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Range extension of the Chocoan blunt-headed vine snake: *Imantodes chocoensis* (Serpentes: Dipsadidae) in northwestern Colombia

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The arboreal snake *Imantodes chocoensis* TORRES-CARVAJAL, YÁNEZ-MUÑOZ, QUIROLA, SMITH & ALMENDÁRIZ, 2012 is a typical species of lowland forested areas, occurring in trans-Andean South America, in the Chocó biogeographic region (TORRES-CARVAJAL et al. 2012, JARAMILLO-MARTINEZ et al. 2013, ROJAS-MORALES et al. 2013). Recently, this species was described from 4 km north of Durango (01°01'41.880" N, 78°35'42.000" W, 253 m a.s.l.), Provincia Esmeraldas, and from altitudes of 115 to 257 m in the provinces of Carchi and Esmeraldas in Ecuador (TORRES-CARVAJAL et al. 2012). Its geographical distribution presumably reaches Colombia, as can be deduced from the continuity of forest formations and due to the fact that its known distribution lies near the border area between Colombia and Ecuador (TORRES-CARVAJAL et al. 2012).

The first record of *I. chocoensis* in Colombia was based on two specimens from the municipality of Buenaventura, department of Valle del Cauca. The first one was collected in Quebrada El Caimancito (UV-C 7249, 03°28'24.85" N, 77°11'9.82" W, 75 m a.s.l.), and the second one is known only through photographic records (03°50'32.55" N, 77°11'54.60" W, 25 m a.s.l.) (JARAMILLO-MARTINEZ et al. 2013). These records extended the known distribution of *I. chocoensis* to 313 km to the northeast of the type locality, and its occurrence was recorded at low altitudes (25 to 75 m a.s.l.) (JARAMILLO-MARTINEZ et al. 2013). A third specimen was recorded by photography (IAVH-R 6005) from the San Cipriano-Escalerete Forestal Reserve, a primary forested area, also in the department of Valle del Cauca (03°50'3.83" N, 76°53'18" W, 40 m a.s.l.) (ROJAS-MORALES et al. 2013).

This paper presents three new records of *I. chocoensis* in Colombia. The first specimen is an adult male (ICN 434),

collected on 9 March 1960, by I. CABRERA, approximately 7 km from the Calima River, in the municipality of Darién, department of Valle del Cauca, 396 km from the type locality; the second specimen is an adult female (ICN 120), collected in October of 1947, in the municipality of Quibdó, department of Chocó, at an altitude of 54 m and 558 km from the type locality; and the third specimen (ICN 1830) is a juvenile male, collected on 1 February 1981, by J. M. RENJIFO, near the Amparradó River, in the municipality of Dabeiba, department of Antioquia, at an altitude of 80 m.

Our records increase the known geographic distribution of *I. chocoensis* by 47 km to the east and 349 km to the north of the third record in Colombia, 706 km from the type locality (Fig. 1). The main meristic and morphometric characters of the examined specimens (Table 1) concur with previously published data from other populations (TORRES-CARVAJAL et al. 2012, JARAMILLO-MARTINEZ et al. 2013). The presence of an umbilical scar in the immature specimen from Dabeiba (Fig. 2) suggests a probable recruitment period for the species, concurrent with the observed period of other *Imantodes* species (SOUSA et al. 2014).

The occurrence of *I. chocoensis* seems to be restricted to the trans-Andean portion of the Western Cordillera, probably extending to other rainforest formations from the department of Antioquia and Panama. The hotspot Chocó-Darién-Western Ecuador, together with Peru and Ecuador, encompasses the entire Colombian trans-Andean latitudinal gradient, reaching the eastern areas of Panama (MAST et al. 1999). The Colombian and Panamanian rainforests in the Chocó-Darién eco-region represent the most preserved portion of the hotspot, with virgin forests persisting mainly in the province of Darién and in the Darién National Park, an expansive and long lowland valley surrounded

Correspondence

Table 1. Main meristic and morphometric characters of populations of *Imantodes chocoensis* from Colombia and Ecuador. For UV-C 7249 (sex unknown), data are adopted from JARAMILLO-MARTINEZ et al. (2013); Colombian specimens are from ICN and UV-C; and for the Ecuadorian population, data are adopted from TORRES-CARVAJAL et al. (2012). Ventral and subcaudal counts (specimens ICN) follow DOWLING (1951). The mean and standard deviation are given below the minimum and maximum values.

