Filling gaps and update of the distribution of Strabomantis ingeri (Cochran & Goin, 1961) (Anura: Craugastoridae) in Colombia

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Abstract
We report records of new localities and an update for the distribution of the Inger’s Robber Frog, Strabomantis ingeri, a rare and vulnerable species from the Colombian Andean cloud forests. We report the first record of S. ingeri for the Boyacá department.

Key words
Vulnerable; Inger’s Robber Frog; Andean cloud forest; range extension.

Introduction
Inger’s Robber Frog, Strabomantis ingeri (Cochran & Goin 1961), is an uncommon Terrarana frog of the Craugastoridae family, belonging to the Sulcatus group (Hedges et al. 2008, Lynch 1981). It is listed as Vulnerable by the IUCN Red List because its area of occurrence is less than 20,000 km², its area of distribution is severely fragmented, and the extent and quality of its habitat are both in continuous decline. It has a discontinuous distribution in cloud forests from both slopes of the Cordillera Oriental of the Colombian Andes, at 1700–3320 m (Castro et al. 2004, Ramírez-Pinilla 2004, Bernal and Lynch 2008). This species has been previously reported in both slopes of the Cordillera Oriental in the departments of Cundinamarca (Cochran and Goin 1961), Santander (Lynch 1981) and Norte Santander (Rueda-Almonacid et al. 2004). It is believed that this species is also present in the department of Boyacá (Lynch 1997), but there are no published records from this area. Herein, we update the geographical distribution of S. ingeri, adding new locality records based on specimens deposited in scientific collections and visual records.

Methods
The new records of S. ingeri consist of 5 specimens collected under permit #4120-E1-29166, issued by ANLA on 16 June 2014, and deposited in the herpetological collection of the Universidad Industrial de Santander (MHN-UIS-A) and 2 visual records (Fig. 1, Table 1): UIS-A-5375, an adult female (SVL = 50.5 mm) collected on the foothills of the Serranía de los Yariguíes at Vereda La Colorada, municipality of San Vicente de Chucuri, Department of Santander (06.79260° N, 073.47930° W, elevation 1380 m) on 29 October 2014; UIS-A-5784,
Figure 1. Current distribution of *Strabomantis ingeri* in Colombia, showing previously known (blue circles) and new records (red triangles). The green areas correspond to the protected areas in Colombia. Datum: WGS84.
an adult female (SVL = 44.2 mm) and UIS-A-5785, a juvenile female (SVL = 27.4 mm) collected at Reserva Forestal Venceremos, municipality of Zapatoca, Department of Santander (06.9227° N, 073.3410° W, elevation 1500 m) on 3 July 2016; and UIS-A-(5876-77), 2 females (SVL = 37.8 and 45.5 mm respectively) collected in the same locality of the above on 14 November 2016 (Fig. 2). All the specimens were found active at night, on the ground with abundant leaf litter in a heavily deforested cloud forest (Fig. 4).

S. ingeri was found in sympatry with Pristimantis bacchus (Lynch 1984), Pristimantis miyatai (Lynch 1984), Pristimantis penelopus (Rueda-Almonacid & Lynch, 1983), Diasporus anthrax (Lynch, 2001) and Andinobates virolinensis (Ruiz-Carranza & Ramirez-Pinilla, 1992), the latter found only at La Colorada. Additionally, we record 1 individual of S. ingeri by visual register in the Reserva Rogitama, Vereda Peñas Blancas, Arcabuco municipality, department of Boyacá (05.7981° N, 073.4580° W, elevation 2536 m) (Oswaldo Cortes, photographic record, Fig. 3A), and other at Reserva Gualden, Charalá municipality, department of Santander (06.2906° N, 073.1928° W, elevation 1775 m) (Carlos Hernandez and Oscar Hernandez, photographic record, Fig. 3B).

Results

The main morphological traits considered for the identification of the collected specimens as S. ingeri were
(1) fingers lacking discs but small discs on toes, (2) skin of venter areolate, (3) intern tarsal fold, (4) upper eyelid bearing 1 conical tubercle, (5) toes bearing lateral fringes, (6) broad vomerine odontophores, and (7) a frontoparietal furrow formed by cranial crests elevating posteromedial to orbits (Lynch 1981, Lynch 1997). Strabomantis ingeri can be erroneously confused with its sister species S. cadenai because of the existence of contact between the zygomatic ramus of the squamosal and the posterodorsal portions of the pars facialis of the maxila, but the latter is only distributed in the Cordillera Occidental of Colombia (Lynch 1997, Ospina 2012).

Discussion

With these new records for the western flank of the Cordillera Oriental in Boyacá and Santander departments, we fill gaps of the discontinuous distribution of this uncommon species and expand the lower altitudinal range from 1700 m (Bernal and Lynch 2008) to 1380 m above sea level (UIS-A-5375). However, consistent inventories are needed on the eastern flank of the Cordillera Oriental to establish the real distribution of this species, as well as the state of their populations.

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Authors’ Contributions

EMP wrote the text, revised specimens, made the map and photos; WCL wrote the text and revised literature; MPRP reviewed the manuscript.

References


