

First record of the Spotted Lancehead, *Bothrops punctatus* (García, 1896), from the Department of Caldas, Colombia

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The genus *Bothrops* Wagler, 1824, comprises 45 species, nine of which (*B. asper*, *B. atrox*, *B. ayerbei*, *B. bilineatus*, *B. brazili*, *B. pulchra*, *B. punctatus*, *B. taeniatus*, *B. venezuelensis*) occur in Colombia (Uetz et al., 2020). *Bothrops punctatus* (García, 1896) is easily distinguishable from its congeners in Colombia by presenting a pale-coloured, distally prehensile tail in adults (García, 1896; Campbell and Lamar, 2004; Fenwick et al., 2009), which seems to be related to its semi-arboreal existence (Campbell and Lamar, 2004). In addition, *B. punctatus* can be distinguished from *B. asper*, which is found in sympatry in some regions (e.g., Vargas-Salinas and Bolaños-Lizalda, 1999), by having rounded dorsal spots and an ornate pattern on the top of the head. *Bothrops punctatus* is distributed in the biogeographic provinces of Chocó-Darién, Magdalena, and Western Ecuador (*sensu* Morrone, 2014), from southeastern Panama (Darién Gap) through Colombia to northwestern Ecuador (Pérez-Santos and Moreno, 1988; Campbell and Lamar, 2004; Uetz et al., 2020). In Colombia, it is distributed along the Pacific Coast and in both the Cordillera Occidental and the Cordillera Central, in the departments of Antioquia, Cauca, Chocó, and Valle del Cauca, occurring in humid, very humid, and rainforests of tropical, pre-montane, and montane regions, and in pasturelands from elevations of 9–2300 m (Pérez-Santos and Moreno, 1988; Vargas-Salinas and Bolaños-Lizalda, 1999; Campbell and Lamar, 2004; Daza-Rojas et al., 2005; Arteaga et al., 2013; Ospina-Larrea, 2017; Fig. 1, Appendix 1).

During a herpetological survey in the Parque Nacional Natural Selva de Florencia (hereafter PNNSF), Samaná Municipality, Caldas Department, Colombia (Fig. 1), we recorded four juvenile *B. punctatus* on the bank of San Antonio Stream in Vereda San Lucas (5.4981°N, 75.0522°W, elevation 1216 m; datum WGS84). One individual (snout–vent length 299 mm; tail length 59 mm; Fig. 2A) was collected on the ground near the stream on 22 April 2018 at 15:56 h. The specimen was deposited in the reptile collection of the Museo de Historia Natural Universidad de Caldas (MHN-UCa) under accession number MHN-UCa 0327. The other three individuals were recorded on 23 April 2018 between 19:00 and 19:40 h along the same stream where the individual collected the previous night was observed. These individuals were observed on rocks (Fig. 2B) or fallen tree branches. The observations in the PNNSF constitute the first record of this species from Caldas Department, extending the species' geographic range in Colombia southwards along the eastern versant of the Cordillera Central in the Magdalena River Valley, specifically by ca. 60 km to the southwest of the nearest previous record in San Luis Municipality, Antioquia Department (6.0333°N, 74.9833°W; Daza-Rojas et al., 2005). In the PNNSF, *B. punctatus* is sympatric with *B. asper* and *Bothriechis schlegelii*.

Bothrops punctatus is mainly distributed in the Chocó-Darién biogeographic province (Campbell and Lamar, 2004; Daza-Rojas et al., 2005; Ospina-Larrea, 2017), and distributions spanning Chocó-Darién and Magdalena biogeographic province have also been observed in other reptile species, including *Diploglossus monotropis*, *Imantodes inornatus*, *Loxopholis southi*, and *Micrurus dumerilii* (Gutiérrez-Cárdenas and Arredondo-Salgar, 2007; Díaz-Ayala et al., 2015, 2018; Rojas-Morales et al., 2016). The geographic distribution pattern of *B. punctatus*, as well as that of the other species, shows a faunal affinity between these two regions, as discussed by Hernández-Camacho et al. (1992). Our record for *B. punctatus* extends further south than previously known in the mid-Magdalena River basin (Daza-Rojas et al.,

