A new Culicoides (Diptera: Ceratopogonidae) of the Reticulatus species group from Brazilian Amazon Region

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A new species of the Culicoides reticulatus species group, Culicoides kuripako Felippe-Bauer, is described and illustrated based on females and male specimens from the states of Amazonas and Pará, Brazil. The new species is compared with its similar sympatric congener, Culicoides paucienfuscatus Barbosa.

Key words: Amazonas - Brazil - Culicoides kuripako sp. nov. - neotropical bloodsucking midges - Pará

RESULTS

Culicoides kuripako Felippe-Bauer, sp. nov. (Figs 1-11)

Diagnosis - Only species of the reticulatus species group with scutum with prominent pattern of oval yellowish patches, poststigmatic pale spot in cell r, inverted L-shaped, veins M1, M2, CuA1, pale, CuA2 pale with dark apex or entirely pale, male genitalia with a ventral lobe in the distal portion of the stem of the parameres.

Female - Wing length 0.89-1.05 (0.98, n = 11) mm; breadth 0.43-0.48 (0.46, n = 11) mm.

Head: brown. Eyes (Fig. 4) bare, narrowly separated by a distance of the diameter of ½ ommatidium. Pedicel brown; flagellum (Fig. 5) pale brown; antennal ratio 1.12-1.23 (1.16, n = 10); sensilla coeloconica on flagellomeres 1, 5-8; one or two on 1, one on 5, three on 6-8. Palpus (Fig. 6) brown; 3rd segment slightly swollen distally, with a moderately deep sensory pit on distal portion; palpal ratio 2.2-2.7 (2.5, n = 11). Proboscis moderately long; P/H ratio 0.81-0.94 (0.87, n = 11); mandible with 11-13 (n = 5) teeth.

Thorax: brown. Scutum with prominent pattern of oval yellowish patches; scutellum yellowish on sides; postscutellum brown. Legs mostly brown; femora with subapical pale bands, tibiae with subbasal pale bands; hind tibia pale apically (Fig. 9); hind tibial comb (Fig. 8) with four spines, the two nearest the spur longest, subequal. Tarsi pale, tarsomeres of hind leg darkest. Wing (Figs 1, 2) with pattern as in photographs: second radial cell in dark spot; pale spot over cross vein r-m very large, extending from vein CuA to costal wing margin, poststigmatic pale spot in cell r, inverted L-shaped, nearly isolating a small dark spot behind second radial cell; distal pale spot in cell r, usually broadly abutting wing margin (Fig. 1), or nearly rounded and not reaching wing margin (Fig. 2); cell m2 with two pale spots, proximal one merges into transverse pale band of wing, distal one usually large and meeting wing margin (Fig. 1) or smaller than proximal one and not meeting wing margin (Fig. 2); cell m3 with a small

During entomological surveys in the state of Amazonas (AM) and Pará (PA), Brazil, collected specimens of Culicoides included an undescribed species very similar to a congener that belongs to the reticulatus species group, Culicoides paucienfuscatus Barbosa. C. paucienfuscatus is a neotropical widespread species which occurs between Costa Rica through Central and South America to Peru, including Trinidad, Venezuela, Bolivia and Amazon Region of Brazil (AM and PA) (Borkent & Spinelli 2007). The purpose of this paper is to describe a new species based on female and male specimens captured while biting humans and with CDC light trap and to supply taxonomic characters for separation of these two similar sympatric species.

MATERIALS AND METHODS

The specimens are slide-mounted in phenol-balsam in the manner described by Wirth and Marston (1968). The new species is deposited in National Institute of Amazonian Research/Laboratory of Ethnoecology and Etnoepidemiology (INPA/LETEP), Emílio Goeldi Museum (Invertebrates Collection) (MPEG) and Oswaldo Cruz Institute (Ceratopogonidae Collection) (CCeIOC), Brazil. Diagnostic characters were illustrated using a camera lucida. Microphotographies of the wings were taken with a Nikon Eclipse E-800. The general terminology used is that employed for Culicoides by Spinelli et al. (2005). Terms for wing veins follow the system of the Manual of Nearctic Diptera (McAlpine et al. 1981), with modifications proposed by Szadziewski (1996). The measurements of the spermathecae are in micrometers and those of the wings are in millimeters. Meristic information is given as range, following by the mean and number of specimens examined.

