



## *Atractus albuquerquei* Cunha & Nascimento, 1983 (Serpentes, Dipsadidae): range extension and new country record for Bolivia

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### Abstract

We present new country records and range extensions for the snake *Atractus albuquerquei* Cunha & Nascimento, 1983 (Serpentes, Dipsadidae). These new records fill in the gap in the species’ distribution, extending it into Bolivia. There is a paucity of published information on locality data and information on this species, and this account contributes to the knowledge of its distributional status.

### Keywords

Neotropics, Pando, primary rainforest, reptile, snake, Squamata.

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## Introduction

The genus *Atractus* is a large group of more than 140 species (Utez et al. 2019) that is widely distributed throughout Neotropical South America (Passos et al. 2010, 2016). They are small to medium-sized, semi-fossorial snakes that feed on small invertebrates (Martins and Oliveira 1998; Cisneros-Heredia 2005; Camper and Zart 2014; Perrella and Mercival 2016). Interestingly, most species are not well represented in collections (Myers 2003; Zaher et al. 2005; Passos et al. 2018). First described by Cunha and Nascimento (1983), *Atractus albuquerquei* has been documented to occur only in Brazil in the states of Acre, Amazonas, Goiás, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, and Rondônia (Nascimento

et al. 2017; Nogueira et al. 2019). Zaher et al. (2005) compiled a list of specimens in collections and an additional more recent update of specimens and geographical distribution was published by Nascimento et al. (2017).

Herein, we describe two specimens of *A. albuquerquei* from the department of Pando, Bolivia, which represent a range extension and new country records for the species.

## Methods

Scale counts and scutellation follow Dowling (1951) and Peters (1964). Paired subcaudals were counted on one side only as were head scale counts for paired scales. Dorsal scale count formula taken at three locations and

separated by (/); head length behind occiput, mid-body, and head length anterior to cloaca. Measurements were taken using a flexible ruler to the nearest millimeter. Sex was determined by the probe method following McDermid et al. (2012). Specimen identification was determined by comparing and analyzing: meristic data, morphometrics, coloration, figures, drawings, and photographs from the original description and taxonomic information by Cunha and Nascimento (1983) and subsequent redescription by Zaher et al. (2005). A comprehensive search for information on *A. albuquerquei* consisted of reviewing published scientific papers and online databases (i.e. VertNet, ARCTOS, GBIF, and SpeciesLink).

The specimens were deposited into the herpetology collection of Centro de Investigación de Recursos Acuáticos (CIRA) in Trinidad, Beni, Bolivia (see Eversole et al. 2019 for additional information). Specimen collection was approved by the TAMUK (#2018-05-22) and TAMIU (#2018-3) Animal Care and Use Committees and permitted by the Dirección General de Biodiversidad y Áreas Protegidas Bolivia.

## Results

### *Atractus albuquerquei* Cunha & Nascimento, 1983

**New records.** BOLIVIA • 1 ♀, snout to vent length, 21.9 cm, tail length, 2.6 cm, live weight, 5.25 g; Pando, Provincia Abuná, 5.25 km northwest of the community of Humaita; 10.7999° S, 066.4922° W; 20 June 2019, approx. 21:29 h; collector RL Powell, CB Eversole, D Lizarro, EA Surovic, G Calderón-Vaca leg.; specimen found active along a trail in primary rainforest during a herpetofaunal survey; Specimen CIRA-833 (Fig. 1a, 1b). Bolivia • 1 ♀, snout to vent length, 15.8 cm, tail length, 2.1 cm, live weight, 2.50 g; Pando, Provincia Abuná, 5.20 km northwest of the community of Humaita; 10.7990° S, 066.4924° W; 20 June 2019, approx. 21:55 h; collector RL Powell, CB Eversole, DE Lizarro, EA Surovic, G Calderón-Vaca leg.; specimen found active along a trail in primary rainforest during a herpetofaunal survey; Specimen CIRA-834 (Fig. 1c, d).

Both individuals were collected in the same type of microhabitat (a few centimeters deep in leaf litter) and approximately 100 m apart on the same trail.

**Identification.** Both specimens were identified following Cunha and Nascimento (1983) and Zaher et al. (2005) based on the following diagnostic characters: dorsal scales smooth (unkeeled), in 15/15/15 rows, cloacal scale undivided with paired subcaudals. Head scales: six supralabials (2 and 3 contacting loreal, 3 and 4 contacting orbit) with six infralabials. Loreal scale present, approximately 2 times longer than wide. Preocular absent with two postocular scales. One anterior temporal and two posterior temporal scales. See Table 1 for comparison and additional scale counts.

Specimen CIRA-833: dorsal scales smooth (15/15/15), cloacal scale undivided, subcaudals paired. Supralabials

