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## A new species and new records of *Paryphoconus* from the Amazon region of Peru (Diptera: Ceratopogonidae)

### Una nueva especie y nuevos registros de *Paryphoconus* de la región amazónica de Perú (Diptera: Ceratopogonidae)

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**Abstract.** *Paryphoconus peruvianus*, a new species from Peruvian Amazonia is described and illustrated from female and male specimens collected at light in the Department of Cuzco. The species is compared with its similar congener *P. anomalicornis* Kieffer. Furthermore, *P. anomalicornis*, *P. fusciradialis* Spinelli y Wirth and *P. oliveirai* Lane are firstly recorded from Peru.

Key words: *Paryphoconus*, new species, new records, Amazonia, Peru.

**Resumen.** Se describe e ilustra a *Paryphoconus peruvianus*, una especie nueva de la Amazonia peruana, a partir de hembras y machos capturados a la luz en el Departamento de Cuzco. Esta especie es comparada con su congénere más similar, *P. anomalicornis* Kieffer. Además, se registran por primera vez para Perú *P. anomalicornis*, *P. fusciradialis* Spinelli y Wirth y *P. oliveirai* Lane.

Palabras clave: *Paryphoconus*, nueva especie, nuevos registros, Amazonia, Perú.

## Introduction

The Neotropical genus *Paryphoconus* Enderlein includes medium-sized to large (female wing lengths 1.5-7 mm) predaceous midges frequently collected from near rivers in tropical and subtropical areas (Borkent and Spinelli, 2007). Spinelli and Wirth (1984) reviewed the genus, providing a key to females of 38 species and Spinelli (1998) described 2 additional species from northeastern Argentina. One of the species, *P. sonorensis* Wirth and Ratanaworabhan, reaches the Nearctic region.

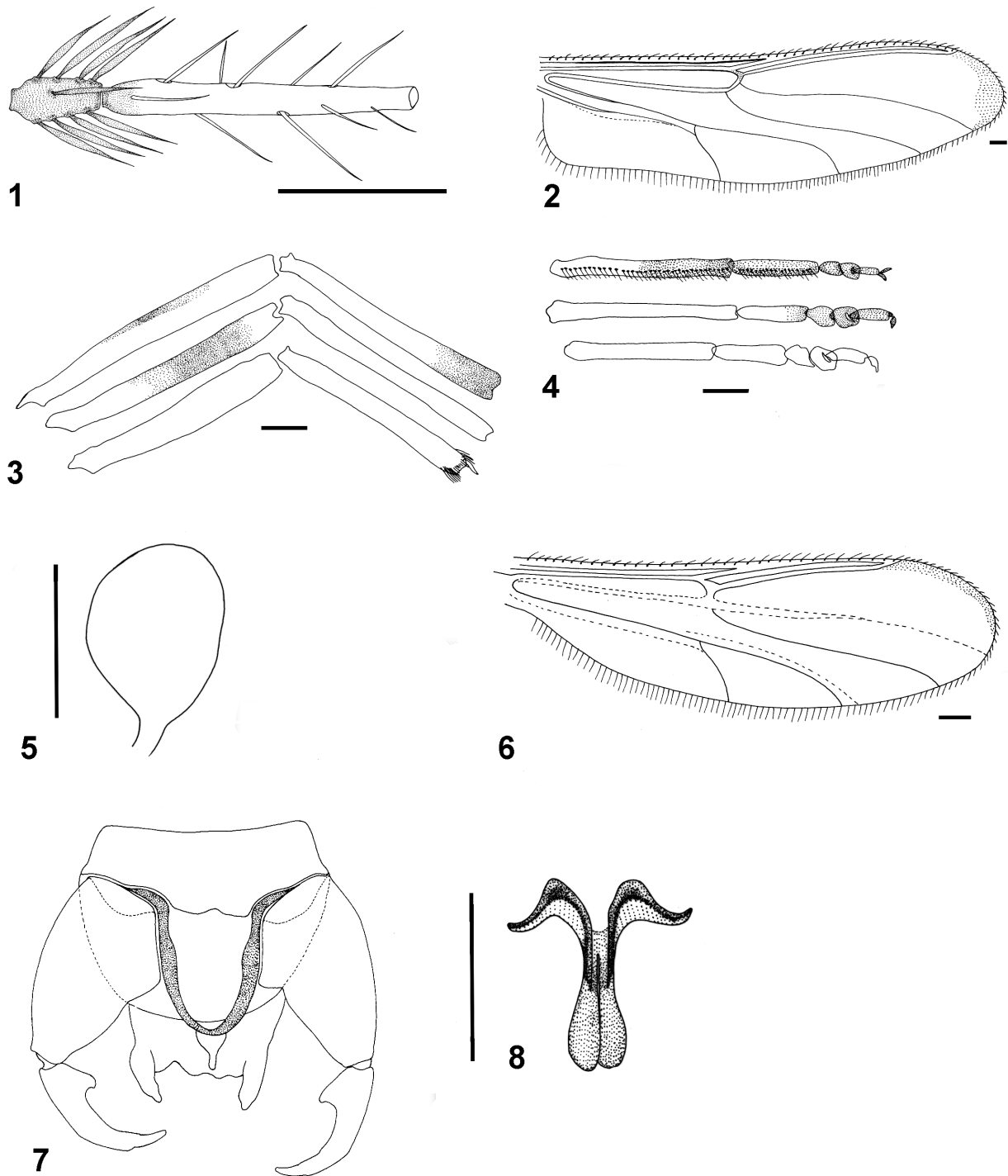
Of the forty known species of the genus, the following 4 inhabit Peru: *P. aemulus* Macfie, *P. angustipennis* Enderlein, *P. steineri* Spinelli and Wirth, and *P. terminalis* (Coquillett) (Borkent and Spinelli, 2007). Our purpose is to describe a new species from the Department of Cuzco, as well as to present new distributional records for 3 species from the same

