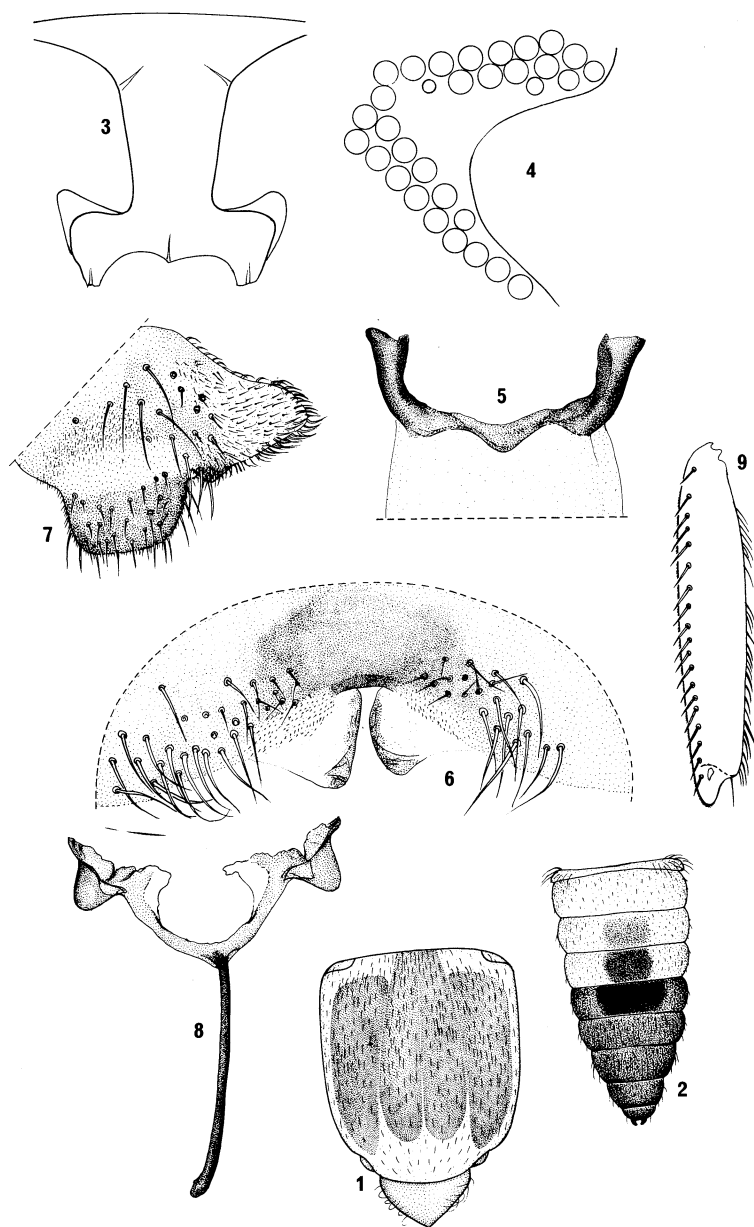
Male. Wing length 2.3-2.5 mm. Coloration very close to female. Scutum pale but yellow orange on the top, and with a T-formed black stripe on the anterior third and a pair of black, broad longitudinal stripes sublaterally (Fig. 10). Hind basitarsus about 5× as long as its width (Fig. 9). Style about 4/5× length of coxite (Fig. 11). Median sclerite elongated with a distal concavity. Parameres with several stout hooks (Fig. 13).

Pupa. Gill (Figs. 14 and 15) with 6 slender filaments and 2.7-3.3 mm long. Frontoclypeus and exposed portion of thorax with rounded and smooth tubercles (Figs. 16 and 17). Trichomes on frontoclypeus and thorax curved basally and divided into 3-6 branches (Figs. 15 and 16). Cocoon (Fig. 14) simple slipper-shaped, thickly woven with evident threads; its length 3.0-3.3 mm at base and 2.4-2.8 mm dorsally.

