

# THE SOUTHERNMOST RECORD OF THE ANTIOQUIA WEEVIL TOAD *RHINELLA TENREC* (ANURA: BUFONIDAE)

## EL REGISTRO MÁS MERIDIONAL DEL SAPO PICUDO DE ANTIOQUIA *RHINELLA TENREC* (ANURA: BUFONIDAE)

Luis Alberto Copete-Mosquera<sup>1,3\*</sup>, Josue Restrepo Montoya<sup>2</sup> & Alberto Sánchez-Vialas<sup>3\*</sup>

<sup>1</sup>Grupo de Investigación en Herpetología, Facultad de Ciencias Naturales, Programa de Biología, Universidad Tecnológica del Chocó, Quibdó, Chocó, Colombia.

<sup>2</sup>Investigador independiente. Calle 5 #5-86, Carmen de Atrato, Chocó, Colombia.

<sup>3</sup>Museo Nacional de Ciencias Naturales (MNCN-CSIC), C/ José Gutiérrez Abascal, 2. 28006, Madrid, España.

\*Correspondence: [luiscope1@gmail.com](mailto:luiscope1@gmail.com)

Received: 2023-12-28. Accepted: 2024-06-10. Published: 2024-08-06.

Editor: Felipe Rabanal, Chile.

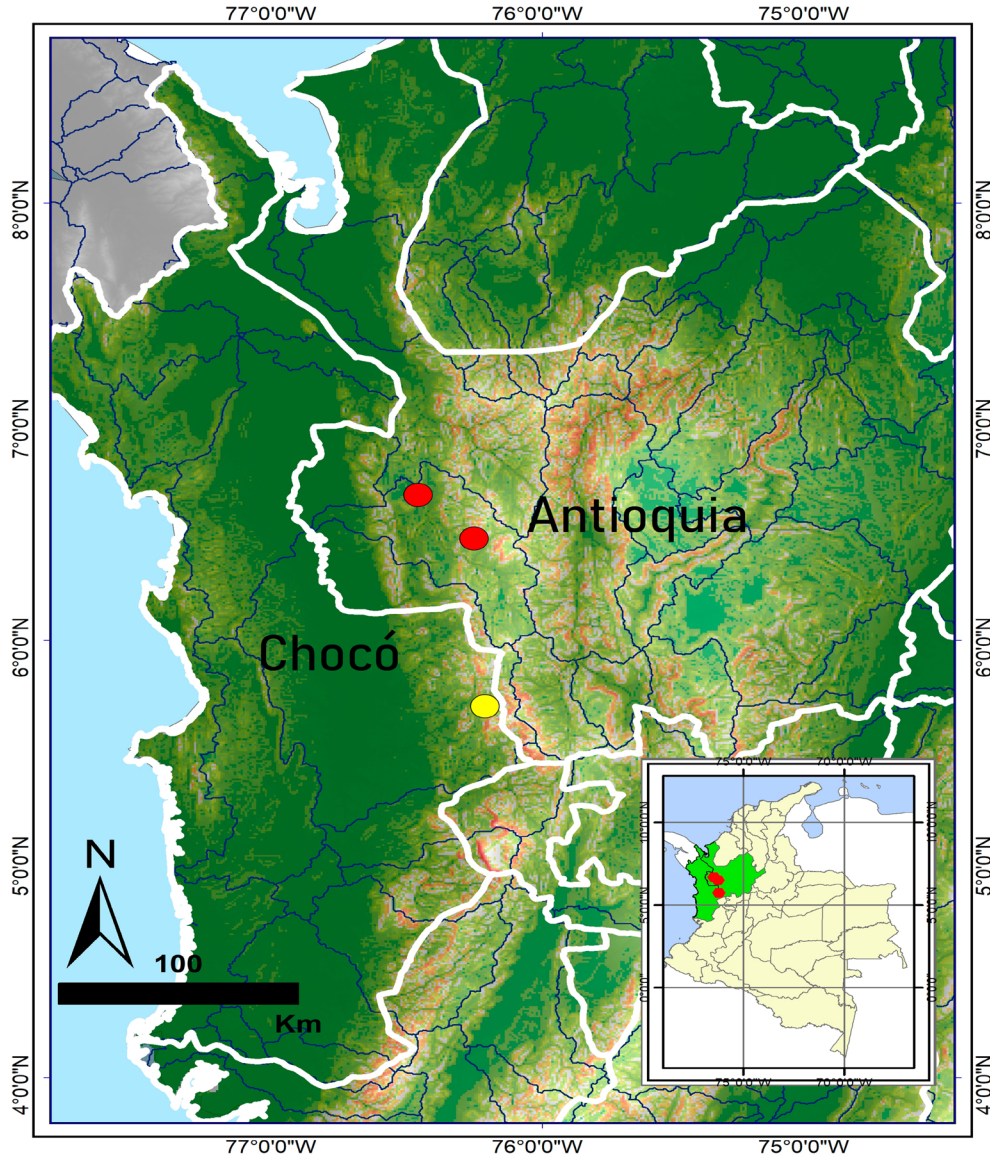
The remarkable species richness and high degree of endemism are some of the factors that have placed the Chocó ecoregion among the 25 most biodiverse areas in the world (Rangel-Ch, 2004; Arroyo et al., 2013; Sarria et al., 2015; Calderón, 2018). However, compared to other ecoregions, its biological knowledge is yet incipient (Echavarría et al., 2015; González et al., 2016; Noguera, 2016; Valois & Martínez, 2016; Echavarría et al., 2018; Meneses-Pelayo et al., 2018; Palacios-Rodríguez et al., 2018; Palacios-Mosquera et al., 2020; Copete-Mosquera et al., 2023).

