

## Two New Species of Neotropical *Culicoides*

(Diptera: Ceratopogonidae)<sup>1</sup>

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In our studies of Neotropical biting midges we have found two new species of *Culicoides* that are especially interesting from distributional and taxonomic aspects, enough to merit their description and discussion at this time. We wish to thank Mrs. Molly Griffin for making the illustrations.

Antennal ratio (abbreviated AR) is the combined length of the five elongated distal flagellomeres (for convenience referred to as segments) divided by the combined length of the eight shorter preceding segments. Palpal ratio (PR) is the length of the third palpal segment divided by its greatest breadth. Proboscis/Head ratio (P/H Ratio) is the length of the proboscis measured from the distal end of the labrum-epipharynx to the anterior margin of the tormae, divided by the distance measured from the anterior margin of the tormae to the median hair socket between the eyes. Wing length is measured from the basal arculus to the wing tip; costal ratio (CR) is the length of the costa measured from the basal arculus to the tip of the second radial cell divided by the wing length.

### ***Culicoides kuscheli*, new species**

(Fig. 1)

Female.—Length of wing 1.21 mm; breadth 0.54 mm.

Head: Eyes (Fig. 1d) contiguous to narrowly separated; bare. Antenna (Fig. 1a) with lengths of flagellar segments in proportion of 30-22-23-23-24-24-24-25-30-30-30-50, AR 0.88, five distal segments very little elongated; sensory pattern 3,7-10. Palpus (Fig. 1b) with lengths of segments in proportion of 15-25-50-20-23, PR 2.1; third segment moderately swollen, with a moderately large and deep, round sensory pit. Proboscis

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moderately long, P/H Ratio 0.88; mandible with 11-12 teeth.

Thorax: Dark brown, with dense dark grayish pollinosity, without prominent pattern. Legs brown, without pale rings, knee spots darker, tarsi paler; hind tibial comb with four spines, the one nearest the spur longest (Fig. 1e).

Wing (Fig. 1c) with pattern as figured; second radial cell in a very dark spot, dark to its distal extremity; pale spot over r-m crossvein prominent, extending broadly from costal margin to medial stem. Cell R5 with large poststigmatic pale area and a large irregular pale spot toward apex of cell, the two separated in posterior part of cell by a very dark area. Cell M1 with two elongate, indistinct pale spots, more or less streaklike, distally not reaching wing margin. Cell M2 indistinctly pale on basal half, darker distally with a more distinct distal pale spot more or less meeting wing margin. Cell M4 with a large pale area more or less filling distal portion of cell. Anal cell with rather indistinct pale area at base and a more distinct pale spot in distal portion. CR 0.57; radial cells distinct, the second relatively broad; macrotrichia rather coarse and moderately sparse, confined to distal half of wing and in anal cell. Halter pale.

Abdomen: Brownish. Spermathecae (Fig. 1f) two plus a rudimentary third and sclerotized ring; functional spermathecae ovoid, subequal, measuring 0.047 by 0.033 mm and 0.043 mm by 0.031 mm.

Male.—Unknown.

Distribution.—Chile.

Types.—Holotype, female, Chile, Antofagasta, Paposo, 6 October 1957, G. Kuschel (Type no. 72237, USNM). Paratypes, 18 females, same data.

**Discussion:** This species is named for Guillermo Kuschel, Entomology Division, Department of Scientific and Industrial Research, Nelson, New Zealand, in appreciation of his intense interest in the Chilean biting midge fauna and for his important field collections.

*Culicoides kuscheli* does not appear to be closely related to any known Neotropical species, which is less surprising when one considers that it occurs on the extreme southern range of the genus in South America. Only one species, *C. venezuelensis* Ortia and Mirsa, has been recorded from farther south in Chile, where it was described as *pictipennis* (Philippi) from Santiago. There is considerable varia-