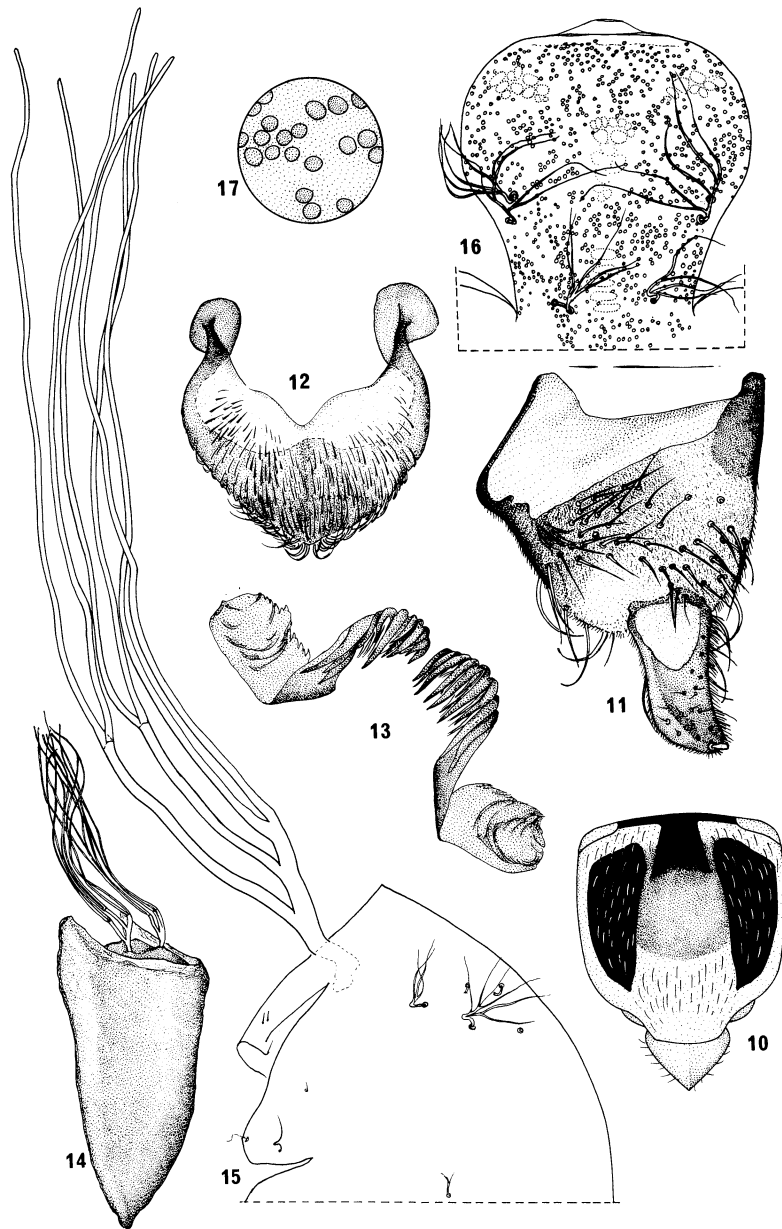
Mature larva. Body shaped as in Figure 18, and 5.5-5.8 mm long. Head brown with negative head spots (Fig. 19); cephalic capsule 0.55 mm in maximum width. Hypostomium with median tooth as high as corner teeth and with 5 setae on each side (Fig. 20). Postgenal cleft deep and narrow (Fig. 20). Antenna (Fig. 21) shorter than base of cephalic fan; relative length of segments 1-3, 1.0:1.0-1.2:1.6-2.0. Cephalic fan with 42-48 rays. Mandible with 8-10 internal teeth disposed in 2-3 rows (Fig. 22). Thorax and abdomen mostly greenish and their cuticles bare except setose portion near anal sclerite. Proleg sclerite comb with 23-25 teeth (Fig. 23). Anal sclerite shaped as in Figure 24, and with several setae on each side. Posterior circlet with 73-76 rows of 14-15 hooks. Anal gill with 12 secondary lobules on each lobe.

Material examined. Holotype female, reared from pupa, was collected from a small stream about 20 cm wide (ca. 2,500 m in altitude) in Paute, Azuay, Ecuador, 5 July, 1988, by H. Takaoka; allotype male, paratypes 2 females and 1 male, 10 pupae and 2 larvae, same data as holotype. Paratypes 8 females and 5 males, reared from pupae, were collected from a small shallow stream 10-30 cm wide (ca. 3,000 m in alt.) in Cuenca, Ecuador, 4 July, 1988, by H. Takaoka. All the type specimens are deposited in Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata, La Plata, Argentina.

