

The male of *Culicoides irwini* Spinelli & Wirth (Diptera: Ceratopogonidae)

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ABSTRACT

The previously unknown male of the biting midge *Culicoides irwini* Spinelli & Wirth is described and illustrated from specimens collected associated with females at El Bolsón, Rio Negro Province, Argentina, which represents the southernmost record of this species. The species is compared with *C. caridei* (Brèthes) and *C. patagoniensis* Ronderos & Spinelli.

INTRODUCTION

Biting midges of the genus *Culicoides* Latreille are notorious blood-sucking pests of man and animals throughout the world (Wirth et al., 1988). Borkent & Spinelli (2000) listed 272 species for the Neotropical region, from which only the following five are presently included in the subgenus *Cotocripus* Brèthes: *C. bambusicola* Lutz from eastern Brazil, northeastern Argentina and Colombia, *C. caridei* (Brèthes) from southeastern Brazil, Uruguay and the coastal zone of the province of Buenos Aires in Argentina, *C. irwini* Spinelli & Wirth from Chile and southwestern Argentina, *C. patagoniensis* Ronderos & Spinelli from southern Argentina and Chile, and *C. raposoensis* Wirth & Barreto from Colombia.

The purpose of this paper is to describe the male of *C. irwini*, the unique species of the above mentioned five which is presently known only by females. The specimens were collected at light associated with females, during a recent collecting trip to Argentinean Patagonia.

For general ceratopogonid terminology see Downes & Wirth (1981). The specimens examined are slide mounted in Canada balsam, and deposited in the collection of the Museo de La Plata, Argentina.

Culicoides irwini Spinelli & Wirth

Figs. 1-5

Culicoides irwini Spinelli & Wirth, 1984: 180 (female; Chile, Coquimbo); Spinelli & Wirth, 1985: 55, 61 (in key; wing photo); Wirth et al., 1988: 55 (wing photo); Spinelli & Ronderos, 1994: 60 (Argentina; Neuquén); Borkent & Spinelli, 2000: 29 (in neotropical catalog).

Female diagnosis.— Distinguished from females of other Neotropical congeners by the following combination of characters: large size (wing length 1.14-1.30 mm); eyes narrowly separated; AR 0.91-0.97; sensillar pattern 1-8; mandible with 12 small teeth; legs brown, without pale rings; wing uniformly gray, without pale spots, with large, very abundant macrotrichia; CR 0.56-0.58; halter pale brown; 2 ovoid spermathecae and a rudimentary 3rd or 3 well developed spermathecae, no trace of sclerotized ring.

Description of male.— Head: dark brown. Eyes bare, forming a V-shaped where they contact. Antenna (Fig. 1) with flagellomeres 1-10 pale, 11-13 brown; sensillar pattern 1, 5-10; AR 1.11. Palpus (Fig. 2) brown; 3rd segment cylindrical, with subapical, shallow sensory pit; AR 2.80.

Thorax: uniformly dark brown except the legs, slightly paler; scutellum with 4-5 setae and 3 fine hairs. Legs uniformly brown, hairy; hind tibial comb with 5 spines. Wing length 1.02 mm (n=2), uniformly gray with abundant macrotrichia, CR 0.46 (n=2) (Fig. 3). Halter pale brown.

Genitalia (Fig. 4): caudal margin of sternite 9 slightly sinuate, without a median excavation; tergite 9 rounded distally, apicolateral processes long and slender, close together; 10th sternite cordiform, pilose anteromedially, and with a blunt triangular posterior projection; cerci conspicuous, pilose. Gonocoxite twice as long as breadth, dorsal and ventral roots simple with blunt tip, the later deeply sinuate; gonostylus as long as gonocoxite, broader at base, very slightly curved with pointed tip. Aedeagus 0.75 as long as basal breadth, basal arch very high, lateral arms strongly sclerotized, nearly straight; tip truncated. Parameres (Fig. 5) separated, each with lightly sclerotized basal apodeme; stem nearly straight without a distinct ventral lobe; distal portion stout, anteroventrally recurved, with lateral filaments, tip pointed.

Distribution.— Argentina (West of the Neuquén and Río Negro provinces), Chile (Coquimbo).

Specimens examined.— Argentina, Neuquen, lake Huechulafquen, 2-III-1988, G. Spinelli, 1 female, CDC light trap; Neuquen, lake Rucachoroy, 14-I-1994, N. Basso, 1 female, CDC light trap; Río Negro, El Bolsón, 28-XI-1999, G. Spinelli, 2 females, 2 males, at light.

