



Salamanders from the eastern Cordillera de Talamanca, Costa Rica, with descriptions of five new species (Plethodontidae: *Bolitoglossa*, *Nototriton*, and *Oedipina*) and natural history notes from recent expeditions

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Abstract

We describe five new species of lungless salamanders (Plethodontidae) from high mountain habitats along the border between Costa Rica and Panama: *Bolitoglossa splendida*, *Bolitoglossa aureogularis*, *Bolitoglossa kamuk*, *Nototriton matama*, and *Oedipina nimaso*. We also present phylogenetic hypotheses for the new taxa (with the exception of the *Oedipina*) and their relatives based on mitochondrial DNA sequence data. The new species were discovered on a series of expeditions to remote areas (primarily over 1000 m elevation) of the Cordillera de Talamanca, Costa Rica.

Key words: *Bolitoglossa aureogularis* sp. nov., *B. kamuk* sp. nov., *B. splendida* sp. nov., *Nototriton matama* sp. nov., *Oedipina nimaso* sp. nov., biogeography, Central America, Cordillera de Talamanca, taxonomy

Resumen

Se describen cinco nuevas especies de salamandras sin pulmones (Plethodontidae) de hábitats montanos altos de la región fronteriza entre Costa Rica y Panamá: *Bolitoglossa splendida*, *B. aureogularis*, *B. kamuk*, *Nototriton matama*, y *Oedipina nimaso*. Además, se presentan hipótesis filogenéticas basadas en secuencias de ADN mitocondrial para los nuevos taxones con excepción de *Oedipina*. Las nuevas especies fueron descubiertas durante una serie de expediciones a regiones remotas (principalmente sobre los 1000 m de elevación) de la Cordillera de Talamanca, Costa Rica.

Introduction

Despite its relatively small land area, Costa Rica has a highly diverse amphibian fauna, of which 44 species are salamanders of the family Plethodontidae (www.AmphibiaWeb.org). Among tropical countries only Mexico and Guatemala, both considerably larger, have more known species of plethodontid salamanders, and Costa Rica has more described salamander species for its size than any other country (Bolaños & Wake 2009). While the amphibian fauna of much of the country is well known compared with other countries in Central America, particularly at long-term research sites such as Monteverde and La Selva, other areas of the country have been much less thoroughly explored biologically. The rugged Cordillera de Talamanca of southeastern Costa Rica (southeast of the Chirripó Massif) and western Panama is one of the most poorly explored montane areas of Central America; the portion within the transnational Parque La Amistad is roadless and access is difficult, which has hindered biological exploration in the past. The Cordillera de Talamanca consists of uplifted Neogene-Quaternary rock and reaches elevations up to 3 820 m (Marshall 2007). Collections from other areas of the border region