



## Two new species of *Chiropterotriton* (Caudata: Plethodontidae) from northern Mexico

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### Abstract

Species of the genus *Chiropterotriton* are distributed through much of northern and eastern Mexico. The genus has presented taxonomic difficulties, with a number of species waiting to be described. We describe two new species, *Chiropterotriton cieloensis* **sp. nov.** and *Chiropterotriton infernalis* **sp. nov.**, from the Mexican state of Tamaulipas based on both molecular and morphological data. We present a phylogenetic hypothesis for the group, with emphasis on the taxa from northern Mexico, based on mitochondrial DNA, and discuss the other species of northern Mexico, especially the wider-ranging *C. multidentatus*, to which the new species were formerly assigned.

**Key words:** salamander, bolitogossines, molecular phylogenetics, morphology, Tamaulipas, Nuevo León

### Introduction

Species of the genus *Chiropterotriton* are distributed throughout the Sierra Madre Oriental, in the eastern Trans-Mexican Volcanic Belt, and into the highlands of northern Oaxaca, Mexico (AmphibiaWeb 2015; Darda 1994). Species of *Chiropterotriton* occupy a variety of habitats, including cloud forest, pine-oak forest, oak forest, and caves. They use various microhabitats, such as arboreal bromeliads, crevices in rocks, caves, and terrestrial cover objects (AmphibiaWeb 2015). Although some species of the genus, especially cave-adapted species such as *C. magnipes* Rabb, exhibit unique morphologies such as extensive foot webbing, many species are outwardly similar in appearance, making taxonomy of the genus a challenge. The outward similarity of most species, conflicting data from different molecular studies, and lack of tissue for molecular analyses for several key populations have made the description of additional species difficult.

Prior to 1956, only two species were known from the states of San Luis Potosí (SLP), Tamaulipas, and Nuevo León. *Chiropterotriton multidentatus* (Taylor) was known from the Sierra de Alvarez, an isolated mountain chain in SLP west of the Sierra Madre Oriental. *Chiropterotriton chondrostega* (Taylor) and *C. multidentatus* had been collected from Rancho El Cielo and nearby localities in the region of the present-day El Cielo Biosphere Reserve, Tamaulipas (Martin 1958). For clarity, we will refer to the El Cielo Biosphere Reserve as “El Cielo”, and will use “Rancho El Cielo” to refer to a specific locality within the biosphere reserve. *Chiropterotriton priscus* Rabb was described in 1956 from the isolated Cerro Potosí, Nuevo León. A detailed and thorough analysis of *Chiropterotriton* from northern Mexico was published by Rabb (1958), and remains the definitive treatment on the group from this part of its distribution. Rabb examined all known populations of *Chiropterotriton* from northern Mexico, most of which were assigned to *C. multidentatus*. He described a new subspecies of *C. chondrostega*, *C. chondrostega cracens* Rabb, from what would later become the El Cielo Biosphere Reserve in Tamaulipas. He also noted the presence of what was likely a distinct species from El Chihue, Tamaulipas, near the border with Nuevo León. Since Rabb’s seminal 1958 study, only one additional species, *Chiropterotriton miquihuanus* Campbell,