ARTÍCULO ORIGINAL

UNA NUEVA ESPECIE DE *HYDROPEZA* SINCLAIR DE CHILE (DIPTERA: EMPIDIDAE)

A NEW SPECIES OF *HYDROPEZA* SINCLAIR FROM CHILE (DIPTERA: EMPIDIDAE)

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RESUMEN

La primera especie sudamericana de *Hydropeza* (*H. curico* n. sp.) es descrita de Chile. Se entrega el hábito del adulto y un esquema de la terminalia del macho.

PALABRAS CLAVE: *Hydropeza*, acuático, Empididae, nueva especie, Chile.

ABSTRACT

The first South American species of *Hydropeza* (*H. curicoa* n. sp.) is described from Chile. Figures of the habitus and male terminalia of the species are given.

KEY WORDS: *Hydropeza*, aquatic, Empididae, new species, Chile.

INTRODUCTION

The Empididae *s.l.* are very diverse in Chile, including at least 42 genera, eleven of which are apparently endemic. A monographic revision by Collin (1933) provided a sound foundation of knowledge for the Chilean fauna and although many taxa have subsequently been generically reassigned, the work remains invaluable. Recent works have reported or described several additional genera from the region, including *Brachystoma* Meigen (Moulton & Wiegmann, 2007), *Chvalaea* Papp & Földvári (Ale-Rocha, 2006), *Leptopezella* Sinclair & Cumming (Sinclair & Cumming, 2007), and *Neotrichina* Sinclair & Cumming (Sinclair & Cumming, 2000).

Hydropeza is assigned to the *Ragas* genus-group, which is characterised by having a stout labrum, stout, erect spine-like setae of the fore coxae and dense setae on the postgena (Sinclair, 1999). The phylogenetic position of this group remains largely unresolved and it is currently assigned as *incertae sedis* within the Empididae (Sinclair & Cumming, 2006). These genera can not be assigned to any currently defined subfamily of the Empididae and may require the recognition as a new subfamily. Adults fly rapidly over the water surface of small cascades and pools with all six legs skimming the surface and can sometimes be found at rest immediately above the water-line in the splash zone on damp rocks and boulders emerging from the stream. These habits make them hard to see, especially in shaded streams, and although they are very difficult to capture in sweep nets, they may be collected more successfully using small dip nets.

Zanclotus Wilder is the only other member of the *Ragas* group which is associated with aquatic habitats. Adults of *Zanclotus* occur along streams, among large emergent rocks (Sinclair, 1999). *Hydropeza* is distinguished from *Zanclotus* by a parallel-sided frons, spine-like-setae on the fore coxae widely distributed and stigma absent on the wing. *Dipsomyia*, a second genus of the *Ragas* group ocurring in Chile, is associated with forest habitats and is characterized by bare eyes, pale stout setae on the fore coxae and the male of *D. spinifera* Bezzi has a very long beard of silvery-white setae on the palpi (Sinclair, 1999).

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Hydropeza is also known from Australia (9-10 undescribed species) and New Zealand (10 species) and was previously reported from Chile by Sinclair & McLellan (2004). The Chilean species is herein described. *Hydropeza* was considered a Gondwanan element by Sinclair (1999), and this hypothesis is supported by its Chilean distribution in the coastal Valdivian forest system and the western slope of the adjacent Cordillera in Llanquihue.

MATERIAL AND METHODS

This study was based on the examination of specimens borrowed from or deposited in the following institutions or collections: Canadian National Collection of Insects, Ottawa, Canada (CNC); National Museum of Wales, Cardiff, UK (NMWC); Museo Nacional de Historia Natural, Santiago, Chile (MNNC).

Terms used for adult structures primarily follow McAlpine (1981), except male terminalia where Cumming *et al.* (1995) and Sinclair (2000) are followed, and for the antenna where the terminology of Stuckenberg (1999) is used. To facilitate observation, terminalia were macerated in hot 85% lactic acid and immersed in glycerin. All specimens are dried and mounted on pins, unless otherwise stated. Label data of the holotype is cited in full, with original spelling, punctuation and date; lines are delimited by a slash mark (/), and a semicolon separates data quoted from different labels.

DESCRIPTION

Hydropeza curicoa n. sp.
(Figs. 1, 2)

Recognition: A brown species characterized by a strongly tapered and arched postpedicel, several presutural acrostichals, and a long, finger-like, horizontally projected lower lobe of the male cercus. Similar to *D. spinifera*, but the eyes are bare, stigma present, and spine-like setae of the fore coxa are pale in this species (see Introduction).

Description: Colour similar in males and females: head and abdomen dark brown to black, thorax light brown with darker patches; legs progressively darker towards tips (Fig. 1).

Male: *Head:* Ocellar setae very long, erect, divergent, inserted posterior to anterior ocellus; ocellar tubercle with some long setulae; postocellar and postocular setae stout and dark; postgenal setae pale, less stout than postoculars. Scape long and slender, about 4X length of globular pedicel; length of postpedicel about half length of arista-like stylus, basal half globular and apical half strongly tapered and arching; arista-like stylus concolorous with postpedicel. Proboscis stout and robust, long, extended well beyond mid-length of fore coxa, directed posteriorly; palpus about 0.75X length of proboscis, clothed in long, slender dark setae; apex of palpus rounded.

