

New records of *Anadia rhombifera* (GÜNTHER, 1859), in the Cordillera Central and Cordillera Oriental of Colombia

Anadia rhombifera (GÜNTHER, 1859), is one of the most widely distributed species of the genus, being found from southern Ecuador to northern Colombia, at elevations of 0 to 1,923 m a.s.l. (VANEGAS-GUERRERO et al. 2015). In Colombia, this species has a patchy distribution mostly concentrated in the northern Andean part of the country (Fig. 1). More specifically, *A. rhombifera* has been reported from the western slopes of the Cordillera Oriental (Santander, Boyacá and Huila Departments) and in the eastern slopes of the Cordillera Central (Antioquia and Quindío Departments) of Colombia (VANEGAS-GUERRERO et al. 2015). AYALA (1986) reported this species for the departments of Cundinamarca and Meta, although the supporting voucher specimens had probably been lost or misidentified (VANEGAS-GUERRERO et al. 2015).

Two below described records based on previously unreported specimens deposited in the collection of reptiles of the Museo de Historia Natural Andes, Bogotá, Colombia (ANDES-R) confirm the presence of *A. rhombifera* in the Cundinamarca Department and extend the known range of the species to the Risaralda Department (Cordillera Central).

The first record from Cundinamarca corresponds to an adult male specimen (ANDES-R 532) (Figs. 2-4) collected in Hacienda Misiones, Vereda Misiones, Municipality of El Colegio, Department of Cundinamarca (4°32'58.5"N, 74°26'56.4"W, 1,270 m a.s.l.), about 134 km NE (in straight line) from the nearest reported locality of *A. rhombifera* in the Cordillera Oriental of Colombia. The individual corresponding to this record was found at about 10:00 a.m. in the middle of a dirt road which crosses a shaded coffee plantation. The other new record is based on a female (ANDES-R 1570) collected near the Municipality of Santa Rosa de Cabal, Department of Risaralda (approximate coordinates, 4°52'12.1"N, 75°37'20.8"W, 1,677 m a.s.l.), being the first report from this Department, and

Table 1: List of known localities of *Anadia rhombifera* (GÜNTHER, 1859), in Colombia, sorted by Department. For coordinates, the WGS84 datum was used. Museum codes: ANDES-R - Collection of reptiles of the Museo de Historia Natural Andes, Bogotá; Herpetos-UQ - Herpetological Collection of the University of Quindío; Armenia; ICN - Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá; MHUA-R - Collection of reptiles of the Museo de Herpetología, Universidad de Antioquia, Medellín; UIS-R - Colección Herpetológica-Reptiles, Museo de Historia Natural, Universidad Industrial de Santander, Bucaramanga. Source: 1 - VANEGAS-GUERRERO et al. (2015); 2 - present study.

Locality # in Fig. 1	Museum Voucher	Department	Municipality	Locality	Latitude (N)	Longitude (W)	Elevation (m a.s.l.)	Source
1	non collected	Quindío	Filandia	Distrito de Conservacion de Suelos Barbas-Bremen	4°40'07.9"	75°40'03.3"	1,923	1
2	Herpetos-UQ 415	Quindío	Calarcá	Vereda San Rafael, finca "El Jardín"	4°30'23.8"	75°36'30.1"	1,909	1
3	UIS-R 1624	Santander	Tona	Reserva El Brasil (AMMB)	7°08'58.1"	73°02'27.0"	1,820	1
4	MHUA-R 12346-7	Antioquia	Yarumal	La Linda	7°04'07.0"	75°25'08.0"	1,551	1
5	ICN 10412	Santander	Floridablanca	El 18 Vereda El Morriño	7°08'00.0"	72°59'00.0"	1,700	1
6	ICN 2926	Santander	Charalá	Virolín, Km 2 carretera Virolín-Duitama	6°05'27.0"	73°11'56.0"	1,800	1
7	ICN 2187-8, 2258	Boyacá	Toguti	Finca Versalles	5°54'57.5"	73°29'13.0"	1,600	1
8	ICN 11306-8	Huila	Acevedo	PNN Cueva de los Guacharos	1°38'17.9"	76°05'59.7"	1,880	1
9	ANDES-R 532	Cundinamarca	El Colegio	PNN Misiones, Hacienda Misiones, carretera cerca a la casa Las Mercedes	4°31'58.0"	74°27'06.0"	1,370	2
10	ANDES-R 1570	Risaralda	Santa Rosa de Cabal	surroundings of the town	4°52'12.1"	75°37'20.8"	1,677	2

