

# New Neotropical Biting Sandflies of the Genus *Culicoides* (Diptera: Ceratopogonidae)<sup>1</sup>

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**T**HE MATERIAL that provides the basis for this paper and includes the types of five new species described herein is in the entomological collections of the Department of Medical Zoölogy of the School of Tropical Medicine, at San Juan, Puerto Rico. Special acknowledgment is due Dr. José Oliver González, Head of this department, for his kindness and assistance during the course of this work.

## CULICOIDES OLIVERI (N. sp.)

Figure 5

*Female.* Head and palpi dark brown, antennae lighter. Mesonotum greyish without a distinct design but with minute black punctations; scutellum lighter. Legs light brown without annulations. Wing pattern similar to that of *inamollae*, described below (Fig. 2). Abdomen dark greyish brown. Total length, about 1.1 mm.

*Male:* Hypopygium of the *venustus* type. Tip of aedeagus and distal ends of harpes extending well beyond the distal border of the ninth tergite (Fig. 5).

*Type material:* Described from the female holotype, female paratype collected at Mariani, Haiti, December 7, 1925 ("biting viciously in sun"), and the male allotype at Bayeux, Haiti, September 3, 1925.

## CULICOIDES HELICONIAE (N. sp.)

Figure 1

The pupa of this species has already been described and illustrated by one of the authors and the habitat of the immature stages indicated as bromeliads.<sup>4</sup>

*Female.* Head dark brown; antennal segments white basally,

brown distally. Eyes distinctly separated; palpi with second segment shorter than third, the latter moderately expanded at about the middle. Mesonotum with a whitish and light brown design on a dark brown ground; anteriorly the design consists of an irregular transverse dirty white band with a more or less square light brown median area that expands posteriorly into a shield-shaped pattern of a dirty white ground color, having laterally a longitudinal brown band and an inner prominent brown spot on each side; scutellum a light brown. Legs brown, lighter at the joints. For wing pattern, see Fig. 1. Dorsum of abdomen a light brown, sides and venter dark brown. Total length, about 2.00 mm.

*Male.* Hypopygium of the *venustus* type. Apicolateral processes small. Claspers bent. Aedeagus flask-shaped with ventral and lateral marginal bands, the tip spatula- or ball-like. Harpes robust and triangular at the base, distally long, slender and pointed.

*Type material.* Described from the female holotype, male allotype, and female paratype collected at Maracay, Venezuela, August 2, 1927.

*Remarks.* This species is similar in size and general structure to *C. variipennis* Coq., differing from that species, however, in the arrangement of the light and dark spots of the wings.

## CULICOIDES ARUBAE (N. sp.)

Figure 3

The pupa of this species has already been described and illustrated by one of the authors and the habitat of the immature stages indicated as crab holes.<sup>5</sup>

*Female.* Head and palpi dark brown, antennae lighter. Eyes narrowly separated; palpus with second segment shorter than third, the latter expanded beyond the middle. Mesonotum greyish, diffused with many dark brown punctations some of which, in certain specimens, almost unite to form a longitudinal median line in the pre-scutellar depression; scutellum greyish at the sides, brown medially. Legs brown, some of the joints with yellow annulations. For wing pattern, see Fig. 3. Abdomen greyish brown. Total length, about 1.3 mm.

*Male.* Hypopygium with apicolateral processes long and triangular. Claspers not bent. Aedeagus with a low arch and a broad truncate terminal portion. Harpes stout basally, sinuous, somewhat

1. Received for publication March 6, 1944.

2. Now Captain, Sanitary Corps, Army of the U. S.

3. Deceased.

4. Fox, I., The respiratory trumpet and anal segment of the pupae of some species of *Culicoides* (Diptera: Ceratopogonidae) Fig. 19 and 24. Puerto Rico J. Pub. Health & Trop. Med., 17:412-420, 1942.

5. *Ibid.*, Fig. 2 and 5.

enlarged in the middle with slender curved tips ending in sharp points.

*Type material.* Described from the female holotype, male allotype, and female paratype collected at Aruba, Dutch West Indies, in August or September 1929.

*Remarks.* This species is very similar to *C. furens* Poey, particularly in possessing prominent dark punctations on the mesonotum. It differs from that species, however, in the pattern of light and dark spots of the wing.

CULICOIDES BORINQUENI (N. SP.)

Figure 4

The pupa of this species has already been described by one of the authors.<sup>6</sup>

*Female.* Head dark brown, antennae lighter. Mesonotum yellowish brown, without darker markings; scutellum of the same color as the mesonotum. Legs a yellowish or reddish brown. For wing pattern, see Fig. 4. Dorsum, sides, and venter of abdomen light brown. An exceedingly small species, approximately 1.00 mm. in length.

*Male.* Apicolateral processes long and slender. Claspers bent, each provided distally with a long, heavily sclerotized spine-like process. Harpes broad basally, expanded medially, slender, and curved over distally.

