



A new species of *Chilenoperla* (Plecoptera: Gripopterygidae) from the Andes of South America

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Abstract

Chilenoperla puelche n. sp. is described based on male and female adults and one nymph. The wing color pattern and the genitalia of the adults are diagnostic clearly distinguishing it from the other species of the genus. However, the nymph is similar to that of *C. elongata* Vera. This new species is distributed in the Andes Mountains of Chile from 38° to 39° south latitude; Adults were collected in September and November.

Key words: Plecoptera, Gripopterygidae, *Chilenoperla*, new species, Chile

Introduction

The genus *Chilenoperla* Illies, 1963 includes six species, five previously described (Froehlich 2010): *C. beschi* Illies, 1963; *C. semitincta* Illies, 1963; *C. puerilis* Illies, 1963; *C. illiesi* Nelson, 1973; *C. elongata* Vera, 2008; and the species described here, *C. puelche* n. sp. Illies (1963) described the male and female adults of *C. beschi* and *C. semitincta*, for *C. puerilis* he described the nymph and aspects of the genitalia, which were incompletely developed in a pharate male. Later, Nelson (1973) described the male adult of *C. illiesi* and performed a phylogenetic analysis using characters of the male genitalia. There were no further changes in taxonomy of the genus until the study of Vera (2008), who described the adults of both sexes and the nymph of *C. elongata*; the nymph differing with the characterization previously presented by Illies (1963). Although the morphology of the adults is similar and the species differ in the structures of the terminalia, the nymphs of *C. elongata* differ from those of *C. puerilis*, but are remarkably similar to the nymphs of *Pelurgoperla personata* Illies, 1963. To resolve these conflicting observations it was necessary to identify the nymphal phenotypes of the remaining species of *Chilenoperla* and describe adequately the adults of *C. puerilis*, which are currently unknown. The recent discovery of adults and a nymph of *C. puelche* n. sp. contribute to the clarification of conflicting descriptions that persist in the diagnosis of these species.

Materials and methods

Adults were collected by shaking foliage along stream margins. All specimens were preserved in 70% alcohol. The dissections and body measurements were made using a stereoscopic Nikon dissecting microscope with 10X oculars and 0.7X–3X zoom objectives, with an incorporated ocular micrometer. Figures were drawn using a camera lucida with a Leitz Dialux 22 Bauchamp-loop microscope and later refined; photographs were made with a digital camera incorporated into both optical microscopes. For microscopic preparations, specimens were treated with 10% KOH for 12 hours without heating and mounted in Doetschman solution (Camousseight & Fontaine 1990); wings were first detached and mounted without KOH treatment. SEM photographs were taken using a LEO 1420VP scanning electron microscope. Wing nomenclature follows that proposed by Béthoux (2005). The nymph was associated with the adult by extracting the male genitalia from a mature nymph.

The type specimens of the new species were deposited in the entomological collection of the Museo Nacional de Historia Natural of Santiago, Chile (MNHN). The specimens of other species of *Chilenoperla* in MNHN were