

# *Culicoides huaynacapaci*, a new species from the Department of Cajamarca, Peru (Diptera, Ceratopogonidae)

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**ABSTRACT.** A new species of *Culicoides* of the subgenus *Mataemyia* Vargas, *Culicoides huaynacapaci* Felipe-Bauer, is described and illustrated based on female and male specimens collected biting humans in Department of Cajamarca, in Peruvian Amazonia. The new species is compared with its similar congener *C. albuquerquei* Wirth & Blanton.

**KEYWORDS.** Diptera, Ceratopogonidae, *Culicoides (Mataemyia) huaynacapaci*, Neotropical bloodsucking midge, Peru.

**RESUMO.** Uma nova espécie de *Culicoides* do subgênero *Mataemyia* Vargas, *Culicoides huaynacapaci* Felipe-Bauer, é descrita e ilustrada baseada em exemplares fêmeas e machos coletados picando humanos no Estado de Cajamarca, na Amazônia Peruana. A nova espécie é comparada com a espécie afim, *C. albuquerquei* Wirth & Blanton.

**PALAVRAS-CHAVE.** Diptera, Ceratopogonidae, *Culicoides (Mataemyia) huaynacapaci*, maruim neotropical, Peru.

The genus *Culicoides* Latreille is poorly known in Peru with only five species originally described for this country and 16 more subsequently reported. Of the 290 Neotropical species [271 are included in BORKENT & WIRTH (1997) and in BORKENT & SPINELLI (2000)] 15 belong to the subgenus *Mataemyia* Vargas and only *C. daviesi* Wirth & Blanton is recorded from Peru. The purpose of this work is to describe and illustrate a new species of this subgenus from Peru, based on female and male specimens captured biting humans.

The general terminology used is that employed in papers on *Culicoides* by WIRTH & BLANTON (1959, 1973, 1974) for Panama, the Amazon Basin, and the West Indies, as well as the atlas of wing photographs of Neotropical species by WIRTH *et al.* (1988). The terms of wing veins follow the system of the Manual of Nearctic Diptera (MAC ALPINE *et al.*, 1981), with modifications proposed by SZADZIEWSKI (1996). All measurements are in micrometers, except those of the wings which are in millimeters.

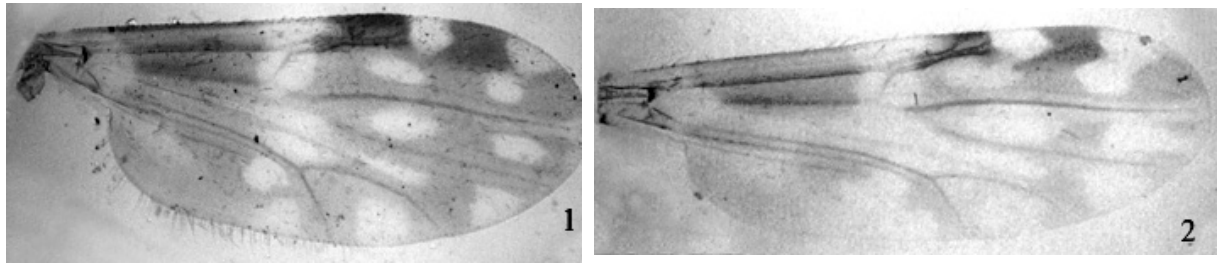
## *Culicoides huaynacapaci* Felipe-Bauer, sp. nov. (Figs. 1-14)

**Diagnosis.** A species of the subgenus *Mataemyia* very similar to *C. albuquerquei* Wirth & Blanton, from which it can be distinguished by its larger size (wing length 1.22-1.38 mm), costal ratio (0.63-0.66) and by the presence of sensilla coeloconica on the flagellomeres 1, (5), 6-8 on female. Male genitalia with distal portion of the aedeagus slightly expanded on lateral margin, ending in a pair of direct, pointed processes with straight emargination.