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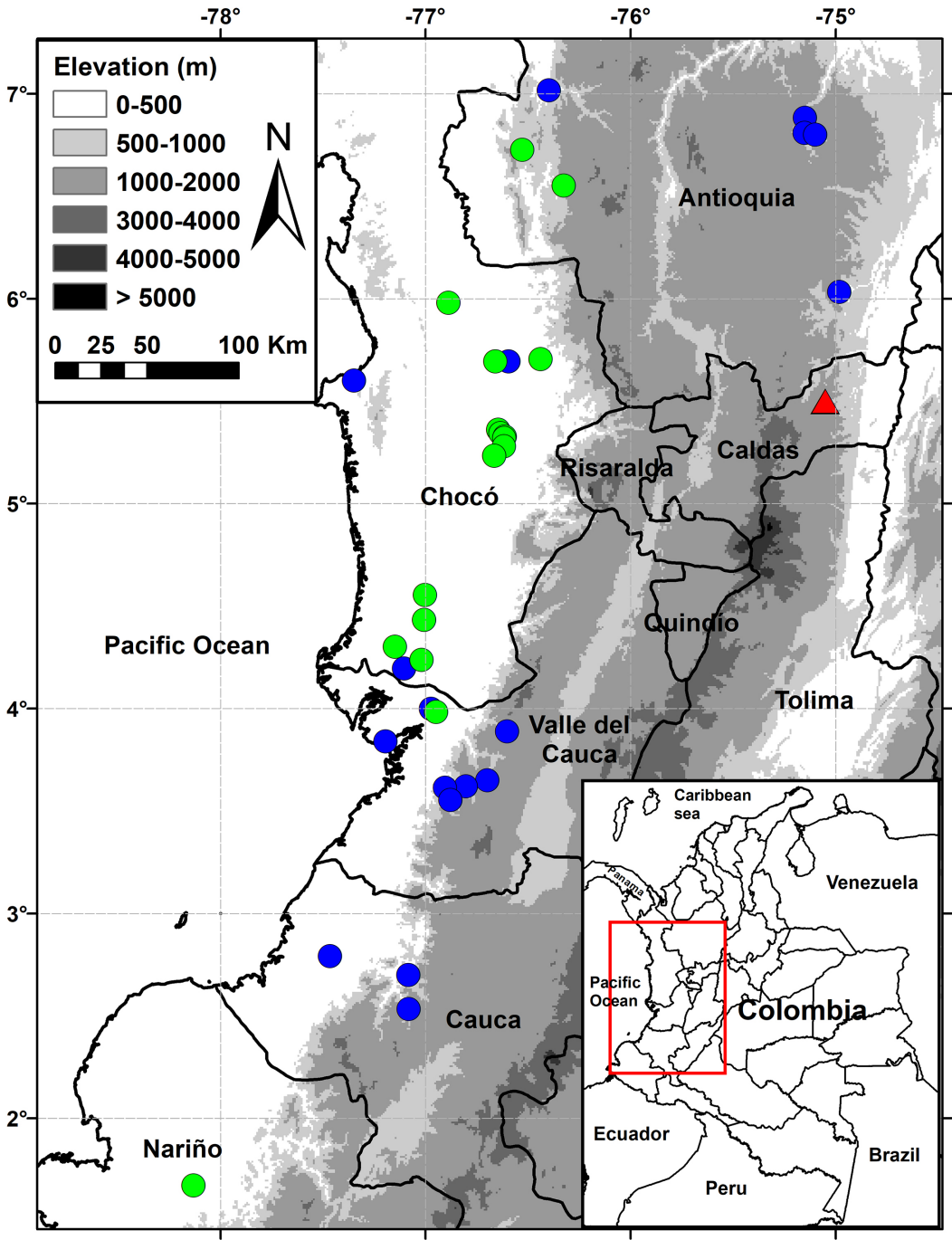


Figure 1. Geographic distribution of *Bothrops punctatus* in Colombia. Circles represent historical records based on the literature (blue) and museum specimens (green). The red triangle represents the new record (see Appendix 1).

2005; Ospina-Larrea, 2017), suggesting that this species has a continuous distribution throughout this region, but future sampling is required to determine this.