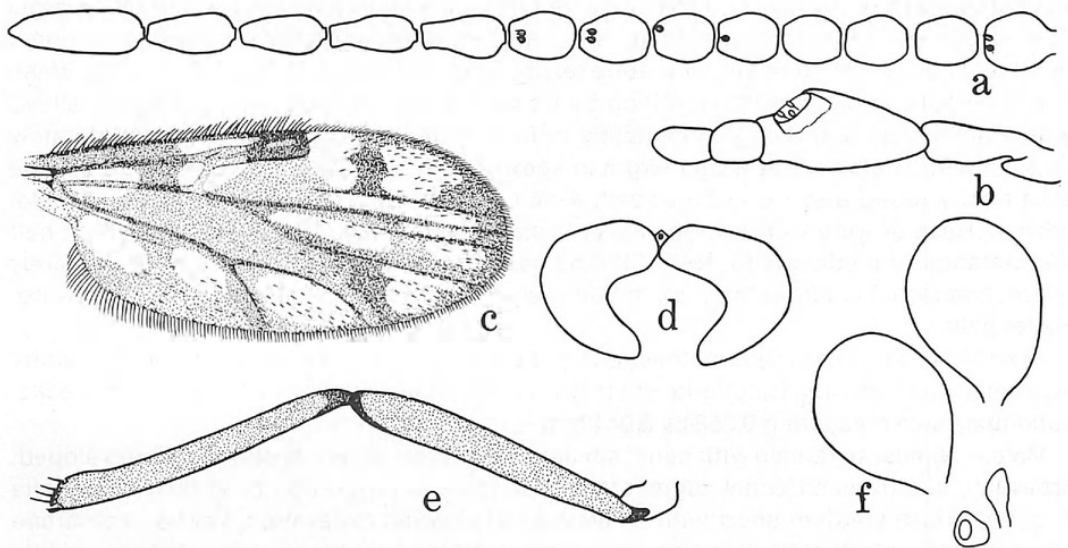


Fig. 1. *Culicoides kuscheli*, female: a, antenna; b, palpus; c, wing; d, eye separation; e, femur and tibia of hind leg; f, spermathecae.

tion in wing markings in *C. kuscheli*, and the figure illustrates the extreme maximum extent of the pale markings (holotype). In most of the type series the markings are more or less reduced, and in a few specimens the distinct pale spots are confined to the marking over the r-m crossvein, the poststigmatic pale spot, and an oblique pale mark toward the apex of cell R5. Such specimens will key out in Wirth and Blanton (1959) to *C. alahialinus* Barbosa (from Ecuador and Panama). *C. alahialinus* differs in having the pale mark in the middle of cell R5 small and faint and confined to the middle of the cell, the antennal sensory pattern is 3, 8-10, and the mesonotum has a prominent pattern of small blackish punctiform dots. Nevertheless, *C. kuscheli* is perhaps as closely related to *C. alahialinus* as to any other Neotropical *Culicoides* species. Discovery of the male would certainly help clarify the taxonomic position of *C. kuscheli*.

### ***Culicoides parascopus*, new species**

(Fig. 2)

Female.—Length of wing 1.71 mm; breadth 0.81 mm.

Head: Eyes (Fig. 2d) narrowly separated; bare. Antenna (Fig. 2a) with lengths of flagellar segments in proportion of 38-29-27-27-26-26-25-28-60-60-66-70-96, AR 1.65; sensory pattern 3,4,6,8,10-15. Palpus (Fig. 2b) with lengths of segments in proportion of 15-35-55-19-23, PR 2.1; third segment moderately swollen, with a moderately large, round, shallow sensory pit. Proboscis moderately short, P/H Ratio 0.70; mandible with 15 teeth.

Thorax: Dark brown, without prominent pattern. Legs brown, knee spots darker; all tibiae with narrow pale rings; tarsi paler; hind tibial comb with 4-5 spines, the two nearest the spur longest, subequal (Fig. 2f).

Wing (Fig. 2c) with pattern as figured; second radial cell in a very dark spot, dark to its distal extremity; pale spot over r-m crossvein moderately large and circular, bearing a prominent small dark spot in center lying over r-m crossvein itself. A distinct oval pale spot straddling vein M2 at its midlength. Cell R5 with a small pale spot on anterior margin just past tip of costa and a second larger, quadrate pale spot halfway between the former and tip of cell, the second spot not quite reaching vein M1 caudad. Cell M1 with one small oval pale spot in distal portion, failing by its own length to reach wing margin. Cell M2 with a small pale spot lying immediately in front of mediocubital fork and a moderately large rounded pale spot at wing margin in apex of cell. Cell M4 with a large rounded pale spot nearly filling distal portion of cell. Anal cell with two rounded pale spots in distal portion. Base of wing with a large pale area extending distad in midportion to about half the distance to mediocubital fork. CR 0.58; radial cells distinct, the second moderately broad; macrotrichia rather long and moderately dense, extending nearly to base of wing. Halter pale.

Abdomen: Brownish. Spermathecae (Fig. 2e) two plus rudimentary third and a faintly sclerotized narrow ring; functional spermathecae subspherical with short, slender necks, subequal, each measuring 0.058 by 0.041 mm.

Male.—Similar to female with usual sexual differences; antennal plume well developed, brownish; last three antennal segments with lengths in proportion of 90-80-85. Genitalia (Fig. 2h): Ninth sternum short with shallow caudomedian excavation, ventral membrane not spiculate; ninth tergum moderately long, slightly tapered to long, slender, widely separated apicolateral processes, the caudal margin between them transverse with a slight median indentation. Basistyle with ventral and dorsal roots slender and elongate;



dististyle with slender, pointed, distinctly hooked tip. Aedeagus with basal arch rounded, extending to half of total length of aedeagus, basal arms slender and curved; distal median process slightly bulbous proximad and tapering to simple slender tip. Parameres (Fig. 2g) separate; each with well developed basal knob, slender proximal portion abruptly bent about 120 degrees with the straight, moderately slender, median stem portion; the latter gradually tapering distally, the tip abruptly bent ventromesad and ending in a simple filamentous point.