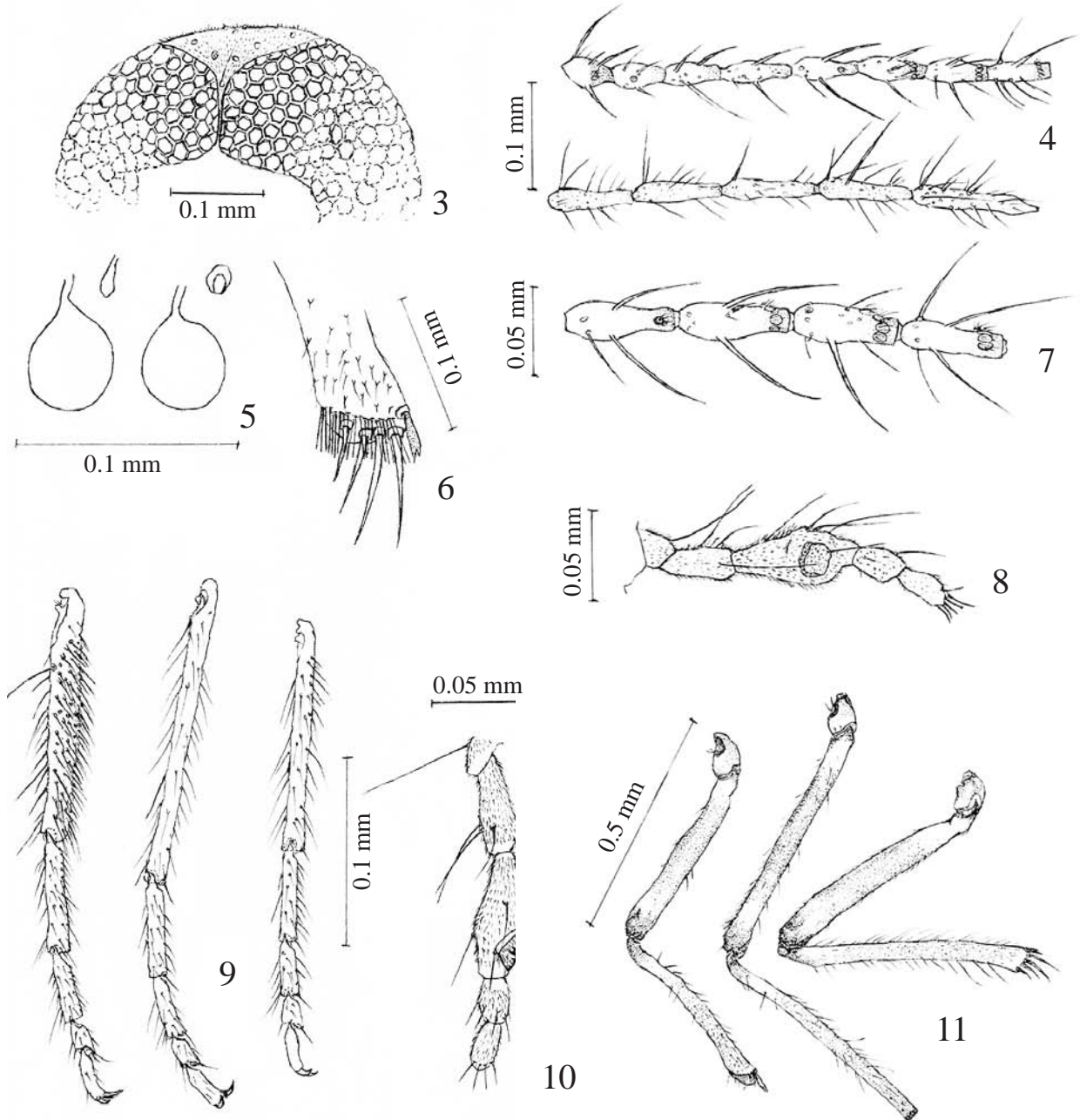
**Female.** Wing length 1.22-1.38 (1.30, n=10) mm; breadth 0.54-0.62 (0.58, n = 10) mm.