*Type material.* Described from the female holotype, male allotype, and two female paratypes bred from tree holes at Palmas Abajo, Puerto Rico, February 1931.

CULICOIDES INAMOLLAE (N. SP.)

Figure 2

*Female.* Head and palpi dark brown, antennae lighter. Third segment of palpi extended at distal third. Mesonotum brown without a distinct design; scutellum of the same color as the mesonotum. Legs brown without annulations. For wing pattern, see Fig. 2. Dorsum of abdomen dark brown, lighter medially. Total length, about 1.00 mm.

*Male.* Hypopygium of the *venustus* type. Tip of aedeagus not reaching the distal border of ninth tergite.

*Type material.* Described from the female holotype, male allotype, and two female paratypes collected from light traps at Mayagüez, Puerto Rico, October 7, 1935 by George S. Tulloch.

6. *Ibid.*, Fig. 4.

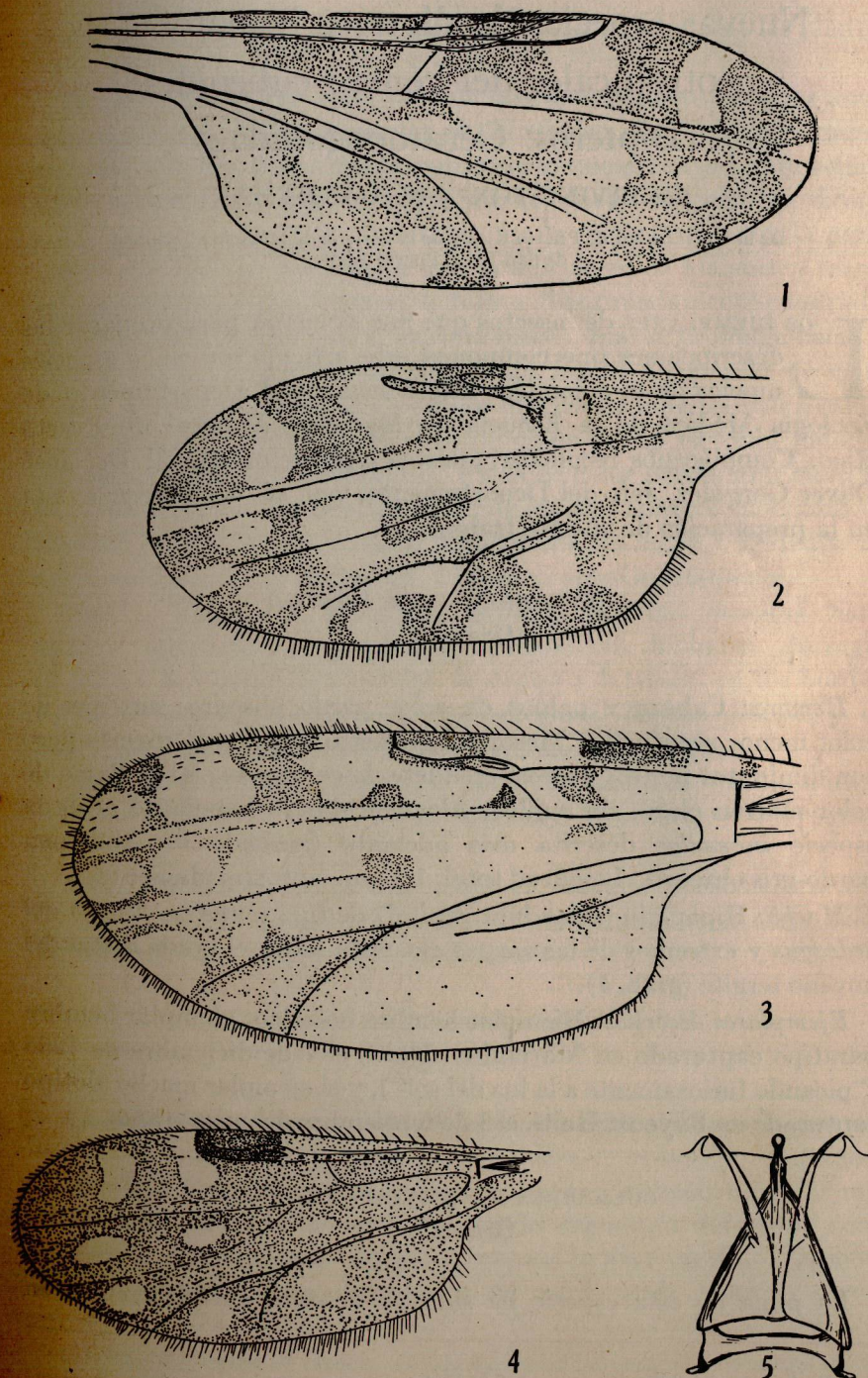


Figure 1: *Culicoides heliconiae*, n. sp., female wing

Figure 2: *Culicoides inamollae*, n. sp., female wing

Figure 3: *Culicoides arubae*, n. sp., female wing