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A new colorful species of *Pristimantis* (Anura: Craugastoridae) from the eastern flank of the Cordillera Central in Colombia

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Abstract

We describe a new species of *Pristimantis* from the humid forests on the eastern flank of the northern Cordillera Central in Colombia (6º 23' 19.3554" N, 75º 1' 24.0594" W; ca. 1150 m.a.s.l.). *Pristimantis jaguensis* **sp. nov.** is characterized by an extraordinary variation in color and is readily distinguished from congeneric species by lacking nuptial pads, discoidal fold and conical calcar tubercles; flanks and belly white to cream without blotches as well as iris yellow ocher to copper with thick brown reticulation and cream sclera. Molecular phylogenetic analyses recovered the new species in a clade with species mostly distributed in Ecuador. Our finding suggests that new taxa can still be discovered in the Middle Magdalena River valley of Colombia despite the extensive sampling this region has received during the last decades.

Key words: Andes, Department of Antioquia, phylogenetic position, taxonomy

Resumen

Describimos una nueva especie de *Pristimantis* de los bosques húmedos del flanco oriental del norte de la Cordillera Central en Colombia (6º 23' 19.3554" N, 75º 1' 24.0594" W; 1150 m.s.n.m.). *Pristimantis jaguensis* **sp. nov.** se caracteriza por poseer una extraordinaria variación en color y es fácilmente distinguible de las especies cogenéricas por tener el vientre y los costados de blanco a crema sin manchas, iris amarillo ocre a cobre con retículos marrón y esclerótica crema; además por carecer de almohadillas nupciales, pliegues discoidales y tubérculos calcares. Análisis filogenéticos con datos moleculares sugieren que la nueva especie es parte de un clado que incluye miembros con distribución geográfica principalmente en Ecuador. La especie aquí descrita indica que nuevas especies pueden ser descubiertas a pesar del extensivo muestreo en el valle medio del Río Magdalena de Colombia en las últimas décadas.

Palabras clave: Andes, Departamento de Antioquia, posición filogenética, taxonomía

Introduction

The department of Antioquia, located in northwestern Colombia with an area of 63.612 km^2 (Callejas 2012) and representing the 5.6% of the Colombian territory, is the region with the highest diversity of amphibians in the country with approximately 224 known species (IUCN 2011). The complex Andean orogeny, formed by the Cordillera Occidental and Cordillera Central, and the Atrato, Cauca and Magdalena river valleys, in addition to the biogeographic position connecting Central and South America, have played a critical role in the process of diversification and endemism and might be responsible of the exceptional amphibian richness. However, only 20% of the territory of the department of Antioquia has been thoroughly sampled (GHA 2007), suggesting that many species are yet to be discovered and formally described.

Pristimantis Jiménez de la Espada is the most diverse genus of amphibians in the neotropics (Hedges *et al.* 2008, Frost 2014). With about 45 species, Antioquia harbors 25% of the *Pristimantis* in Colombia (IUCN 2011).

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Discussion

The Cordillera Central represents one the main biogeographic regions in Colombia due to its high level of endemism (Lynch *et al.* 1997). Explorations in the last two decades on the eastern flank of the Cordillera Central have uncovered many unnamed species, suggesting that frog diversity in this part of Colombia is vastly underestimated (Lynch & Rueda-Almonacid 1999). However, a narrow transect along this flank of the Cordillera constitutes the only well-sampled area in the region (Lynch & Rueda-Almonacid 1999). North of this transect is the type locality of *P. jaguensis* and of two additional species named a decade ago: *Pristimantis fallax* (Lynch & Rueda-Almonacid 1999) and *Diasporus anthrax* (Lynch 2001) and many areas potentially harboring unnamed species remain to be explored. This region is not only relevant because of its level of endemism, but also because it constitutes the transition zone between the humid forests of the Magdalena River valley and the Tropical Andes. A better exploration of the area is necessary to characterize and understand the biogeography of this interesting region.

Phylogenetic relationships within *Pristimantis* are still largely unknown. Despite major recent advances (Hedges *et al*. 2008; Pyron & Wiens 2011; Pinto *et al*. 2012; Padial *et al.* 2014), the lack of adequate taxon sampling and the high level of cryptic species and taxonomic problems in this highly diverse clade precludes adequate biogeographic inferences and generalizations regarding the diversification process in this group. However, what is clear from previous studies is that most morphological groups (e.g. Lynch 1976) are not monophyletic. For instance, the sister clade to *Pristimantis jaguensis* is a group that includes representatives of three phenetic groups (*P. orcesi*, *P. devillei* and *P. unistrigatus* groups). Comparisons based on these groups and assignments of new species to any of these are useless, as it does not provide any meaningful information about relatedness or character evolution. What can be deduced from our phylogeny is that the sister clade of *P. jaguensis* includes species that are distributed mostly in Ecuador. However, the low number of species from the Choco and the Colombian Andes available in phylogenetic studies hampers a rigorous assessment of the phylogenetic relationships of the new species and its historical biogeographic affinities. Indeed, the long branch leading to *P. jaguensis* as well as the short internode connecting this species to its sister clade indicates that supporting evidence may be challenged by the addition of closely related taxa. As such, extensive sampling in these regions will surely help to fill these gaps in our understanding of the evolutionary history of frogs in northwestern South America.

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