The genus *Rhinella* Fitzinger, 1826 currently comprises 97 species distributed in several species groups, which are widespread from North to South America (Frost, 2024). At present, the species group of *Rhinella festae* (Peracca, 1904) includes a total of 21 species distributed in Panama, Colombia, Ecuador, Peru, and Bolivia (Lehr et al., 2021; Acosta, 2023; Frost, 2024; Caicedo-Martínez et al., 2024). Out of these 21 species, fourteen are characterized by a distinctive morphological feature: a long snout ending in a prominent and relatively pointed snout, commonly referred to as a "shark-like snout".

Currently, the geographic range of some of these species are poorly known, and some of which are only known from a handful of localities. This is the case for *R. tenrec* (Lynch & Renjifo, 1990), a diurnal and semi-arboreal species known from two localities, the terra typica "near Campamento Ingeominas (ca. 6°42' N, 76°27' W), near the headwaters of Río Amparradó, Municipio Dabeiba, Departamento Antioquia, Colombia" (Lynch & Renjifo, 1990), and Parque Nacional las Orquídeas, Vereda Venados Arriba (Pereyra et al., 2021), both located in the Antioquia Department, Colombia, at an elevation range between 805 and 1,100 m a.s.l.

On the afternoon of 19<sup>th</sup> June 2022, a single subadult specimen (not collected) of a shark-like snout *Rhinella* was sighted in Guaduas, Carmen de Atrato, Chocó department, Colombia (5°44'03.220" N, 76°11'55.762" W) (Figure 1), at an elevation of 950 m a.s.l. The external morphological traits exhibited by the reported specimen (Fig 2A,B) are consistent with *Rhinella tenrec*: (1) long, protruding, anteriorly directed snout, (2) poorly developed cranial ornamentation, (3) reduced or absent supraorbital, postorbital, and supratympanic ridges, (4) absent tympanic ridge, (5) few tubercles on back, not conical, (6) row of dorsolateral tubercles from supratympanic ridge through parathyroid gland to groin, (7) fingers and toes webbed (Lynch & Renjifo, 1990).