**Head.** Brown. Eyes (Fig. 3) nearly contiguous, bare. Pedicel brown; flagellum (Fig. 4) pale brown, proximal 2/3 of flagellomeres 1-8 yellowish; lengths of flagellomeres measuring 59-48-53-59-53-59-53-69-69-80-85-123  $\mu\text{m}$  (n = 8); antennal ratio 0.92-0.98 (0.96, n = 8); sensilla coeloconica on flagellomeres 1, (5), 6-8, double or triple on 1, single on 5, quintuple or as often triple on 6 and 7, and quintuple on 8 (Fig. 7). Palpus (Figs. 8, 10) brown; lengths of segments 21-53-64-21-27  $\mu\text{m}$  (n=9); 3rd segment slightly swollen distally, with a moderately deep sensory pit on distal portion; palpal ratio 2.2-2.8 (2.4, n=9). Proboscis moderately short; P/H ratio 0.64-0.76 (0.69, n=10); mandible with 13 teeth.

**Thorax.** Brown; without definite pattern in slide mounted specimens. Legs mostly brown; femora with subbasal, subapical pale bands, tibiae with subbasal pale bands; hind tibia pale apically (Fig. 11); hind tibial comb (Fig. 6) with four spines, the two nearest the spur longest. Tarsi (Fig. 9) pale, tarsomeres of hind leg darkest. Wing (Fig. 1) with pattern as in photographs: cell  $r_3$  with three pale spots, two well separated poststigmatic spots, anterior one small, rounded, reaching wing margin, posterior one transverse, located beyond 2<sup>nd</sup> radial cell about halfway between it and vein  $M_1$ , apical spot double, oblique, broadly reaching wing margin; cell  $m_1$  with two pale spots, distal most far from wing margin, longer than basal one; cell  $m_2$  with a double pale spot lying between medial, mediocubital forks, a pale spot at wing margin; cell  $cua_1$  with round pale spot nearly reaching wing margin; anal cell with two distal round pale spots; wing base with faint pale spot; vein  $M_1$  with faint distal pale spot; veins  $M_2$ ,  $CuA_1$  and  $CuA_2$  dark; macrotrichia sparse, extending from base to wing tip; 2<sup>nd</sup> radial cell with distinct lumen; costal ratio 0.63-0.66 (0.65, n=10). Halter pale.



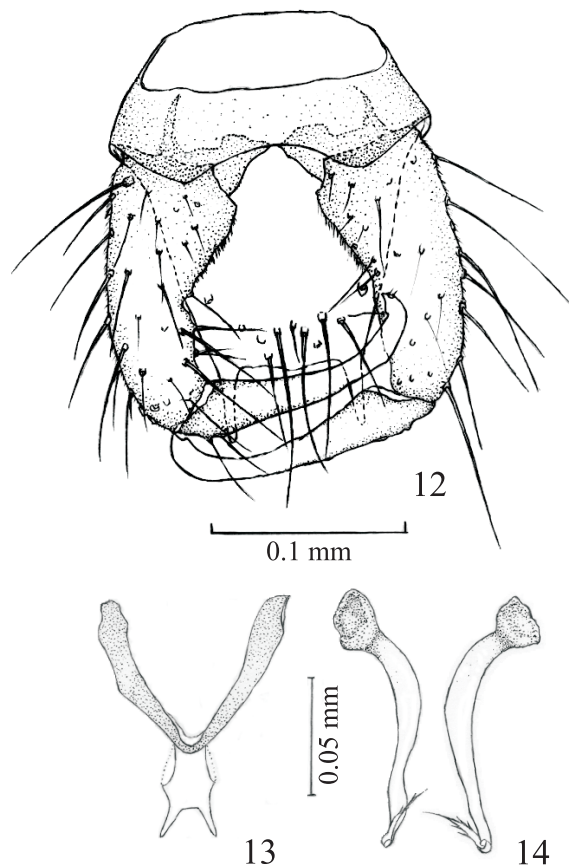
Figs. 1-2. Wings of *Culicoides huaynacapaci* sp.n.: 1, female; 2, male.



Figs. 3-11. *Culicoides huaynacapaci* sp. nov., female: 3, dorsal portion of head capsule, in anterior view; 4, antenna; 5, spermathecae, 3rd spermatheca and sclerotized ring present; 6, hind tibial comb; 7, flagellomeres 5-8; 8, palpus, ventral view; 9, tarsi (right to left) fore, mid, and hind; 10, palpus, lateral view; 11, legs (left to right) fore, mid, and hind.