Discussion.— This species resamples *C. caridei* and *C. patagoniensis* by virtue of the absence of pale spots in the wing. However, females can be distinguished from females of these species by the eyes narrowly separated, antennal sensillar pattern 1-8 (sensilla absent in 2-4 and present in 9-13 in *caridei*/*patagoniensis*), stouter palpus, and wing macrotrichia larger and more abundant. Males differs in the following genital characters: 9th sternite lacking caudomedian excavation; 10th sternite cordi-

form; apicolateral processes larger and closer together; ventral root of gonocoxite simple (foot-shaped in caridei and patagoniensis); aedeagus with very high basal arch, and distal portion of parameres very much longer.

Spinelli & Wirth (1984), reported a value of 1.52 for the P/H ratio of the holotype of *C. irvini*, the unique specimen described in the original description. This measurement was most probably mistaken, apparently obtained by dividing the head (measured by the distance from the base of the interocular seta to the tormae) by the proboscis (measured from the latter to the end of the labrum-epipharynx). The measurement of the P/H ratio for the four females herein examined ranged between 0.64 and 0.76 (mean: 0.71).

As it is shown in the holotype, the specimen from lake Huechulafquen has 3 well developed spermathecae .

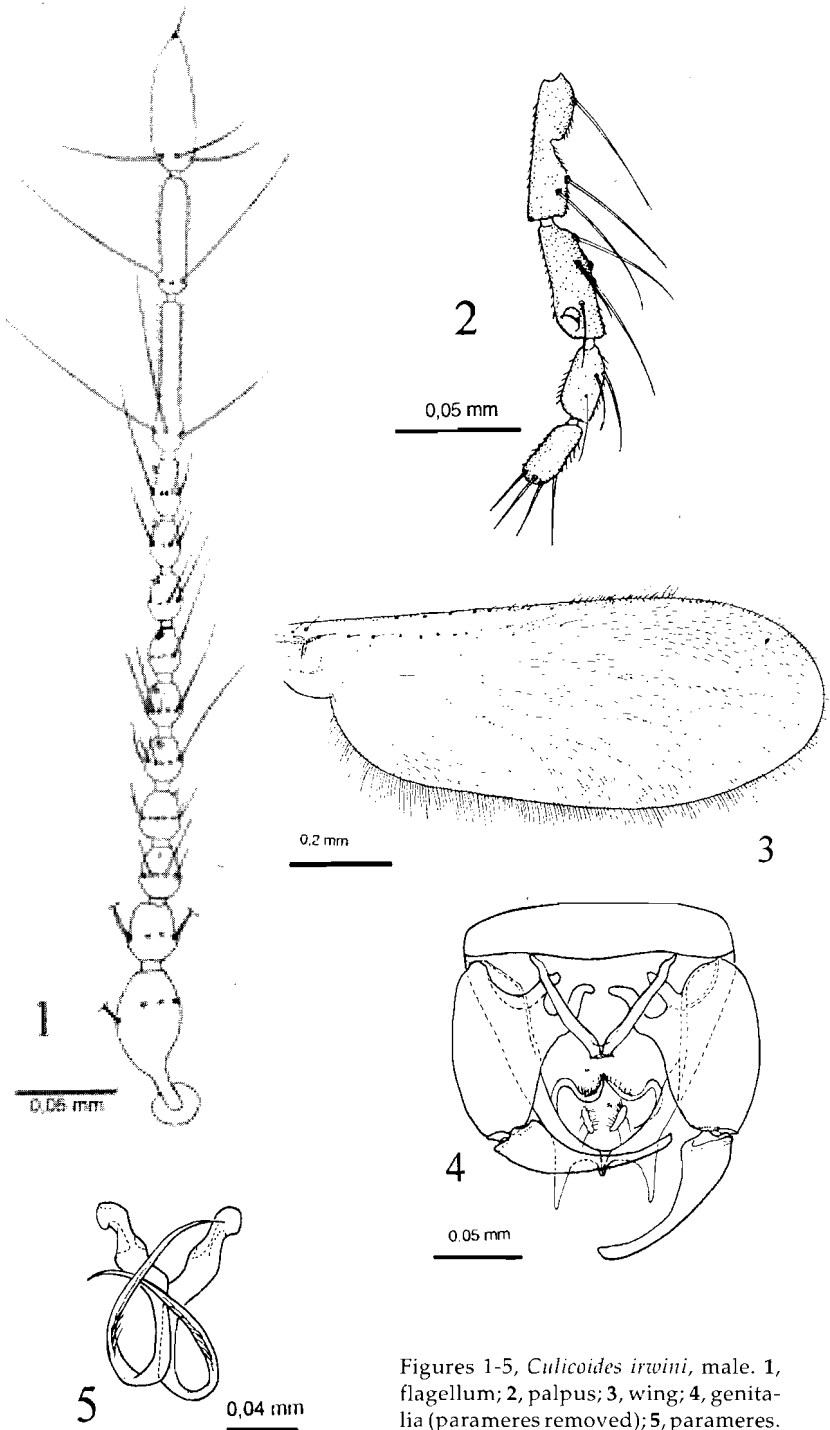
El Bolsón, in the southern border of the argentinian province of Rio Negro, represents the southernmost locality for *C. irvini*.