*Rhinella tenrec* can be unambiguously distinguished from other geographically close species in the group. From *R. acrolopha* (Trueb, 1971) it can be readily differentiated by a longer and more pointed snout (shorter in *R. acrolopha*) and by fingers and toes more webbed (less webbed in *R. acrolopha*). From *R. truebae* (Lynch & Renjifo, 1990), it differs by the absence of tympanic and pre-tympanic crests and cranial ornamentation (crests and strong cranial ornamentation present in *R. truebae*). From *R. macrorrhina* (Trueb, 1971), it differs by the absence of marked cranial ornamentation (well-marked cranial ornamentation in *R. macrorrhina*). From *R. paraguas* Grant & Bolívar, 2014, it differs by lacking pre-tympanic crests and by having few non-conical dorsal tubercles (pre-tympanic crests and conical dorsal tubercles present in *R. paraguas*). *Rhinella tenrec* differs from *R. nicefori* (Cochran & Goin, 1970) by having a long protruding snout directed anteriorly (moderately short snout directed anteroventrally in *R. nicefori*) and by the presence of non-conical dorsal tubercles (large depressed scattered dorsal tubercles in



**Figura 1.** Mapa de Colombia indicando las localidades conocidas de *Rhinella tenrec*. Los iconos circulares rojos representan localidades previamente conocidas y el icono circular amarillo representa el nuevo registro.

**Figure 1.** Map of Colombia indicating the known localities of *Rhinella tenrec*. Red circular icons represent previous species records and the yellow circular icon represents the new record.

*R. nicefori*). From *R. lindae* (Rivero & Castaño, 1990) it differs by lacking a tympanic ring (tympanic ring present in *R. lindae*), by having a low occipital crest (absent in *R. lindae*), and by a long, protruding snout directed slightly downwards (snout directed anteriorly and slightly upwards in *R. lindae*).

The individual of *R. tenrec* was found in a forest patch, resting on the upper surface of a bush leaf, at around 25 cm above the forest floor. The area where it was located is characterized by fragmented forest surrounded by pasture fields (Figure 2C; CalPhoto IDs: 0000 0000 1223 0659; video: 10.6084/m9.figshare.24861426).

The presence of *R. tenrec* was known from two localities, 30 km apart from each other, in the Antioquia Department, Colombia (Pereyra et al., 2021; Frost, 2023). Our record extends 92 km southwards the known range of *R. tenrec* and represents the first record for the Chocó Department. The forest where the specimen was found is surrounded by pastures and crops. This environment exhibits a series of anthropic pressures, including: (1) pastures and crops; (2) small forest fragments; and (3) livestock activity (IDEAM, 2010) (Figure 3). This record suggests that the species may have a broader distribution than previously thought. The altitude where the newly recorded specimen was



**Figura 2.** Ejemplar registrado de *Rhinella tenrec* descansando sobre una hoja (A), vista lateral del mismo ejemplar (B), hábitat de *Rhinella tenrec* en Guaduas (C).

**Figure 2.** The recorded specimen of *Rhinella tenrec* resting on a leaf (A), lateral view of the same specimen (B), habitat of *Rhinella tenrec* in Guaduas (C).

found (905 m a.s.l) falls within the documented altitudinal gradient of the species.

*Rhinella tenrec* is classified as endangered due to ongoing habitat alterations within its limited extent of occurrence (IUCN, 2017). Considering the singular nature of this discovery in a restricted forest enclave threatened by grazing pastures, we strongly suggest implementing immediate conservation measures to safeguard this isolated population. This note underscores the incipient state of our knowledge concerning this species group of *Rhinella*, emphasizing the necessity for extensive fieldwork efforts focused on the detection of these rare amphibians.

**Acknowledgements.**– We would like to express our gratitude to Sara Gonzalez and Norma Andrade for their patience and enthusiasm in proofreading the English version. We also extend

our thanks to David Velásquez and Juan Moreira for their valuable feedback on the initial draft of the manuscript. Additionally, we thank the editor and reviewers for their invaluable advice in finalizing the manuscript.

## CITED LITERATURE

Acosta-Galvis, A.R. 2023. Lista de los Anfibios de Colombia: Referencia en línea V.13.2023. Página web accesible en <http://www.batrachia.com>; Batrachia, Villa de Leyva, Boyacá, Colombia. [Consulted in April 2024].