area and from Iquitos, another Amazonian area of the country.

## Materials and methods

Specimens were collected placing a funnel approximately 20 cm in diameter above a jar of alcohol, close to a source of light, and were slide-mounted in Canada Balsam following the technique described by Borkent and Spinelli (2007). Illustrations were drawn with a camera lucida on a compound microscope.

For terminology, we followed the Manual of Nearctic Diptera (McAlpine et al., 1981). Terms for wing veins follow the system of the Manual of Nearctic Diptera, with modifications proposed by Szadziewski (1996). The holotype and the studied specimens are deposited in the Museo de La Plata, Argentina (MLPA), except for 2 paratypes (1 female, 1 male) that will be deposited in the Colección Nacional de Insectos of the Instituto de Biología, UNAM, Mexico.



**Figures 1-8.** *Paryphoconus peruvianus* Mauad and Spinelli sp. n., adult. 1-5, holotype female; 6-8, allotype male. 1, Flagellomeres 8-9; 2, 6, wing; 3, femora and tibiae (top to bottom: hind, mid, fore); 4, tarsi (top to bottom: hind, mid, fore); 5, spermatheca; 7, genitalia (parameres removed); 8, parameres (scale bars = 0.05 mm).

## Description

***Paryphoconus peruvianus*** Mauad and Spinelli, sp. n. (Figs. 1-8)

**Diagnosis.** It is distinguished by the combination of the antenna with proximal flagellomeres dark with hastate setae and 5 distal flagellomeres whitish with fine setae, and wing membrane whitish hyaline only infuscated at apex, with its anal angle very well developed.

**Female.** Head dark brown except distal portion of clypeus and mouth parts yellowish brown. Flagellum with 8 proximal flagellomeres dark brown, bearing stout, dark brown hastate setae, 5 distal flagellomeres elongate, whitish to pale brown, with verticils and setae sparse and fine (Fig. 1); flagellomeres in proportion of 48-33-31-30-28-26-24-26-92-89-90-96-117; antennal ratio 1.74–1.98 (average 1.84,  $n = 12$ ). Palpus yellowish brown, segments 4–5 produced beyond mandibular teeth, third segment with few subapical sensilla on inner margin; palpal ratio 2.10–2.80 (average 2.45,  $n = 18$ ). Mandible with 5 teeth.

**Thorax.** Scutum dark brown except prescutellar depression yellowish brown, anterior spine short; scutellum yellowish brown. Legs (Fig. 3) yellowish brown, midfemur and distal  $\frac{1}{4}$  of hind tibia dark brown, hind femur infuscated dorsally; tarsi (Fig. 4) dark brown, except tarsomere 1 and basal  $\frac{1}{2}$  of tarsomere 2 of hind leg and basal  $\frac{1}{2}$  of tarsomere 1 of hind leg yellowish brown. Wing (Figs. 2, 9) length 3.00–3.77 (average 3.38,  $n = 19$ ) mm, width 0.80–1.00 (average 0.87,  $n = 19$ ) mm; membrane whitish hyaline, infuscated at apex; anterior veins pale except r-m crossvein and  $R_2$  pale brown, apical portion of  $M_1$ ,  $M_2$ ,  $MCu_1$ ,  $MCu_2$  slightly infuscated; anal angle strongly developed, forming an angle of nearly  $90^\circ$ ; costal ratio 0.89–0.92 (average 0.90,  $n = 19$ ). Halter dark brown.