REFERENCES

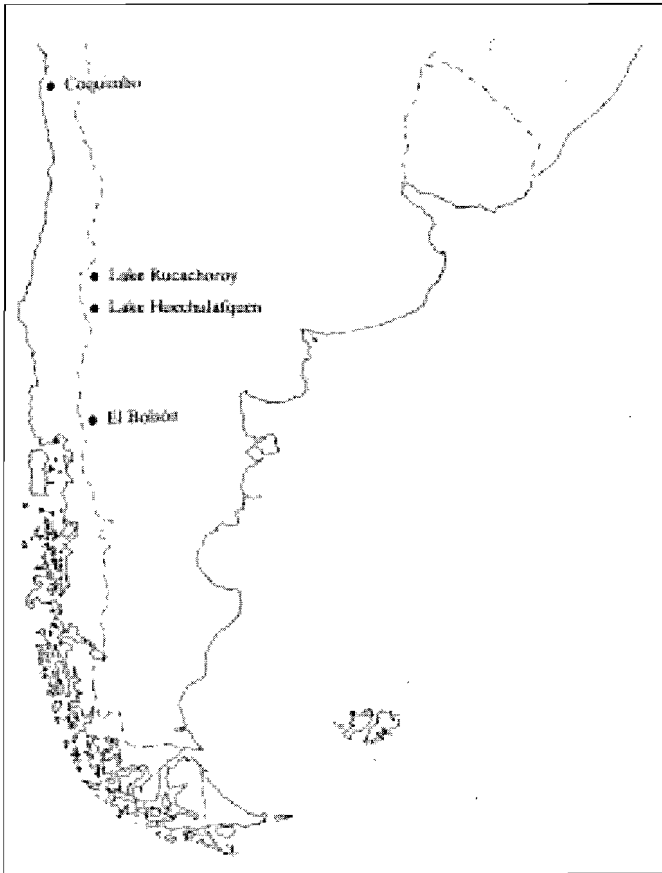
- Borkent, A. & G.R. Spinelli. 2000. Catalog of the New World biting midges south of the United States of America (Diptera: Ceratopogonidae). Contributions on Entomology, International, Gainesville, 4: 1-107.
- Downes, A. & W.W. Wirth. 1981. Chapter 28. Ceratopogonidae, pp. 393-421. In J.F. McAlpine, B.V. Peterson, G.E. Shewell, H.J. Teskey, J.R. Vockeroth & D.M. Wood, eds., Manual of Nearctic Diptera, Vol. 1. Agriculture Canada Monograph 27, 674 pp.
- Spinelli, G.R. & M.M. Ronderos. 1994. Nuevos registros de *Culicoides* para los bosques subantárticos de la Argentina y Chile (Diptera: Ceratopogonidae). Neotropica, La Plata, 40 (103-104): 60.
- Spinelli, G.R. & W.W. Wirth. 1984. Ocho especies nuevas del género *Culicoides* Latreille de la región Neotropical. Primera descripción del macho de *C. flinti* Wirth, y de la hembra de *C. lenti* Tavares y Luna Dias (Diptera: Ceratopogonidae). Rev. Soc. Ent. Arg., Buenos Aires, 43 (1-4): 171-185.
- Spinelli, G.R. & W.W. Wirth. 1985 (1986). Clave para la identificación de las especies del género *Culicoides* presentes al sur de la cuenca amazónica. Nuevas citas y notas sinonímicas (Diptera: Ceratopogonidae). Rev. Soc. Ent. Arg., Buenos Aires, 44 (1): 49-73.
- Wirth, W.W., A.L. Dyce & G.R. Spinelli. 1988. An Atlas of wing photographs, with a summary of the numerical characters of the Neotropical species of *Culicoides* (Diptera: Ceratopogonidae). Contrib. Amer. Ent. Inst., Gainesville, 25 (1): 1-72.

ACKNOWLEDGMENTS

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Figures 1-5, *Culicoides irwini*, male. 1, flagellum; 2, palpus; 3, wing; 4, genitalia (parameres removed); 5, parameres.



Map showing principal localities.