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## The immatures of *Culicoides lacustris* Ronderos (Diptera: Ceratopogonidae)

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### Abstract

Larva and pupa of the Patagonian species *Culicoides lacustris* Ronderos are described in detail with phase-contrast microscope at oil immersion and scanning electron microscope. Studied specimens were collected in a wetland, alongside to the Provincial Route 12, between the cities of Esquel and Gualjaina in the Chubut Province. They are compared with the more similar congener, *Culicoides venezuelensis* Ortiz & Mirsa.

**Key words:** Argentina, ultrastructure, immature stages, *Culicoides lacustris*

### Resumen

Mediante el uso de microscopio de contraste de fase y microscopio electrónico de barrido, se describen en detalle la larva y la pupa de la especie patagónica *Culicoides lacustris* Ronderos. Los ejemplares estudiados fueron colectados en un humedal situado a la vera de la Ruta Provincial 12, entre las ciudades de Esquel y Gualjaina en la provincia de Chubut. Ellos son comparados con el congénere más similar, *Culicoides venezuelensis* Ortiz & Mirsa.

### Introduction

The biting midges of the genus *Culicoides* Latreille 1809, are notorious blood-sucking pest of man and animals throughout the world. Adult females are potential vectors of etiological agents that can cause diseases or bite in such numbers that they thereby cause economic damages (Borkent & Spinelli, 2007; Ronderos *et al.*, 2013). The immatures of the genus are important components in the bioenergetic cycle within aquatic and semiaquatic systems (Alencar *et al.*, 2001).

Species of this genus are by far most notorious adult members of the 109 currently recognized extant genera of Ceratopogonidae. On the other hand, their immatures are relatively poorly known (Borkent & Spinelli, 2007). Borkent (2014) listed 287 species of this genus for the Neotropical region, of which adults of 43 species have recently been registered to Argentina. Of this number, the larvae of six and the pupae of seven species are known. The Neotropical biting midge *Culicoides lacustris* was described by Ronderos (1990) based on adult specimens of both sexes. The type material was collected in the subantarctic *Nothofagus* forest of the Nahuel Huapi and Lanin National Parks. The species was subsequently recorded from several places of Argentinean Patagonia by Spinelli & Ronderos (1994), Ronderos & Spinelli (2002) and Muzón *et al.* (2010).

The purpose of this paper is to provide the first description of larva and pupa of *C. lacustris* from specimens recently collected in the Chubut province in central Patagonia, as well as to give details on the larval biology.

### Material and Methods

Larvae and pupae were collected in a wetland alongside to the Provincial Route 12, between the cities of Esquel

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