**Abdomen.** Brown. Five pairs of gland rods. Spermatheca (Fig. 5) well sclerotized, ovoid with well developed slender neck, measuring 95 by 73  $\mu$ m, neck 15  $\mu$ m.

**Male.** Similar to female with usual sexual differences. Flagellum dark brown, proximal flagellomeres slightly paler; all flagellomeres lacking black hastate setae. Hind femur entirely dark brown. Wing (Fig. 6) length 1.38–1.47 (average 1.45,  $n = 3$ ) mm; width 0.41–0.47 (average 0.44,  $n = 3$ ) mm; anterior veins brown, membrane without apical infuscation, anal angle not developed, costal ratio 0.77–0.82 (average 0.79,  $n = 3$ ). Genitalia (Fig. 7): tergite 9 short, not reaching level of apex of gonocoxite, cercus elongate, slender; sternite 9 0.33 times longer than broad, distal margin irregular, not excavated. Gonocoxite stout, inner margin tapering; gonostylus 0.70 times longer than gonocoxite, slender, deeply curved with pointed tip. Parameres (Fig. 8) narrowly fused basally, contiguous distally. Aedeagus triangular; basal arms slender, well sclerotized; basal arch very high; tip lightly sclerotized, papilliform.

## Taxonomic summary

**Distribution.** Known only from the type-locality.

**Types.** Holotype female, Peru, Cuzco prov., Pagoreni,  $11^\circ 42' 21.9''$  S,  $72^\circ 54' 21.9''$  W, VII-2004, J. Williams, at light; allotype male, Cuzco prov., Kirigueta,  $11^\circ 38' 13''$  S,  $73^\circ 07' 07''$  W, VII-2004, J. Williams, at light. Other paratypes, 18 females, 2 males, as follows: same data as holotype, 7 females; same data as allotype, 11 females, 2 males.

## Remarks

*Paryphoconus anomalicornis* Kieffer is the only species that shares the peculiar coloration and setation of the female antenna with *P. peruvianus*, but the distal flagellomeres in the former are distinctly shorter. The main character to distinguish both species is the very narrow anal angle of the wing in *P. anomalicornis*, which is broad, well developed in the new species, as well as the strong wing infuscation in *P. anomalicornis*, not only on the membrane but also on the anterior veins and along the posterior ones. The wing photos of both species (Figs. 9-10) clearly illustrate these features.