Thorax clothed in fine pruinescence; mesonotum brown, with postpronotal lobe and transverse suture

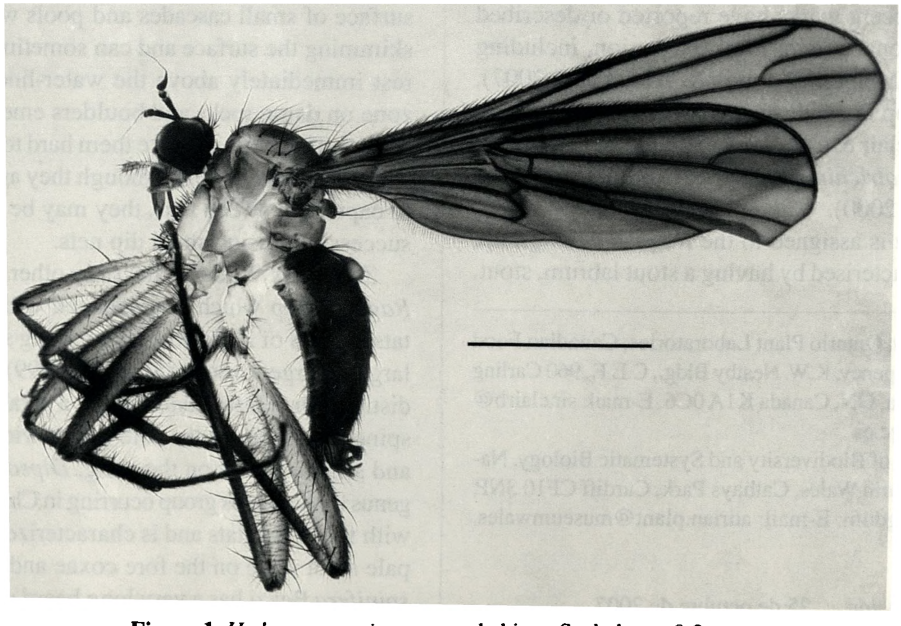

Figure 1. *Hydropeza curicoa* n. sp., habitus. Scale bar = 0.2 mm.

pale brown, occasionally with pale vitta beneath dorsocentrals; pleura paler than notum with dark patches. Setae generally long and stout; 2 uniserial acrostichal setulae anterior to 1st dorsocentral seta and 0-2 uniserial presutural acrostichals, all less than 0.5X length of dorsocentrals; postpronotum with 1 seta and several dark setulae; 2 presutural supraalar setae; 6 pairs of uniserial dorsocentral setae, about subequal in length, with intermixed finer setae; 3 notopleural and 1 postsutural supraalar setae; 1 postalar seta with some intermixed dark setulae; 1 pair of scutellar setae, with 1-2 pairs of finer outer marginal setae. Antepronotum with pair of long stout setae.

Legs: Coxae and ventral surface of femora and basal half pale brown, remaining leg segments brown. Inner anterior margin of fore coxa with more than 20 dark variously lengthened spine-like setae, mostly concentrated apically and mid-basally. Anterior surfaces of all coxae with long golden setae. Legs clothed in very long pale setae as typical for genus, especially ventral faces. Fore femur with 2 stout anterior setae on apical fifth, longer than width of femur; 1 posterodorsal and 1 posterior seta at mid-length; apical third with 1 posterodorsal seta. Fore tibia with 2 anteroventral and 1 anterodorsal setae on apical fifth; 1 anteroventral, 1 antero- and 1 posterodorsal seta near mid-length; 1 anterodorsal seta on basal third. Mid femur lacking stout anteroventral setae; basal third with row of stout posteroventral setae of various lengths, generally longer than width of femur; apical third with 3 widely separated stout anterior setae, one posterodorsal and one distal posterior seta. Mid tibia lacking notch or excavation; apical fourth with row of short, stout anteroventral setae, slightly shorter than width of tibia; one seta, twice width of tibia at proximate end of row; basal half with 2 widely spaced posterodorsal setae; apical half with 2 widely spaced anterior setae. Hind femur without erect dorsal setae; 2 preapical anterior and 2 anterodorsal setae on apical fourth, longer than width of femur; basal fourth with stout anteroventral seta; apical third with stout anterior seta. Hind tibia with apical third slightly sinuate, bearing matted setulae on posterodorsal face; 3 anteroventral setae on apical half, apical seta short and stouter; 4 equally spaced posteroventral setae; 5 equally spaced anterodorsal setae all slightly longer than width of tibia; preapical setae stoutest. Tarsomeres of fore and midlegs slightly longer than tibia; ventral apical margin of tarsomere 4 of fore and midlegs pale, flattened and expanded; tarsomere 1 of foreleg with 3 posteroventral setae and one stouter and longer basal anteroventral seta; tarsomere 1 of hindleg with 2 anteroventral setae; tarsomere 5 of each leg lacking dorsoapical extension.