Abdomen. Brown. Two slightly ovoid, subequal spermathecae (Fig. 5), measuring 40 by 37  $\mu\text{m}$  and 45 by 37  $\mu\text{m}$ , with well developed, slender necks measuring 11  $\mu\text{m}$  ( $n=7$ ); long, slender, sometimes inflated rudimentary 3rd spermatheca, short, round sclerotized ring also present.

Male. Similar to female with usual sexual differences. Lengths of flagellomeres 10-13 measuring 8-24-21-29  $\mu\text{m}$  ( $n=2$ ); sensilla coeloconica on flagellomeres 1, 8-10. Wing length 1.38-1.41 (1.40,  $n=2$ ) mm, breadth 0.51 ( $n=2$ ) mm, costal ratio 0.61-0.63 (0.62,  $n=2$ ), pattern as in figure 2. Genitalia (Fig. 12): 9th sternum with shallow posteromedial excavation, ventral membrane not spiculated; 9th tergum tapering, with long, slender, subparallel, apicolateral processes, posterior margin without lobe or cleft. Gonocoxite two times longer than broad, ventral root stout without hell-like expansion, dorsal root long, slender; gonostylus tapering distally, distal portion with broad bent tip. Aedeagus (Fig. 13) with dark, pointed basal arch, extending to half of total length; basal arms moderately stout; distal portion weak, broad, slightly expanded on lateral margin, ending in a pair of direct, pointed processes with straight emargination. Parameres (Fig. 14) separate, each with dark basal knob; stem long, slender, bent near base, slightly sinuate on mid portion, without ventral lobe; apical portion tapered, abruptly bent, ventral and internally directed, with lateral fringe of fine spicules.



Figs. 12-14. *Culicoides huaynacapaci* sp. nov., male: 12, genitalia, aedeagus and parameres removed; 13, aedeagus; 14, parameres.

Distribution. Peru (Department of Cajamarca).

Types. Holotype ♀, PERU, **Departamento of Cajamarca**, Provincia San Ignacio, Distrito de La Coipa, Papayal Bajo, 13.II.2000, biting human during 17:00-20:00 h. Allotype ♂ and paratypes (9 ♀, 1 ♂) same data as holotype. Holotype (IOC, Dip.Cer. 440), allotype (IOC, Dip.Cer. 441) and 6 paratypes (IOC, Dip.Cer. 442-447) deposited in Instituto Oswaldo Cruz, Rio de Janeiro. Paratypes, 4 ♀, each in Laboratorio de Entomologia, Instituto Nacional de Salud, Ministerio de Salud, Peru; Museu Nacional de La Plata, La Plata, Argentina; Faculdade de Saúde Pública, Universidade de São Paulo and Museu Nacional, Universidade Federal do Rio de Janeiro, Brazil.

**Etymology.** This species is in honor of the Inca emperor Huayna Capac, which reigned from 1493 to 1525.

**Discussion.** *C. huaynacapaci* is a typical member of the subgenus *Mataemyia*. Regarding the aspect of the wing, it is indistinguishable from *C. albuquerquei* Wirth & Blanton, differing by its slightly longer wing 1.22-1.38 (1.09 in *C. albuquerquei*), smaller antennal ratio 0.92-0.98 (1.00 in *C. albuquerquei*), palpal ratio 0.64-0.76 (0.78 in *C. albuquerquei*), and by the presence of sensilla coeloconica on flagellomeres 1, (5), 6-8 (1, 6-12 in *C. albuquerquei*). The wing pattern of *C. huaynacapaci* is also similar to that of *C. dalessandroi* Wirth & Barreto, but it can be distinguished by the double, well separated distal pale spot in cell  $r_3$  and by the distal pale spot of cell  $m_1$  well separated from wing margin. Also, *C. huaynacapaci* can be separated from both species by the male genitalia with distal portion of the aedeagus slightly expanded on lateral margin (more expanded in *C. albuquerquei*; without expansion, rounded in *C. dalessandroi*), ending in a pair of direct, pointed, lateral processes with straight emargination.

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