*Paryphoconus anomalicornis* Kieffer

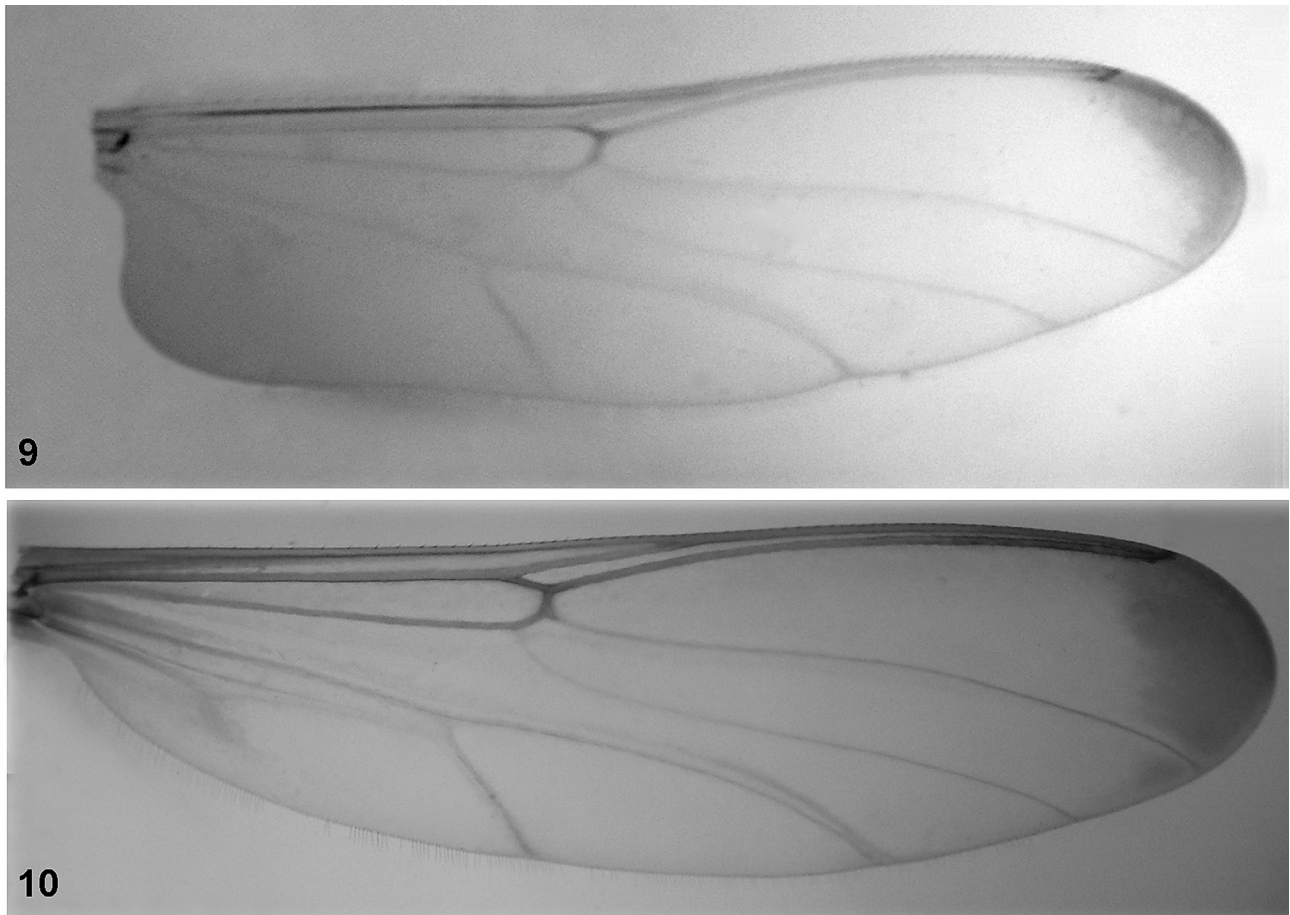
*Paryphoconus anomalicornis* Kieffer, 1917: 333 (female; Colombia, and Paraguay); Wirth and Ratanaworabhan, 1972: 1372 (redescr.; distrib.); Spinelli and Wirth, 1984: 889 (notes; wing photo); Borkent and Wirth, 1997: 136 (in World catalog); Spinelli, 1998: 51 (Argentina record); Borkent and Spinelli, 2000: 65 (in catalog south of USA); Borkent and Spinelli, 2007: 97 (Neotropical cat.).

## Taxonomic summary

**Previous distribution.** Mexico to Colombia, Venezuela, Brazil (Amazonas), Paraguay, and northeastern Argentina. **New record.** Peru, Cuzco prov., Pagoreni,  $11^\circ 42' 21.9''$  S,  $72^\circ 54' 21.9''$  W, VII-2004, J. Williams, 1 female, at lights.

*Paryphoconus fusciradialis* Spinelli and Wirth

*Paryphoconus fusciradialis* Spinelli and Wirth, 1984: 895 (female; Brazil; wing photo); Borkent and Wirth, 1997: 136 (in World catalog); Borkent and Spinelli, 2000: 65 (in catalog south of USA); Borkent and Spinelli, 2007: 98 (Neotropical cat.).



**Figures 9-10.** Wing photographs. 9, *Paryphoconus peruvianus* Mauad and Spinelli, female holotype; 10, *Paryphoconus anomalicornis* Kieffer, female.

#### Taxonomic summary

*Previous distribution.* Brazil (Pará).

*New record.* Peru, Iquitos, Casa de Juan, 13-VIII-1996, R. Fernández, 1 female, CDC light trap.

*Paryphoconus oliveirai* Lane

*Paryphoconus oliveirai* Lane, 1956: 303 (female; Brazil); Wirth and Ratanaworabhan, 1972: 1374 (female redescrip.; pupa); Spinelli and Wirth, 1984: 889 (Colombia record; wing photo); Borkent and Wirth, 1997: 136 (World cat.); Borkent and Spinelli, 2000: 66 (cat. south of USA); Borkent and Spinelli, 2007: 98 (Neotropical cat.); Ronderos et al., 2007: 363 (redescrip. pupa).

#### Taxonomic summary

*Previous distribution.* Colombia, Brazil (Amazonas and Pará).

*New record.* Peru, Cuzco prov., Pagoreni, 11° 42' 21.9" S, 72° 54' 21.9" W, VII-2004, J. Williams, 2 females, at light; Cuzco prov., Kiriguete, 11° 38' 13" S, 73° 07' 07" W, VII-2004, J. Williams, 3 females, at light; Cuzco prov., San Martín, 11° 46' 17" S, 72° 4' 52.6" W, 458 m, 14-II-2006, J. Williams, 1 female, at light.

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