Finally, the record of several juvenile individuals at the same time could be an indicator of a recent breeding episode for *B. punctatus*, which may be correlated with

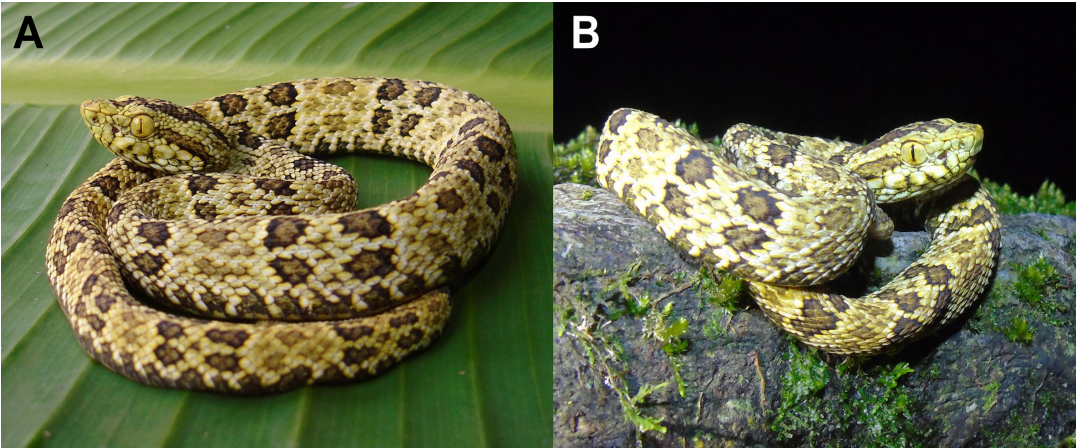


Figure 2. *Bothrops punctatus* from Parque Nacional Natural Selva de Florencia (Caldas, Colombia). (A) A juvenile individual (MHN-UCa 0327). (B) A second juvenile (not collected). Photos by Paul Gutiérrez-Cárdenas.

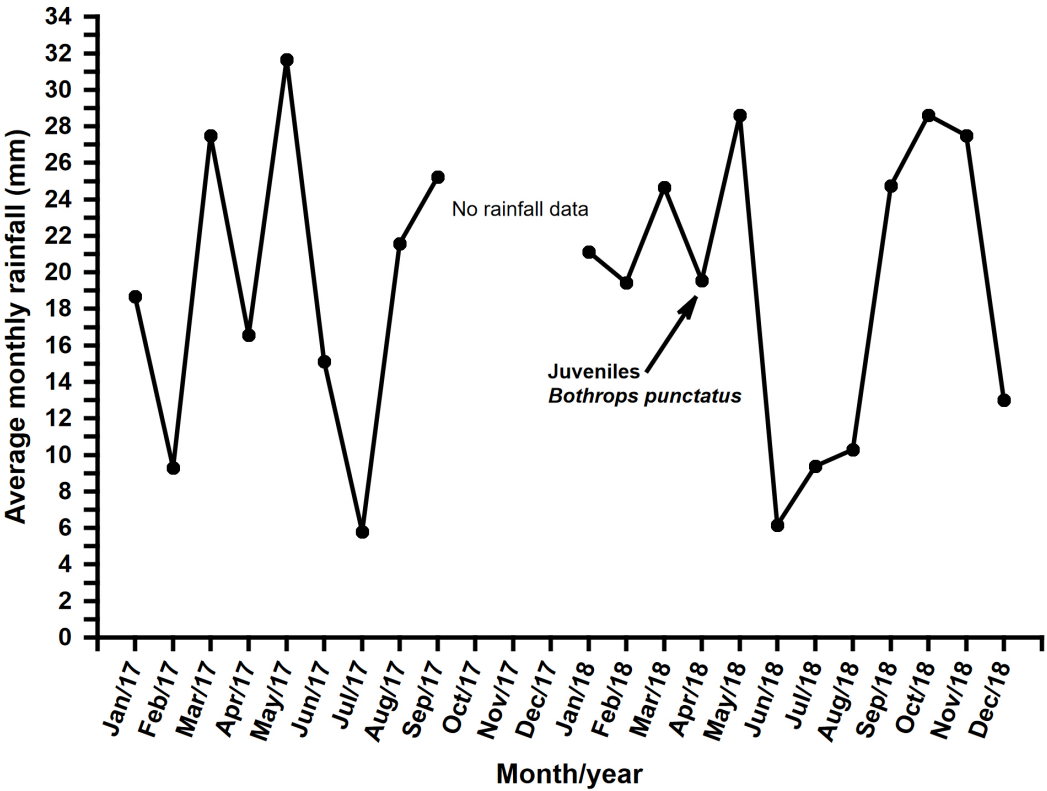


Figure 3. Monthly distribution of precipitation in the region of the Selva de Florencia National Natural Park (corregimiento of Florencia, Samaná Municipality, Caldas Department, Colombia). The arrow indicates the month during which the juveniles of *Bothrops punctatus* were observed. Source: ISAGEN Meteorological Station.

