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A new species of *Anacroneuria* Klapálek 1909 (Plecoptera: Perlidae) and notes on the altitudinal distribution of the genus in Costa Rica

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Abstract

Anacroneuria is the most widespread genus of Perlidae throughout the Neotropical region and 30 species have been reported from Costa Rica. In this paper, we describe and illustrate a new species from a high elevation cloud forest, *A. quetzali* sp.n., increasing to 31 the number of described species for Costa Rica. In addition, we examine the altitudinal distribution of *Anacroneuria* in Costa Rica to determine possible patterns, using the data available on its altitudinal range (10–2700 masl). We divided the elevational range in seven categories, using 500 m intervals. We found that most species (90.3%) are distributed in elevations that range from 500 to 1500 masl, followed by low-elevations (35.5%). Interestingly, despite the fact that Plecoptera are known to inhabit clean, fast flowing water at high elevations, only 16.1% of the species have been found at high elevations in Costa Rica (above 2000 masl). Thus, it seems that most *Anacroneuria* species are distributed in middle elevations, which are the areas that have a high diversity of freshwater habitats.

Key words: altitudinal distribution, Central America, Mesoamerica, stoneflies, taxonomy

Resumen

Anacroneuria es el género más ampliamente distribuido de la familia Perlidae en la región Neotropical y 30 especies han sido reportadas para Costa Rica. En este trabajo, se describe e ilustra una nueva especie del bosque nuboso de altura, *A. quetzali* sp.n., aumentando a 31 el número de especies descritas para Costa Rica. Además, se examinó la distribución altitudinal de las especies de *Anacroneuria* en Costa Rica para determinar si existen posibles patrones, utilizando los datos disponibles sobre su distribución altitudinal (10–2700 msnm). Los rangos de elevación se dividieron en siete categorías, incrementando cada 500m. Se encontró que la mayoría de especies (90.3%) están distribuidas de los 500 a 1500 msnm, seguido por elevaciones bajas (35.5%). Interesantemente, a pesar de que se conoce que Plecoptera habita ríos de agua limpia y flujo rápido en zonas altas, únicamente el 16.1% de las especies han sido encontradas en elevaciones altas (2000 msnm o más). Por lo tanto, parece que la mayoría de especies de *Anacroneuria* se distribuyen en elevaciones medias, lo cual es consistente con áreas que tienen una alta diversidad de ambientes acuáticos.

Palabras claves: Centroamérica, distribución altitudinal, Mesoamérica, plecópteros, taxonomía

Introduction

The stonefly fauna of Central America is represented by *Anacroneuria* Klapálek 1909, the most widespread and species-rich plecopteran genus in the Neotropical region (Froehlich 2010), and *Perlesta* Banks 1906, which was reported for the first time from Costa Rica based on nymphal collections (Gutiérrez-Fonseca & Springer 2011). The first comprehensive study on Costa Rican stoneflies was published by Stark (1998), who reported 25 species, including 16 new species. An additional four species for Costa Rica were later described and reported by Stark (2014). One more species was recently added to the country (Gutiérrez-Fonseca *et al.* 2015), which was originally

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