Distribution.—Mexico.

Types.—Holotype, female, allotype, male, Mexico, Michoacan, Puerto Garnica, 2828 meters, 47 km east of Morelia on Hwy 15, 20 August 1964, F. S. Blanton, light trap (Type no. 72238, USNM). Paratypes, 4 males, 7 females, same data.

Discussion: The name *parascopus* is a Latin noun taking its name because of the close relationship of this species to *C. scopus* Root and Hoffman. *C. scopus* is a more widespread species in higher elevations ranging from Mexico south to Chiriqui, Panama. It differs in having the female palpus with a slightly smaller sensory pit; antennal sensory pattern 3,8,10-15; male aedeagus with short, blunt tip; and male parameres with the distal stem abruptly narrowed before the slender, ventrally directed, distal portion bearing apical fringing hairs.

*Culicoides parascopus* was taken in a light trap operated at the border to the Insurgente Morelos National Park in a well developed montane forest of fir and pine in the Sierra Ozumatlan. Cabrera and Willink (1973) place this area in their biogeographic "Provincia Mesoamericana de Montana", characterized by rather open forests of pine, fir and oaks.

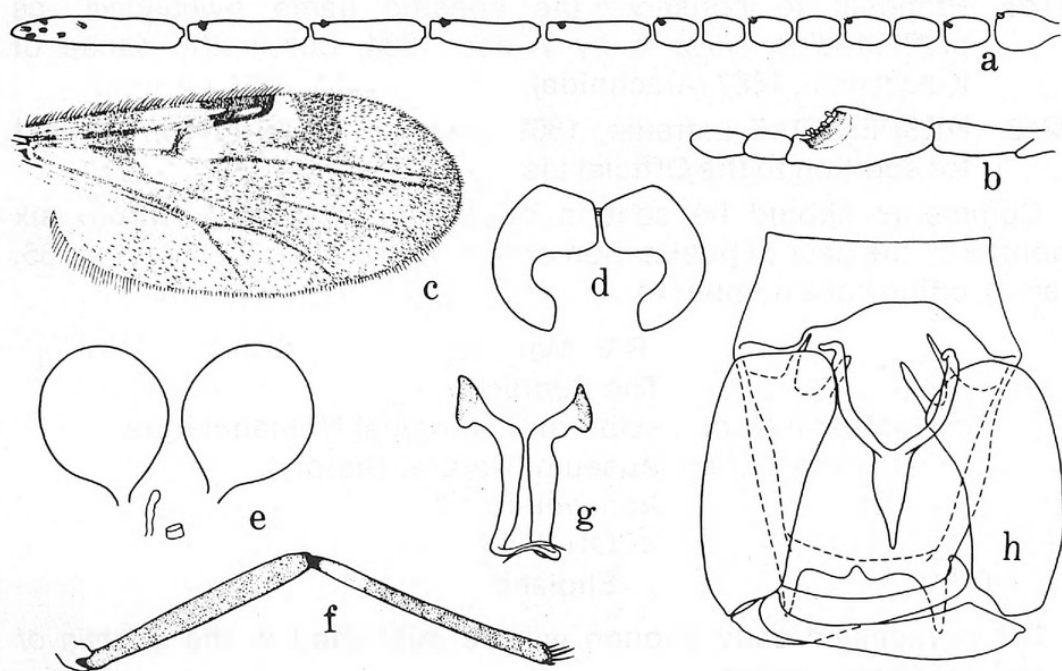


Fig. 2. *Culicoides parascopus*, a-f female, g-h, male: a, antenna; b, palpus; c, wing; d, eye separation; e, spermathecae; f, femur and tibia of hind leg; g, parameres; h, genitalia, parameres removed.

## Literature Cited

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## ZOOLOGICAL NOMENCLATURE ANNOUNCEMENT A.N.(S.) 106

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- 680 *Blatta germanica* Linnaeus, 1767 (Insecta, Dictyoptera, Blattodea): proposal to conserve and to designate it as type-species of *Blattella* Caudell, 1903.
- 2143 Proposal to conserve the specific name *tenebricola*, as published in *Linyphia* by Wider, 1834, but in the sense of Kulczynski, 1887 (Arachnida).
- 2213 HESPERIIDAE Latreille, 1809 (Insecta, Lepidoptera): request for addition to the Official List.

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Those received early enough will be published in the *Bulletin of Zoological Nomenclature*.



Wirth, Willis Wagner and Blanton, Franklin S. 1978. "Two new species of Neotropical Culicoides (Diptera: Ceratopogonidae)." *The Pan-Pacific entomologist* 54(3), 236–240.

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