

New distribution record of endangered and endemic frog *Pristimantis quantus* (Lynch, 1998) in western Andes of Colombia

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Locality— Colombia, western Andes, Antioquia department, Jardín municipality, vereda Macanas, Natural Reserve El Centello, (5°30'11.48"N; 75°51'6.05"O, WGS84, 2461 m elevation). The 17 July 2018 at 20:15 h. during a field trip Beatriz

Rendón-Valencia and her assistant Divier Idárraga found an adult of *Pristimantis quantus* (MHUA-A 11308, Fig. 1). The specimen was found on leaves of *Anthurium* sp. at 1,20 m above the ground, in riparian habitat with herbaceous vegetation (mainly

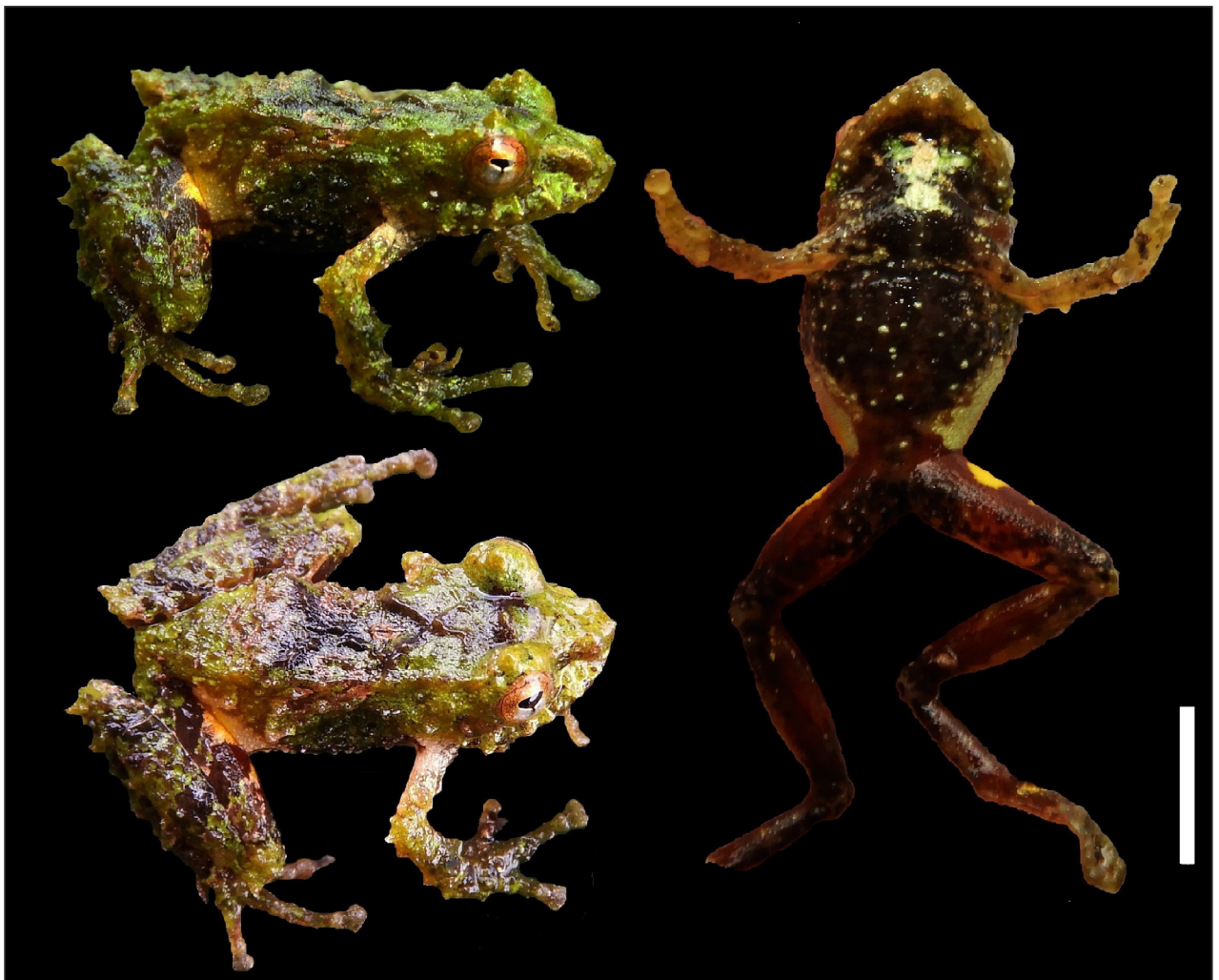


Figure 1. Female of *Pristimantis quantus* (MHUA-A 11308), from Natural Reserve El Centello, north of the western Andes, Jardín municipality, Antioquia departament, Colombia. Scale bar 0,5 mm.