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rounded pale spot behind medial fork and two distal pale spots, the proximal one connected with the first pale spot of cell m₁, the distal one abutting wing margin; cell cua with a round pale spot nearly reaching wing margin; anal cell with two distal rounded pale spots; wing base with a broad pale spot extending from costal margin to anal cell; veins M₁, M₂, CuA, pale; CuA₂ pale with dark apex or entirely pale in some specimens; macrotrichia on distal half of wing, a few in cua and anal cell; costal ratio 0.60-0.62 (0.61, n = 11). Halter pale.

Abdomen: brown. Two unequal sized ovoid spermathecae (Fig. 7) with long necks (11-13 µm), measuring 48 by 37 µm and 40 by 32 µm (n = 10), respectively. Long rudimentary third spermatheca (27 µm), sclerotized ring present.

Male - Similar to female with usual sexual differences. Sensilla coeloconica on flagellomeres 1, 6-10. Wing length 0.87 mm, breadth 0.35 mm, costal ratio 0.56, pattern as in Fig. 3. Terminalia (Fig. 10): 9th sternum with deep posteromedial excavation, ventral membrane without definite spicules on slide mounted specimen; 9th tergum tapering, with long, slender, subparallel, apicolateral processes without posteromedial notch. Gonocoxite 2.5 times longer than broad, ventral root stout with hell-like expansions, dorsal root long, slender; gonostylus tapering distally, distal portion with broad bent tip. Aedeagus (Fig. 10) with basal arch extending to ½ of total length; basal arms moderately stout; distal portion slender and rounded, irregularly ending. Parameres (Fig. 11) separate, each with dark basal knob; stem long, slender, bent...
near base, with subapical ventral lobe; apical portion tapered, abruptly bent, ventral and internally directed, with lateral fringe of five spicules.

**Type data and depository** - Holotype female, Serra das Andorinhas, São Geraldo do Araguaia, PA, 26-27.I.2006, CDC light trap, cerrado, Guimarães col. Allotype male, Morro de Santa Cruz, Içana, São Gabriel da Cachoeira (01°04’21,1”N 67°35’52,1”W), AM, 30.XI-04.XII.2007, CDC light trap, Damasceno col. Paratypes 19 females as follows: three of the same data as holotype; 14 of the same data as holotype, except 21-22.I.2006, 24-25.I.2006, 30-31.I.2006, 19-22.IV.2006, 26-27.IV.2006, 29-30.XI.2006, 1-2.XII.2006, 4-5.XII.2006; one of the same data as allotype, except 23.II.2008, biting human, 6-6:30 am, (01º03'44,5''N 67°35’36,0’’W); one from Marabá, PA, 31.V.2009, CDC light trap (3 m). Holotype and 15 paratypes deposited in MPEG; allotype and one paratype in INPA/LETEP (#6302, m, f); three paratypes in CCEIOC (#461-463).

**Distribution** - Brazil (AM, PA).

**Etymology** - This species is named in honor of the Kuripako Indians, inhabitants of the type locality in the Amazon Region.

**Taxonomic discussion** - *C. kuripako* sp. nov. is a typical member of the reticulatus species group. It is very similar to *C. paucienfuscatus*, also known to occur in AM, especially by the wing pattern and by the meristic characters. In the key to the Amazon species of Culicoides by Wirth and Blanton (1973), *C. kuripako* keys out to couplet 29 and can be distinguished from *C. paucienfuscatus* by the vein CuA₂ entirely pale or with dark apex (CuA₂ entirely in a dark spot in *C. paucienfuscatus*) and by the stem of the parameres with a distal ventral lobe (without ventral lobe in *C. paucienfuscatus*).

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