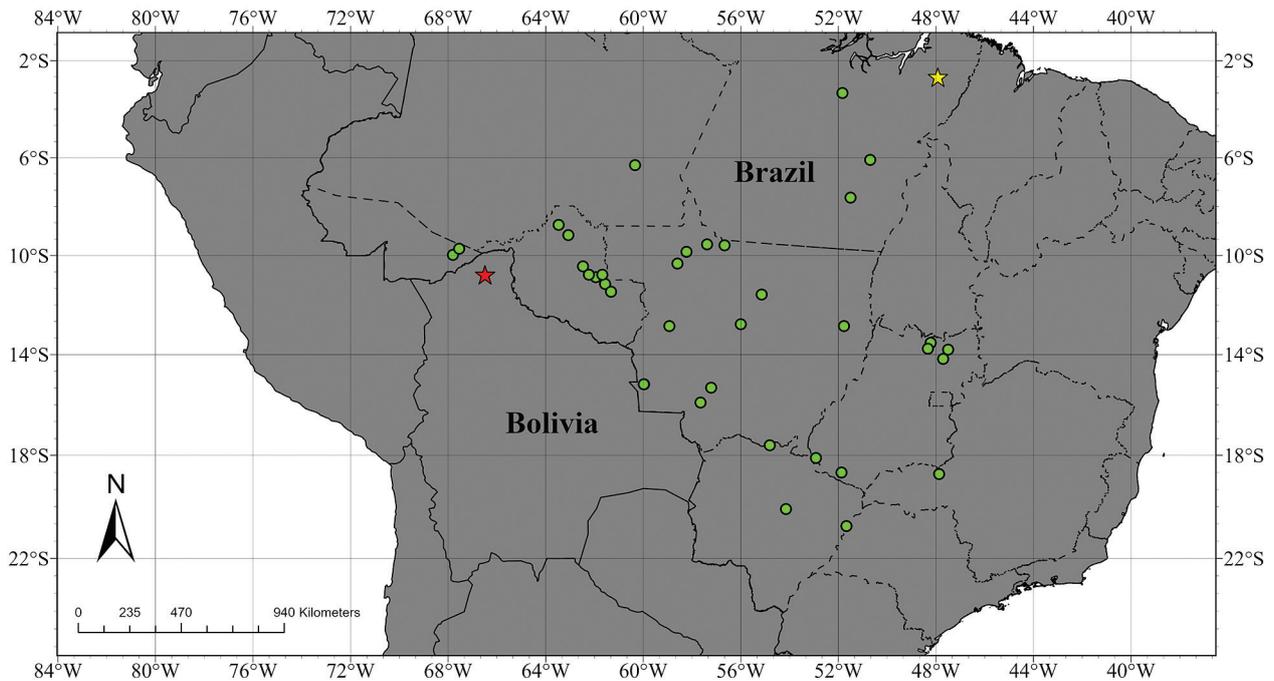


**Figure 1.** *Atractus albuquerquei*. **A.** CIRA-833 full body live photo. **B.** CIRA-833 head view. **C.** CIRA-834 full body live photo. **D.** CIRA-834 head view.

**Table 1.** Meristic and morphometric data for *Atractus albuquerquei* specimens collected from Pando, Bolivia and compared to previously published information. The abbreviations correspond to: Temporals = anterior + posterior, SVL (snout-vent length), CL (tail length), TL (total length), LSL/LSW ratio (loreal scale length/loreal scale width). Data for Zaher et al. (2005) incorporated data from 33 specimens and list measurement ranges.

Character	CIRA-833	CIRA-834	Cunha and Nascimento 1983	Zaher et al. 2005
Supralabials	6	6	6	6
Infralabials	6	6	6	6
Preoculars	Absent	Absent	Absent	Absent
Postoculars	2	2	2	2
LSL/LSW ratio	2	2	2	2
Temporals	1+2	1+2	1+2	1+2
Ventrals	175	172	172	170-200
Subcaudals	30	31	38	27-44
Dorsals	15-15-15	15-15-15	15-15-15	15-15-15
SVL	21.9 cm	15.8 cm	36.0 cm	—
CL	2.6 cm	2.1 cm	6.0 cm	1.9–7.5 cm
TL	24.5 cm	17.9 cm	42.0 cm	16.3–77.2 cm

six (2 and 3 contacting loreal, 3 and 4 contacting orbit), six infralabials. Loreal scale present, approximately twice as long as wide. Preocular absent, two postoculars, one anterior temporal, two posterior temporals. Specimen CIRA-834: dorsal scales smooth (15/15/15), cloacal scale undivided, subcaudals paired. Supralabials six (2 and 3 contacting loreal, 3 and 4 contacting orbit), 6



**Figure 2.** Map showing the distribution of *Atractus albuquerquei*. ● = records from previously published literature (see Nascimento et al. 2017; Nogueira et al. 2019); ★ = new records from Bolivia includes both specimens (CIRA-833 and CIRA-834); ★ = type locality (Paragominas, Pará, Brazil).

infralabials. Loreal scale present, approximately twice as long as wide. Preocular absent, two postoculars, one anterior temporal, two posterior temporals.

The dorsal coloration on both specimens was uniformly dark brown to black; however, there was a distinct difference in ventral scale coloration. Specimen CIRA-834 was uniformly cream color; however, specimen CIRA-833 displayed bright-yellow ventral scales. The coloration, pattern, and meristic data of the specimens are congruent with the descriptions by Cunha and Nascimento (1983) and Zaher et al. (2005) for *A. albuquerquei*.

## Discussion

These new records of *Atractus albuquerquei* represent the southwestern boundary of this species' known distribution (Fig. 2). This extends the range of *A. albuquerquei* 170 km southeast from the location of the nearest reported specimen in the state of Acre, Brazil, and is the first report of *A. albuquerquei* from Bolivia. It is likely that the species is distributed throughout northern Bolivia in the departments of Pando, Beni, the northern region of La Paz, and possibly neighboring Peru. Clearly, additional surveys are needed to delimit the geographic range and to help develop a greater understanding of the natural history of this species.

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## Authors' Contributions

RLP, CBE, DL, EAS, and GCV conducted fieldwork, collected specimens, participated in specimen processing, and data collection. RLP, AVC, and CBE led writing. RLP and CBE collected photo vouchers. RLP and AVC composed and edited the photo submissions. CBE designed the map. All authors reviewed the final paper before submission.

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