the rainy period in the study region between December 2017 and April 2018 (Fig. 3). Such a correlation has been suggested to occur generally in snakes of the genus *Bothrops* (Campbell and Lamar, 2004, Silva et al., 2019), and our observation add one more datum in support of this proposal.

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Appendix 1. Localities of *Bothrops punctatus* in Colombia with records based on online scientific collections and bibliographic references. Elevation data we retrieved from Google Earth are indicated by asterisks (*). Sources are identified using numbers as follows: 1 – Campbell and Lamar (2004); 2 – Daza-Rojas et al. (2005); 3 – Ospina-Larrea (2017); 4 – Sistema de Información sobre Biodiversidad de Colombia (SIB Colombia); 5 – this study. Acronyms of natural history collections follow Sabaj (2020), with the addition of the Serpentario Universidad de Antioquia, Medellín, Colombia (SUA).

Municipality	Latitude (°N)	Longitude (°W)	Elevation (m)	Voucher	Source
Antioquia Department					
Amalfi	6.8833	75.1500	1376*	SUA 552	2
Amalfi	6.8090	75.1515	1100	MHUA-R 14043	3, 4
Dabeiba	7.0167	76.4000	527*	image	1 (plate 620)
Frontino	6.7264	76.5292	991	IAvH-R 8603	4
Frontino	6.5519	76.3265	950	ICN 10512	4
San Luis	6.0333	74.9833	894*	SUA 2220	2
Yolombó	6.8000	75.1000	1000	MHUA-R 10041	3
Caldas Department					
Samaná	5.4981	75.0522	1216	MHN-UCa 0327	5
Cauca Department					
Buenos Aires	2.6987	77.0841	1066*	IAvH-R-5627	3, 4
El Tambo	2.5334	77.0833	451*	IAvH-R-6607	3, 4
Timbiquí	2.7911	77.4669	11*	image	1 (plate 623)
Chocó Department					
Litoral de San Juan	4.5539	77.0043	25	CAS 119594	4
Litoral de San Juan	4.4328	77.0083	9*	MLS 1689	4
Litoral del Bajo San Juan	4.301300	77.1503	88*	NRM 3140	4
Litoral del Bajo San Juan	4.237339	77.0206	33*	CAS 119921	4
Litoral del Bajo San Juan	4.1951	77.1054	24*		3
Medio Atrato	5.9800	76.8890	124	COLZOOCH-H 1171	4
Nuquí	5.6000	77.3500	10–14	MHUA-R 14527, 14536, 14537	3, 4
Quibdó	5.7047	76.4403	221	COLZOOCH-H 2138	4
Quibdó	5.6947	76.6611	27*	MLS 1690	4
Quibdó	5.6935	76.5957	79*		3
Unión Panamericana	5.3603	76.6458	132	COLZOOCH-H 1424, 1426, 1436, 1457	4
Unión Panamericana	5.3436	76.6352	132	COLZOOCH-H 1500	4
Unión Panamericana	5.3264	76.6150	90	COLZOOCH-H 2740–41, 2759	4
Unión Panamericana	5.3197	76.6178	135	COLZOOCH-H 2218	4
Unión Panamericana	5.2800	76.6186	116*	ICN 8050-8052	4
Unión Panamericana	5.2333	76.6667	53	COLZOOCH-H 0284	4
Nariño Department					
Barbacoas	1.6727	78.1327	78*	ICN 52371	4
Valle del Cauca Department					
Buenaventura	3.9982	76.9751	31*		3
Buenaventura	3.9833	76.9500	49*	UVC 7541, 7627	4
Buenaventura	3.8399	77.1967	12*	UVC 14833	3
Buenaventura	3.6203	76.8042	1158*		3
Buenaventura	3.6138	76.9066	243*		3
Calima	3.8883	76.6037	1140*	UVC 6678	3
Dagua	3.6500	76.7000	1207*		3
Dagua	3.5535	76.8790	616*		3