Araceas) in the edge of a stream located in the Montane Humid Forest (*sensu* Holdrige, 1967). The specimen was collected with the authorization of Autoridad Nacional de Licencias Ambientales (ANLA), resolution number 01711, 30 December 2016. The specimen was deposited in the Museo de Herpetología Universidad de Antioquia (MHUA-A 11308).

Comments.— The genus *Pristimantis* is recognized for their reproductive mode with direct development (Lynch and Duellman, 1997), and for their incredible diversity of species becoming the highest among all amphibians, with most species distributed in the Andean region (Hedges *et al.*, 2008; Frost, 2021). Currently, Colombia has the greatest richness of the genus *Pristimantis* with 232 species (Frost, 2021; Rivera-Correa *et al.*, 2021), with more than half of these endemics (146 species), and with 80 species included in some threat category (i.e., CR: 4, EN: 38, VU: 38; Armesto and Señaris, 2017; Frost, 2021; IUCN, 2021).

Pristimantis quantus (Lynch, 1998) is a species categorized as Endangered (EN) by the IUCN Red List (IUCN, 2021) and as Vulnerable (VU) by the Red Book of Amphibians of Valle del Cauca (Castro-Herrera and Bolívar-García, 2010). *Pristimantis quantus* was assigned to *Pristimantis unistrigatus* species group by Hedges *et al.*, (2008), although recently placed to *Pristimantis boulengeri* species group by Gonzalez-Durán *et al.* (2017).

Pristimantis quantus is endemic to Colombia and is distributed on the frontier between Chocó and Valle del Cauca departments, in western Andes (Lynch, 1988; Acosta-Gálvis, 2021; Cuellar-Valencia *et al.*, 2021). Since its description in 1988, *P. quantus* is known only from two localities on the Serranía de los Paraguas: “Alto de Galápagos” and “El Boquerón”, both sites in the El Cairo municipality, Vereda Las Amarillas from 2,100-2,250 m asl (Lynch, 1988; Castro-Herrera and Bolívar-García, 2010). The estimated extent of occurrence (EOO) of *P. quantus* is approximately 65 km² and coincides with the protected area Reserva Natural Comunitaria Cerro El Ingles, owned by the Serraniagua foundation (Castro-Herrera and Bolívar-García, 2010; IUCN, 2021). Despite the above, major threats to the species include habitat loss and degradation due to logging, agriculture activities, opening of rural roads, cattle grazing, and the presence of *Batrachochytrium dendrobatidis* within its range (IUCN, 2021), but

there is no information on whether chytridiomycosis affects the population.

Pristimantis quantus is a little-known species and information is only available from the original description (Lynch, 1998), and the Red Book of Valle del Cauca Amphibians (Castro-Herrera and Bolívar-García, 2010). Additionally, *P. quantus* is mentioned in checklists that compile regional or local species richness and threat (e.g., Castro-Herrera and Vargas-Salinas, 2008; Stuart *et al.*, 2008; Cardona-Botero *et al.*, 2012; García-R *et al.*, 2014; Armesto and Señaris, 2017; Cuellar-Valencia *et al.*, 2021). There is no ecological information on the species, but it is known to inhabit primary and secondary cloud forest and is found in the understory. *Pristimantis quantus* occurs in sympatry with congeneric species such as *P. achatinus*, *P. angustilineatus*, *P. brevifrons*, *P. calcaratus*, *P. erythropleura*, *P. kelephus*, *P. molybrignus*, *P. myops*, *P. palmeri*, *P. phalarus*, *P. ptochus*, *P. restrepoi*, *P. silverstonei*, *P. xylochobates* and the recently described *P. alius* and *P. ingles* (Lynch, 1998; Castro-Herrera and Bolívar-García, 2010; IUCN, 2021; Cuellar-Valencia *et al.*, 2021).