Arroyo-Valencia, J.E., L.C. Pardo-Locarno & M. González Anaya. 2013. Fragmentación de hábitats en el Chocó Biogeográfico Colombiano: Marco conceptual, contexto regional y paradigmas desde la ecología del paisaje. *Sabia Revista científica* 2:10-24.



**Figura 3.** Panorámica general de la zona de avistamiento de *Rhinella tenrec*, bosque fragmentado con pastos y cultivos.

**Figure 3.** General view of the *Rhinella tenrec* sighting area, fragmented forest with pastures and crops.

- Asprilla-Aguilar, A.A., A.M. Jiménez-Ortega & H. Mantilla-Meluk. 2016. Murciélagos (Chiroptera) del departamento del Chocó, occidente colombiano. *Biodiversidad Neotropical* 6:188-211.
- Caicedo-Martínez, L.S., J.J. Henao-Osorio, H.F. Arias-Monsalve, J.A. Rojas-Orales, P.A. Ossa-López, F.A. Rivera-Páez & H.E. Ramírez-Chaves. 2024. A new species of terrestrial toad of the *Rhinella festae* group (Anura, Bufonidae) from the highlands of the Central Cordillera of the Andes of Colombia. *ZooKeys* 1196:149-175.
- Calderón, K.I. 2018. Crónicas de viaje al Chocó. Tesis de Doctorado. Pontificia Universidad Javeriana. Bogotá, Colombia.
- Chaparro, J.C., J.B. Pramuk & A.G. Gluesenkamp. 2007. A new species of arboreal *Rhinella* (Anura: Bufonidae) from cloud forest of southeastern Peru. *Herpetológica* 63:203-212.
- Copete-Mosquera, L.A., L.E. Rentería-Moreno & A.S. Vialas. 2023. Range extension of *Andinobates altobueyensis* (Anura: Dendrobatidae): the southernmost species record. *Herpetology Notes* 16:583-585.
- Cusi, J.C., J. Moravec, E. Lehr & V. Gvoždik. 2017. A new species of semiarboreal toad of the *Rhinella festae* group (Anura, Bufonidae) from the Cordillera Azul National Park, Peru. *ZooKeys* 673:21-47.
- Duellman, W.E. 1999. Patterns of Distribution of Amphibians: A Global Perspective. John Hopkins University Press, Batimore, Maryland, USA.
- Duellman, W.E. & J.D. Lynch. 1988. Anuran amphibians from the Cordillera de Cutucu, Ecuador. *Proceedings of the Academy of Natural Sciences of Philadelphia* 140:125-142.
- Duellman, W.E. & R. Schulte. 1992. Description of a new species of *Bufo* from northern Peru with comments on phenetic groups of South American toads (Anura: Bufonidae). *Copeia* 1992:162-172.