Character	ICN 434 ♂	ICN 120 ♀	ICN 1830 ♂	UVC 7249	Colombian population (N = 4)	Ecuadorian population (N = 7)
Dorsal scale rows	17/17/17	17/17/17	17/17/17	17/17/17	17/17/17	17/17/17
Ventrals	242	249	245	238	238–249 243.50±4.65	232–251 243.14±5.84
Subcaudals	154	+ 86	157	158	154–158(3) 156.33±2.08	140–161(6) 151.83±7.41
Anals	1	1	1	1	1	1
Anterior temporals	1	1	2	1	1–2 1.25±0.50	1–2 1.43±0.51
Posterior temporals	2	2	2	2	2	2
Loreals	0	0	0	0	0	0
Preoculars	1	1	1	1	1	1
Postoculars	3	3	2	3	2–3 2.75±0.50	2–3 2.43±0.51
Supralabials	9	9	9	9	9	9
Infralabials	13	13	13	13	13	12–15 13.21±0.80
Genials	2	2	2	2	2	2
Head length/width	1.63	–	1.69	1.65	1.63–1.69 1.66±0.03	1.54–1.71 1.63±0.07
Tail length/total length	0.34	–	0.29	0.29	0.29–0.34(3) 0.31±0.03	0.29–0.32(6) 0.31±0.01
Maximum snout–vent length	567	581	295	353	581	744
Maximum total length	862	752	420	498	862	1075

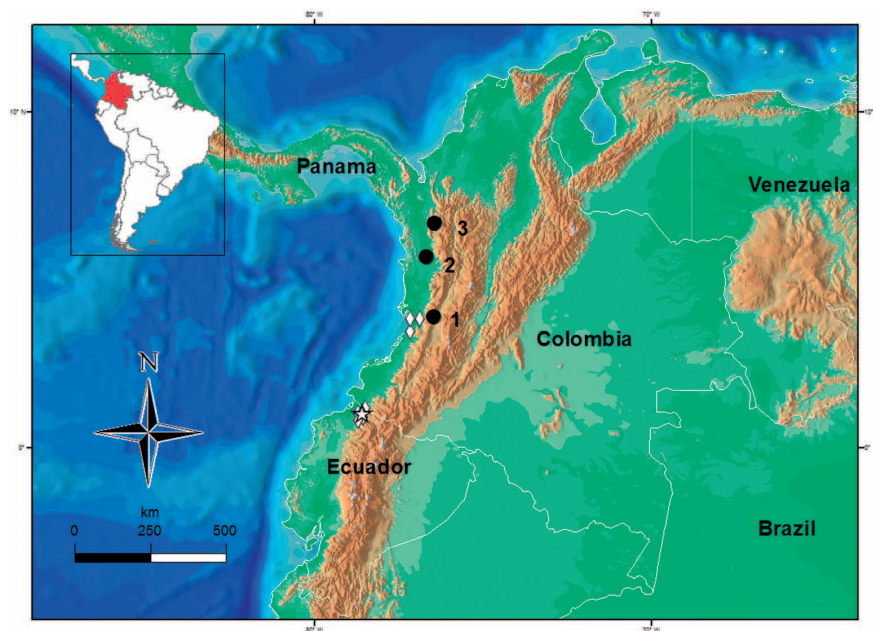


Figure 1. Geographical distribution of *Imantodes chocoensis* in Ecuador and Colombia. The white star represents the type locality (Esmeraldas Province, Ecuador) and white diamonds refer to previously published data (TORRES-CARVAJAL et al. 2012, JARAMILLO-MARTINEZ et al. 2013, ROJAS-MORALES et al. 2013). Black dots mark the new records, extending the known distribution to northwestern Colombia: 1 – Darién, department of Valle del Cauca; 2 – Quibdó, department of Chocó; 3 – Dabeiba, department of Antioquia.