The specimen referenced in the present study agree with the characters proposed for the species *Pristimantis quantus* by Lynch (1988) and Gonzalez-Durán *et al.* (2017): 1) snout subacuminate in dorsal view, with papilla at the tip; 2) conical tubercle on upper eyelid and between eyes; iris pale gray with gray flecks; are bellow pupil is nearly white; 3) skin of dorsum smooth with scattered subconical tubercles; dorsum green and brown above with bright green interorbital bar 4) ventral skin coarsely areolate; chin bears yellow in males with some green tint in females; venter black to brown with cream flecks 5) nuptial pads present on finger I; ulnar tubercles conical; small subconical tubercles on heel and tarsus; two metatarsal tubercles; small double distal subarticular tubercle on Finger III; double distal subarticular tubercle present on finger IV; finger I shorter than finger II; digital discs expanded and round, except in finger I and toe I; toe V much longer than toe III; anterior surface of thigh red with yellow spot; 6) adults minute males 11.6-14.5 mm (n = 4); female 14.4-16.7 mm SVL (n = 4) (Fig. 1).

This record represents the northernmost occurrence of the species and the first evidence of distribution outside the Serranía de los Paraguas. Therefore, the distribution range of the species is extended approximately 100 kilometers from its type locality in the Valle del Cauca department (Serra-

nía de los Paraguas), to the southwest of Antioquia departament in the Natural Reserve El Centello owned by Fundación Jardín Botánico de Medellín Joaquín Antonio Uribe (Fig. 2). It is probable that the *P. quantus* occurs in several sites between the two previously referenced localities with a broader distribution, as occurs with other species of the genus *Pristimantis* in the cloud forest in the north of the Western Cordillera (Lynch, 1998; Cuellar-Valencia *et al.*, 2021).

Protected areas are shielded against different anthropic pressures that can negatively affect threatened amphibian populations (p.e. pollution, fragmentation, urbanization) (Lannoo, 2005; Acevedo *et al.*, 2016; Aguilar-López *et al.*, 2020). The presence of the *P. quantus* in the Natural Reserve El Centello could be an indication of an established population. Additionally, it was possible to register a complex assembly of nine congeneric species that occur in sympatry with *P. quantus*, such as *P. achatinus*, *P. calcaratus*, *P. zophus*, *P. erythropleura*, *P. angustilineatus*, *P. cf. urani*, and two more undetermined species of *Pristimantis*.

The present finding of a new locality for *P. quantus* together with endemic and threatened congeners (*P. zophus*, *P. calcaratus*) and the possibility of two new candidate species and in the Natural Reserve El Centello, highlights the importance of implementing samplings in unknown

areas to fill information gaps in sensitive groups such as Andean amphibians. It is also necessary to develop monitoring programs focused on determining the population trends (stability, increase or decrease) of threatened amphibian species, in order to promote effective conservation strategies in which protected areas play an indispensable role.

Acknowledgments

The authors would like to thank: Divier Idárraga, Daniel Arango, Marisella López, Ana María Gutierrez and Verónica Sánchez for support in field work; Yadis Alvarez y Ana Benavides for logistic support; Mauricio Rivera Correa and anonymous reviewers for their comments on the manuscript; the Museo de Herpetología de la Universidad de Antioquia (MHUA) for providing us workspace; the Fundación Jardín Botánico de Medellín Joaquín Antonio Uribe for financial support for this work.

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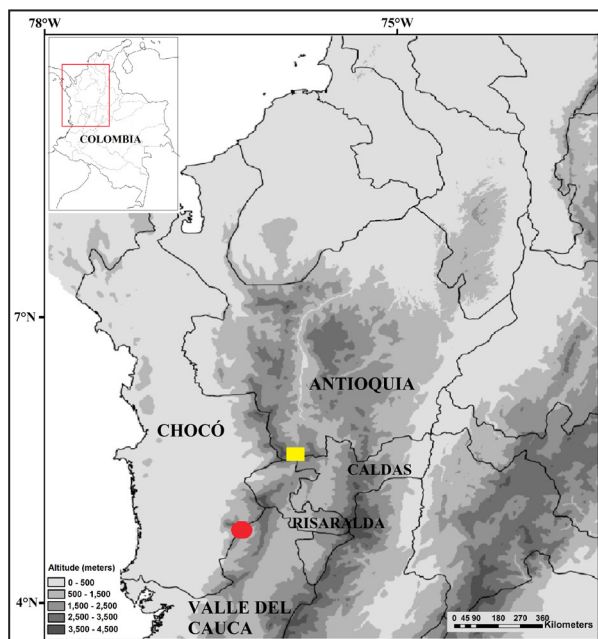


Figure 2. Distribution map of *Pristimantis quantus*. Yellow square correspond to the new locality reported by the present study, and the red circle to the type locality.

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Recibida: 31 Agosto 2021
Revisada: 04 Octubre 2021
Aceptada: 13 Octubre 2022
Editor Asociado: A. Jerez

doi: 10.31017/CdH.2022.(2021-057)

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