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Description of *Jolyelmis spangleri* a new species from Churí-tepui (Chimantá Massif, Venezuela), with a description of the larva of *J. spangleri* and *J. reitmaieri* (Insecta: Coleoptera: Elmidae)

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Abstract

Four species have been recognized in the genus *Jolyelmis* Spangler & Faitoute; all collected at isolated table mountains, mostly in cool stenothermal hypocrenal streams. The known distribution of the genus is confined to Venezuela, and each species is here reported as endemic for the respective table mountain where it has been found. Samples from Churí-tepui and Mount Roraima in south-eastern Venezuela contained numerous adults and larvae of Elmidae among which is a new species, *Jolyelmis spangleri*, which is here described. The new species is illustrated and keyed with all other *Jolyelmis*, and new distributional data for *J. reitmaieri* Čiampor, Jr. & Kodada are included. Molecular analysis of partial cytochrome oxidase subunit I (cox1) confirmed conspecific life stages for two species: *J. spangleri* and *J. reitmaieri*. The larva of each species is described and illustrated, and the generic diagnosis for *Jolyelmis* larvae is provided. Among the known larvae of South American Elmidae, larvae of the genus *Xenelmis* Hinton appear to be the most similar. Morphological similarities are discussed. Habitats of adults and larvae are briefly described and illustrated by photographs.

Key words: Coleoptera, Elmidae, *Jolyelmis*, new species, larva, Venezuela, South America

Introduction

The genus *Jolyelmis* Spangler & Faitoute (1991) is one of the numerous South American elmid genera. It was established on a single, very distinctive species *Jolyelmis auyana* Spangler & Faitoute collected from a cascade on Auyán-tepui. The most striking characters of the type species, *J. auyana*, are 3 distinct longitudinal carinae on pronotum and each elytron, as well as carinae on the metaventrite and the first ventrite (the remaining diagnostic characters are in the description of genus, Spangler & Faitoute 1991). Two additional species, *J. derkai* Čiampor, Jr. & Kodada and *J. reitmaieri* Čiampor, Jr. & Kodada, were discovered in a few small samples from streams crossing the footpath to the Mount Roraima. In contrast to the type species, the longitudinal carinae of these species are less pronounced and less distinctive (Čiampor, Jr. & Kodada 1999).

All *Jolyelmis* specimens were collected from isolated table mountains (called tepuis), giving an example of high level of endemism in the Guayana region (e.g. Huber 2005, Rull 2005, Rull & Nogué 2007). The ecological community of the tepui summits is considered to be a distinct and discontinuous biogeographical province called Pantepui (Mayr & Phelps 1967). The Pantepui ranges from 1,500 to 3,000 m a.s.l. covering an area of about 5,000 km^2 (Berry *et al.* 1995, Huber 1992). Summits of the tepuis bear different types of aquatic habitats, from phytotelmata and temporary pools in bare rocks to large wetland meadows and medium sized rivers. Black water streams with bedrock bottoms, cascades and waterfalls, long and deep pools are the most common type of running waters. The total absence of hyporheic environment is a typical attribute of Pantepui streams. Another important factor is the very low water retention capacity of watersheds which produces the violent fluctuations in discharge. More-

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