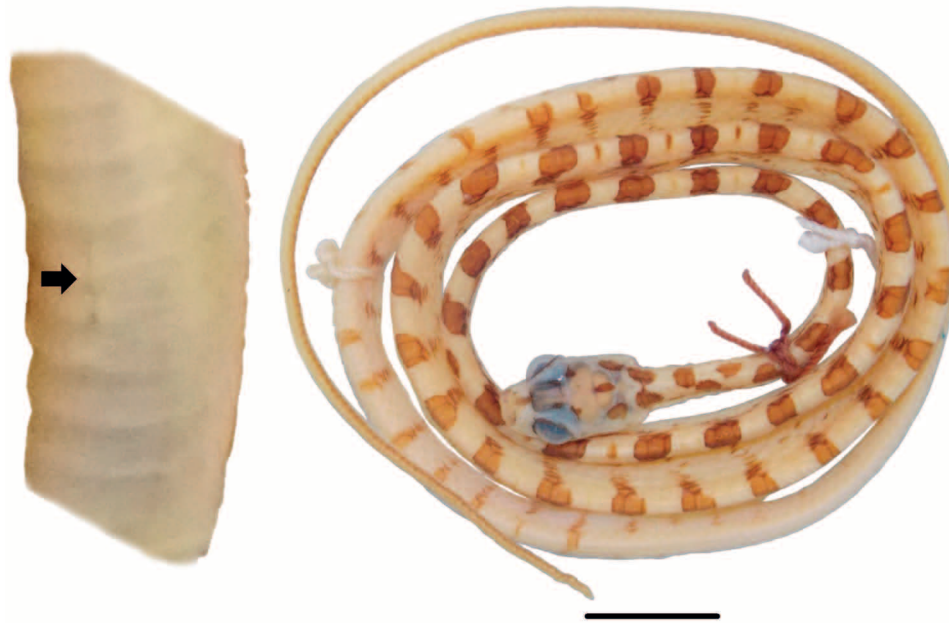


Figure 2. Juvenile specimen of *Imantodes chochoensis* (ICN 1830) from Dabeiba, department of Antioquia. The presence of an umbilical scar (black arrow) is a primary indicator of a probable recruitment period of the species. Scale bar = 10 mm.

by mountains in the border area with Colombia (MAST et al. 1999, PRIETO-C. et al. 2004, CALEY 2007).

The analysis of all *Imantodes* species from Colombia deposited in main herpetological collections (Instituto de Investigación de Recursos Biológicos Alexander von Humboldt – IAvH, Villa de Leyva, Boyacá; Museo de Herpetología de la Universidad de Antioquia – MHUA, Medellín, Antioquia; Museo de Historia Natural de La Salle – MLS, Bogotá, D.C.; Museo de Pontificia Universidad de Javeriana – MUJ, Bogotá, D.C.; and Museo de Historia Natural de Universidad Industrial de Santander – UIS, Bucaramanga, Santander – acronyms follow SABAJ PÉREZ 2013 and FROST 2014) have indicated that *I. chochoensis* is a poorly sampled species in this region. Including our records (Colección de Reptiles del Instituto de Ciencias Naturales, Universidad Nacional de Colombia – ICN, Bogotá, D.C, Colombia), a total of eleven specimens can be found preserved in herpetological collections in Ecuador (Museo de Zoología Pontificia Universidad Católica del Ecuador – QCAZ, Quito, Pichincha; División de Herpetología Museo Ecuatoriano de Ciencias Naturales – DHMECN, Quito, Pichincha), Colombia (Universidad del Valle, Departamento de Biología, Facultad de Ciencias – UV, Cali, Valle del Cauca), and U.S.A. (University of Texas at Arlington, Department of Biology – UTA-R, Texas) (Table 1). Both the descriptions and geographical distribution extensions of *I. chochoensis* were based on individuals that have been recently collected (TORRES-CARVAJAL et al. 2012, JARAMILLO-MARTINEZ et al. 2013), and they provide sources of information for deducing different aspects of the species' biology and microhabitat, which are still poorly known. New samplings might extend the known distribution of *I. chochoensis* to

lowland forest areas in Panama where tropical rainforests spreads widely to the northern Chocó in Colombia.

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