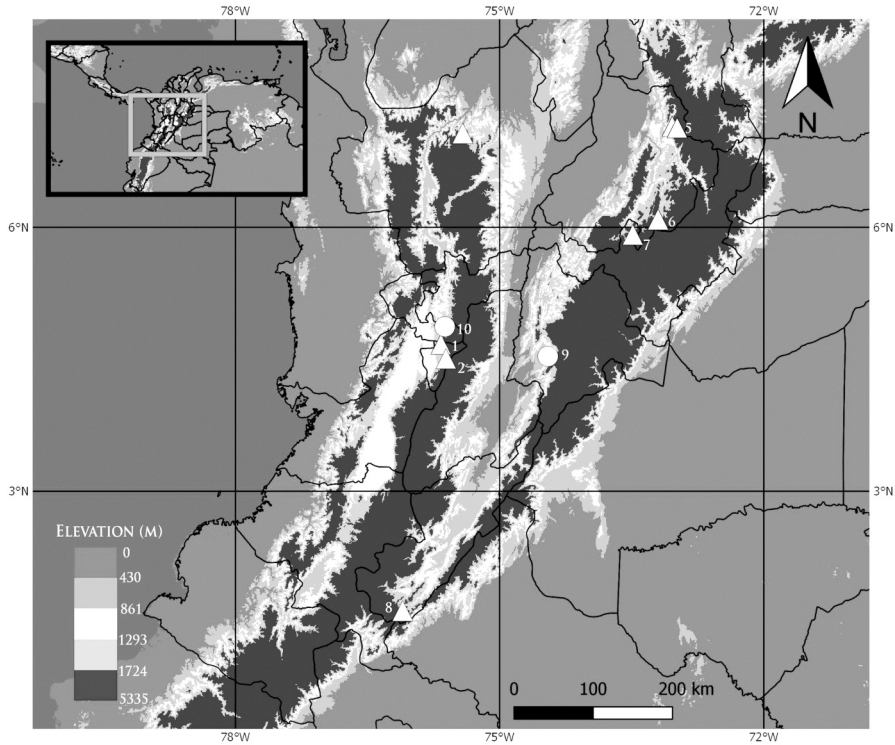


Fig. 1: Map of the known localities of *Anadia rhombifera* (GÜNTHER, 1859), in Colombia, including the two new records reported in this work. Each number corresponds to one of the localities of Table 1. White dots indicate the new reports, white triangles literature records.

extending approximately 23 km. SW (in a straight line) the known range of the species in the Central Cordillera of Colombia. This specimen was collected incidentally by an entomologist during day hours in a patch of well-preserved native forest, exact coordinates are not available.

The specimens were identified as *A. rhombifera* according to OFTEDAL (1974), as they exhibited the following morphological characters lying within the variation found on this species: 44 to 48 oblique rows of dorsal scales which are subhexagonal in shape, 29-33 longitudinal scale rows at mid-body, 14-15 femoral pores in males and 1-2 in females, nasal with a subnostril groove, prefrontals in contact by a long suture, dorsum light (or dark brown in ANDES R-1570), with indistinct to prominent black-bordered ocelli (Fig. 3), venter cream,

except in the case of the Risaralda specimen which has a dark gray venter.

As *A. rhombifera* was previously known only from eight Colombian localities (Table 1), the new records show that the species is more widely distributed in this country than previously documented (Fig. 1). However, even though they are located between the previously known localities of the species, there still remain large gaps in its known distribution. These gaps can be caused by limited collecting efforts, mis-identifications or the possibility that the lizards traditionally lumped under the name of *A. rhombifera*, correspond in reality to a complex of species (as suggested by ARTEAGA et al. 2016). Additionally, given that the distribution of *Anadia rhombifera* in Ecuador is mostly limited to the western Andes of Ecuador (with a few records on



Figs. 2-4: Adult male specimen (ANDES-R-532) of *Anadia rhombifera* (GÜNTHER, 1859), from Hacienda Misiones, El Colegio, Cundinamarca.

- 2 - The specimen found inside a bromeliad in the position in which it also used to rest or sleep in captivity.
 3 - Lateral view of the specimen showing its distinctive ocelli in the flank region.
 4 - Close-up of the lateral head region.

the Pacific lowlands of that country, ARTEAGA-NAVARRO et al. 2013), it is also possible that this species can be found in the Cordillera Occidental of Colombia.

Most Colombian *A. rhombifera* have been found in relatively well-preserved forest areas. The only exception is the new record in the Cundinamarca Department, as it corresponds to a shaded coffee plantation. However, this agroecosystem is known to exhibit complex vegetational structures and levels of biodiversity similar to those found in native forests (MEZA-JOYA et al. 2015, and references therein). These findings are in accordance with the assertion by ARTEAGA-NAVARRO et al. (2013) that *A. rhombifera* can tolerate slight human modification of its habitat, as well as with the large amount of evidence that supports the importance of shaded coffee plantations for protecting biodiversity (TAKAHASHI AND TODO 2013).