- Echavarría-Rentería, J.D., V. Mosquera-Moya & J.T. Rengifo-Mosquera. 2015. Ampliación del rango de distribución de *Atractus depressiocellus* Myers, 2003 (Serpentes: Dipsadidae) para Colombia. Cuadernos de Herpetología 29:157-159.
- Echavarría-Rentería, J.D., E. Meneses, A.M. Jiménez, L. Palacios & J.T. Rengifo. 2018. Nuevos registros y estado actual de la distribución de *Imantodes inornatus* Boulenger, 1896 (Serpentes: Dipsadidae) en Colombia. Revista Colombiana de Ciencia Animal 10:25-30.
- Frost, D.R. 2024. Amphibian Species of the World: An Online Reference. Version 6.2. Electronic Database accessible at <https://amphibiansoftheworld.amnh.org/index.php>. American Museum of Natural History, New York, USA. doi.org/10.5531/db.vz.0001 [Consulted in April 2024].
- González-Córdoba, M., M. del Carmen, M. Mosquera-Murillo & S.P. Sánchez-Vásquez. 2016. Riqueza y distribución de Elmidae (Insecta: Coleoptera: Byrrhoidea) en el departamento del Chocó, Colombia. Intropica 85-95.
- Grant, T. & W. Bolívar-G. 2014. A new species of semiarboreal toad with a salamander-like ear (Anura: Bufonidae: *Rhinella*). Herpetologica 70:198-210.
- IDEAM, 2010. Leyenda Nacional de Coberturas de la Tierra. Metodología CORINE Land Cover adaptada para Colombia Escala 1:100.000. Instituto de Hidrología, Meteorología y Estudios Ambientales. Bogotá, Colombia.
- IUCN SSC Amphibian Specialist Group. 2017. *Rhinella tenrec*. The IUCN Red List of Threatened Species 2017: e.T54883A85876499. <https://dx.doi.org/10.2305/IUCN.UK.2017-2.RLTS.T54883A85876499.en>. [Consulted in April 2024].
- Lehr, E., J.C. Cusi, L.O. Rodríguez, P.J. Venegas, L.A. García-Ayachi & A. Catenazzi. 2021. A New Species of Toad (Anura: Bufonidae: *Rhinella*) from Northern Peru. Taxonomy 1:210-225.
- Lynch, J.D. & J.M. Renjifo. 1990. Two new toads (Bufonidae: *Rhamphophryne*) from the northern Andes of Colombia. Journal of Herpetology 364-371.
- Meneses-Pelayo, E., J.D. Echavarría-Rentería, J.D. Bayona-Serrano, J.R. Caicedo-Portilla & J.T. Rengifo-Mosquera. 2018. Anfibios y Reptiles de Colombia. Anfibios y Reptiles 4:70-77.
- Noguera, E. 2016. Mastozoología en Nariño y algunos comentarios sobre la biogeografía de la región. Revista de Ciencias 7:1-18.
- Palacios-Mosquera, L., J. Quinto-Mosquera, J.D. Echavarría-Rentería, A.M. Jiménez-Ortega, L.A. Moreno-Amud & P. Velazco. 2020. New record of *Centronycteris centralis* Thomas, 1912 (Chiroptera: Emballonuridae) from the Chocó Biogeographic Region, with an updated distribution map. Bat Research & Conservation 13:34-37.
- Palacios-Rodríguez, L.J., J.T. Rengifo-Mosquera, M. Roa-Panesso & Y. Palacios-Asprilla. 2018. Riqueza y distribución de hílidos (Hylidae: Anura) en zona de bosques pluvial tropical en el departamento del Chocó, Colombia. Revista Colombiana de Ciencia Animal 10:154-166.
- Pereyra, M.O., B.L. Blotto, D. Baldo, J.C. Chaparro, S.R. Ron, A.J. Elias-Costa, P.P. Iglesias, P.J. Venegas, M.T.C. Thomé, J.J. Ospina-Sarria, N.M. Maciel, M. Rada, F. Kolenc, C. Borteiro, M. Rivera-Correa, F.J.M. Rojas-Runjaic, J. Moravec, I. De la Riva, W.C. Wheeler, S. Castroviejo-Fisher, T. Grant, C.F.B. Haddad & J. Faivovich. 2021. Evolution in the genus *Rhinella*: A total evidence phylogenetic analysis of Neotropical True Toads (Anura: Bufonidae). Bulletin of the American Museum of Natural History 447:1-156.
- Rangel-Ch., J.O. 2004. Amenazas a la biota y a los ecosistemas del Chocó biogeográfico. In Rangel-Ch., J.O. (Ed.). Colombia Diversidad Biótica IV. El Chocó Biogeográfico/Costa Pacífica. Instituto de Ciencias Naturales, Bogotá, Colombia.
- Sarria, J.J., D.A. Velasquez & W. Bolívar-G. 2015. First records of two poorly known terrarana frogs: *Pristimantis esmeraldas* (Guayasamin 2004) and *Strabomantis necerus* (Lynch 1975) (Anura: Amphibia: Craugastoridae) in the Pacific lowlands from Colombia. Herpetology Notes 8:27-30.
- Valois-Cuesta, H. & C. Martínez-Ruiz. 2016. Vulnerabilidad de los bosques naturales en el Chocó biogeográfico colombiano: actividad minera y conservación de la biodiversidad. Bosque Valdivia 37:295-305.