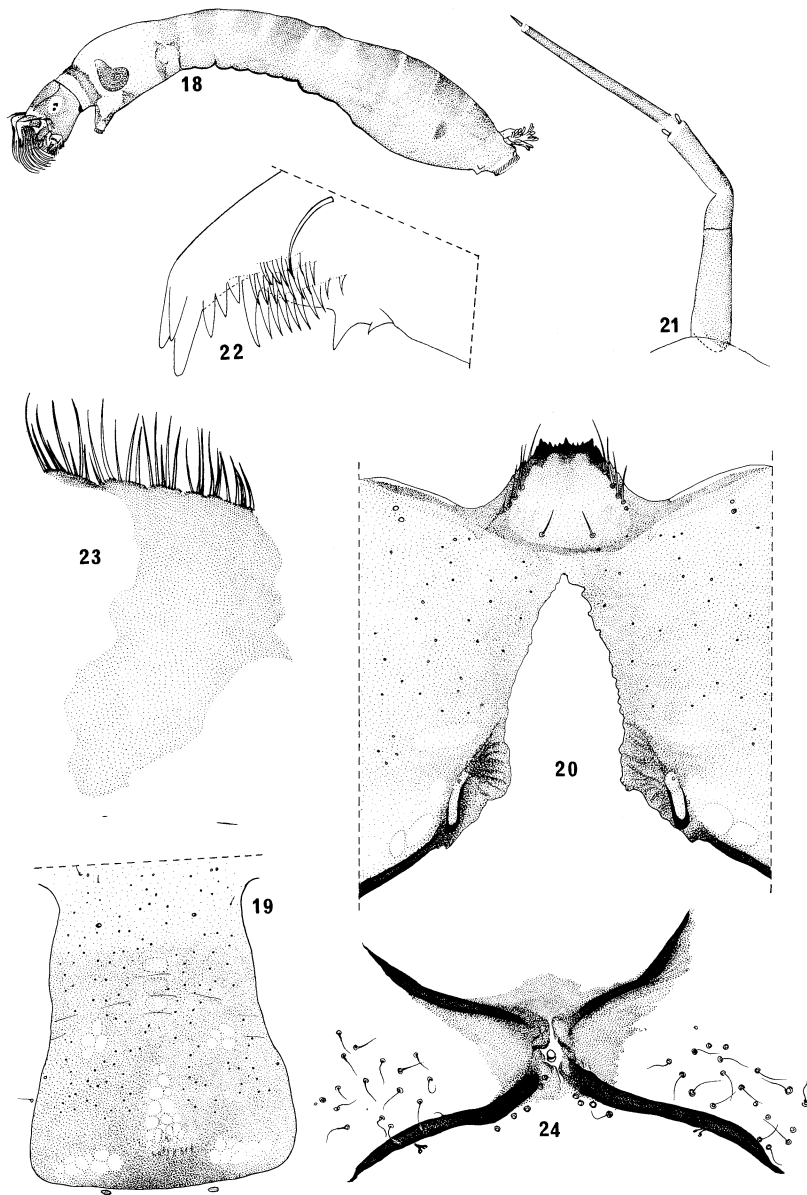
Remarks. *Simulium pauteense* sp. n. is close to *S. gabaldoni* reported from Venezuela (Ramírez Pérez, 1971) by having the 6 respiratory filaments in the pupa, but differs in the female from the latter species by the absence of tubercles in the cibarium and by the entire darkness in the legs.



Figs. 1-9. *Simulium pautenese* sp. n. 1-8, female and 9, male. 1, scutum and scutellum in dorsal view; 2, abdomen in dorsal view; 3, frons; 4, fronto-ocular triangle; 5, cibarium; 6, sternite VIII and anterior gonapophyses; 7, paraproct and cercus in lateral view; 8, genital fork; 9, hind basitarsus.



Figs. 10-17 *Simulium pautense* sp. n. 10-13, male and 14-17, pupa. 10, Scutum and scutellum in dorsal view; 11, coxite and style in dorsal view; 12, ventral plate in frontal and ventral view; 13, parameres; 14, pupa and its cocoon; 15, thoracic integument and respiratory filaments; 16, frontoclypeus with tubercles and trichomes; 17, round and smooth tubercles on frontoclypeus.



Figs. 18-24 *Simulium pautense* sp. n. larva. 18, lateral view of larva; 19, cephalic apotome; 20, ventral view of head capsule showing hypostomium and postgenal cleft; 21, antenna; 22, apical tip of mandible; 23, sclerite comb of proleg; 24, anal sclerite.

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エクアドルのアンデス高地で見いだされた *Ectemnaspis* 亜属の  
1 新種ブユの記載

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エクアドルのアンデス高地のパウテ町において採集されたブユの成虫、蛹および幼虫を分類学的に検討した結果、*Simulium* 属の *Ectemnaspis* 亜属に属する新種であることが分かったので新種名を与え、記載を行った。

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