ACKNOWLEDGMENTS: The authors thank the curators of the following collections: Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá (ICN; Martha L. Calderón) and Museo de Historia Natural Andes - Reptilia, Bogotá (ANDES-R; Andrew J. Crawford) for allowing access to the specimens examined for this report. Additionally, thanks are due to Carlos J. Arango (Licenciatura en Biología, Universidad Distrital Francisco José de Caldas, Bogotá) who provided additional data regarding the specimen he collected, and to Martha P. Ramírez (Escuela de Biología, Universidad Industrial de Santander, Bucaramanga) for her useful comments and corrections to early versions of this work.

REFERENCES: ARTEAGA-NAVARRO, A. F. & BUSTAMANTE, L. M. & GUAYASAMÍN, J. M. (2013): The amphibians and reptiles of Mindo: Life in the cloud forest. Quito (Universidad Tecnológica Indoamérica), pp. 258. ARTEAGA, A. & PYRON, R. A. & PEÑAFIEL, N. & ROMERO-BARRETO, P. & CULEBRAS, J. & BUSTAMANTE, L. & YÁNEZ-MUÑOZ, M. H. & GUAYASAMÍN, J. M. (2016): Comparative phylogeography reveals cryptic diversity and repeated patterns of cladogenesis for amphibians and reptiles in northwestern Ecuador. - PLOS ONE, San Francisco; 11 (4): e0151746 [DOI: <https://doi.org/10.1371/journal.pone.0151746>].

org/10.1371/journal.pone.0151746]. AYALA, S. (1986): Saurios de Colombia, lista actualizada y distribución de ejemplares colombianos en los museos.- *Caldasia*, Bogotá; 15 (71-75): 555-575. MEZA-JOYA, F. L. & RAMOS-PALLARES, E. & HERNÁNDEZ-JAIMES, C.A. (2015): Use of an agroecosystem by the threatened dart poison frog *Andinobates virolinensis* (Dendrobatidae).- *Herpetological Review*, New York; 46 (2):171-176. OFTEDAL, O. T. (1974): A revision of the genus *Anadia* (Sauria, Teiidae).- *Arquivos de Zoologia*, São Paulo; 25 (4): 203-265. TAKAHASHI, R. & TODO, Y. (2013): The impact of a shade coffee certification program on forest conservation: A case study from a wild coffee forest in Ethiopia.- *Journal of Environmental Management*, Amsterdam, etc.; 130: 48-54. [DOI: <https://doi.org/10.1016/j.jenvman.2013.08.025>]. VANEGAS-GUERRERO, J. (2015): Reptilia, Sauria, Gymnophthalmidae, *Anadia rhombifera* (GÜNTHER, 1859): distribution extension and first records from Quindío department, Colombia.- *Check List*, São Paulo; 11 (1) - article 1512: 1-3. [DOI: <http://dx.doi.org/10.15560/11.1.1512>].

KEY WORDS: Reptilia: Squamata: Sauria: Gymnophthalmidae; *Anadia rhombifera*, geographic distribution, new records, Cordillera Central, Cordillera Oriental, Colombian Andes, Colombia

SUBMITTED: September 25, 2017

AUTHORS: Daniela GARCÍA-COBOS^{1,2)}, Diego A. GÓMEZ-SÁNCHEZ¹⁾ & Juan P. RAMÍREZ (Corresponding author: <jp.ramirez10@uniandes.edu.co>)³⁾

¹⁾ Museo de Historia Natural ANDES, Departamento de Ciencias Biológicas, Facultad de Ciencias, Universidad de los Andes, Apartado Aéreo 4976, Bogotá, Colombia.

²⁾ Laboratorio Biomics, Departamento de Ciencias Biológicas, Facultad de Ciencias, Universidad de los Andes, Apartado Aéreo 4976, Bogotá, Colombia.

³⁾ Department of Biology, San Diego State University, San Diego, California, 92182, United States of America.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Herpetozoa](#)

Jahr/Year: 2018

Band/Volume: [31_1_2](#)

Autor(en)/Author(s): Garcia-Cobos Daniela, Gomez-Sanchez Diego, Ramirez Juan P.

Artikel/Article: [New records of *Anadia rhombifera* \(GÜNTHER, 1859\), in the Cordillera Central and Cordillera Oriental of Colombia 91-94](#)