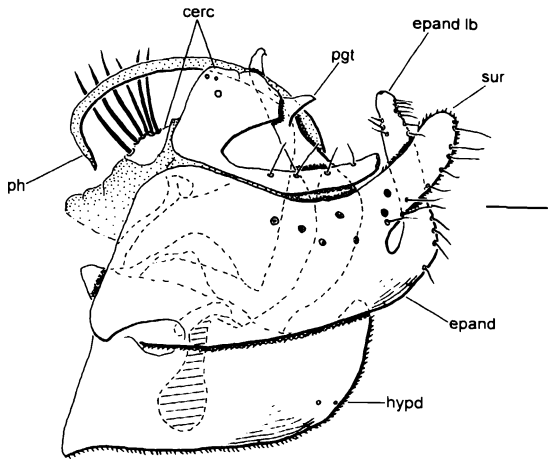

Figure 2.
Male terminalia of *Hydropeza curicoa* n.sp., lateral view. Abbreviations: cerc - cercus; epand - epandrium; epand lb - epandrial lobe; hypd - hypandrium; pgt - postgonite; ph - phallus; sur - surstylus. Scale bar = 0.1 mm.

Wing (length 6-6.2 mm): Infuscate, with 1 stout basal costal bristle and several shorter bristles; all veins lacking setulae; R_4 and R_5 distinctly divergent apically; bm-cu complete; cell dm truncate, subequal in length to cell bm; A_1 (= CuP + CuA) weak, extended about three-quarters distance to wing margin. Halter brown.

Abdomen: Tergites and sternites clothed in setae, especially along posterior margin, longer than 0.5X width of abdomen, longer along posterior margin. Tergite 8 reduced to slender dark band, less than 0.5X length of sternite; bearing stout lateral seta. Male terminalia (Fig. 2): Cercus divided into a small, thinly sclerotized sclerite surrounding anus, bearing long setae, and a broad, flattened and heavily sclerotized subrectangular posterior cercus with longer-finger-like horizontal process extending along the dorsal margin of the epandrium; subrectangular, flattened portion of posterior cercus bearing series of stout marginal setae. Epandrium subtriangular with long, dorsolateral setae; lamellae separated dorsally beneath cercus by wide membranous gap; epandrium prolonged posteriorly into dorsal surstylus and ventral epandrial lobe abruptly arched dorsally, passing inner face of broader surstylus. Surstylus digitiform, arched gradually dorsally bearing setae on inner face. Hypandrium with inconspicuous gonocoxal apodemes; hypandrium cup-shaped, tapered slightly posterodorsally; postgonites long and stout,

recurved beyond cercus bearing broadly forked apex; lower apical fork projected outward at right angle. Phallus with broad arched base, apical half tapered to slender recurved filamentous tip. Ejaculatory apodeme large, articulated at base of phallus.

Female: Similar to male except as follows: mid femur and tibia lacking rows of stout bristles. Hind femur straight and posterodorsal matted setulae not as dense. Wing length: 5.7-5.9 mm. Terminalia (not dissected): cercus long and slender with rounded apex.

Material examined: Holotype male, labelled: "CHILE: Chiloe I./ Ahoni Alto 70m/ March. 1988/ L.E. Pena, MT/ primary forest [dissected]" "HOLOTYPE/ *Hydropeza/ curicoa/* Sinclair & Plant [red label]" (CNC). Paratypes: **Chile**: same locality as holotype, iv.1988 (1 female, CNC); Region X. Chiloé Is., Cordillera De Piuché, 150-320 m, Los Allerzales Track, 20-21.i.2006, Valdivian & Patagonian forest, 42°34'46"S 74°05'02"W, A.R. Plant (9 males, 16 females, dry and in alc., CNC, NMWC, MNNC); Oncol, stream in Valdivian forest, 550 m, 42°41'S 73°W, 23.i.2006, A.R. Plant (2 males, 6 females NMWC); Llanquihue, El Chingue, nr. Correntoso, MT, iv-v.1988, L.E. Pena (1 female, CNC).

Etymology: Named from the Mapuche word for 'black water' ('Curicó'), in reference to the habitat where some of the specimens were collected.

Biology: Both the Oncol and Cordillera de Piuché sites were densely shaded streams in mature Valdivian forest. Specimens were taken as they flew over shallow and deep black peaty water in a narrow gully and over shallow muddy pools in a nearby track for at least 100 m from the stream. The vegetation in the gully consisted of Valdivian forest type including tall *Nothofagus dombeyi*, grading at the edges into Patagonian Tepú *(Tepualia stipularis)* scrub with a rich *Sphagnum* ground flota.

Phylogenetic affinities: In a preliminary cladistic analysis of the genus, included in a revision of the New Zealand *Hydropeza* by Sinclair & McLellan (2004), the placement of the new Chilean species was unresolved within a large group defined by the complete separation of the epandrial lamellae. Based on the study of additional Chilean material which initiated this paper, it is now evident that *H. curicoa* is probably most closely related to a group of five undescribed morphologically very similar species from northern Queensland, in the Tablelands west of Cairns (Australia). These Australian species are characterized by a large branched or forked male cercus, similar to the condition observed in *H. curicoa* (Fig. 2).

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