

SYNOPHIS LASALLEI (NICÉFORO-MARIA, 1950) (SQUAMATA: COLUBRIDAE): NEW RECORD AND FILLING A DISTRIBUTION GAP IN THE CORDILLERA ORIENTAL OF COLOMBIA

SYNOPHIS LASALLEI (NICÉFORO-MARIA, 1950) (SQUAMATA: COLUBRIDAE): NUEVO REGISTRO Y CIERRE DE UN VACÍO DE DISTRIBUCIÓN EN LA CORDILLERA ORIENTAL DE COLOMBIA

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Synophis Peracca, 1896 is a Neotropical genus of snakes distributed in the northern part of South America in Colombia, Ecuador, and Peru (Torres-Carvajal et al., 2015; Toro-Sánchez et al., 2019). In the last decade, five species were described,

increasing the diversity of *Synophis* from four to nine recognized species (Pyrón et al., 2015; Torres-Carvajal et al., 2015; Pyron et al., 2016). Besides the taxonomic revisions, the genus remains poorly studied due to the scarcity of records and that the species

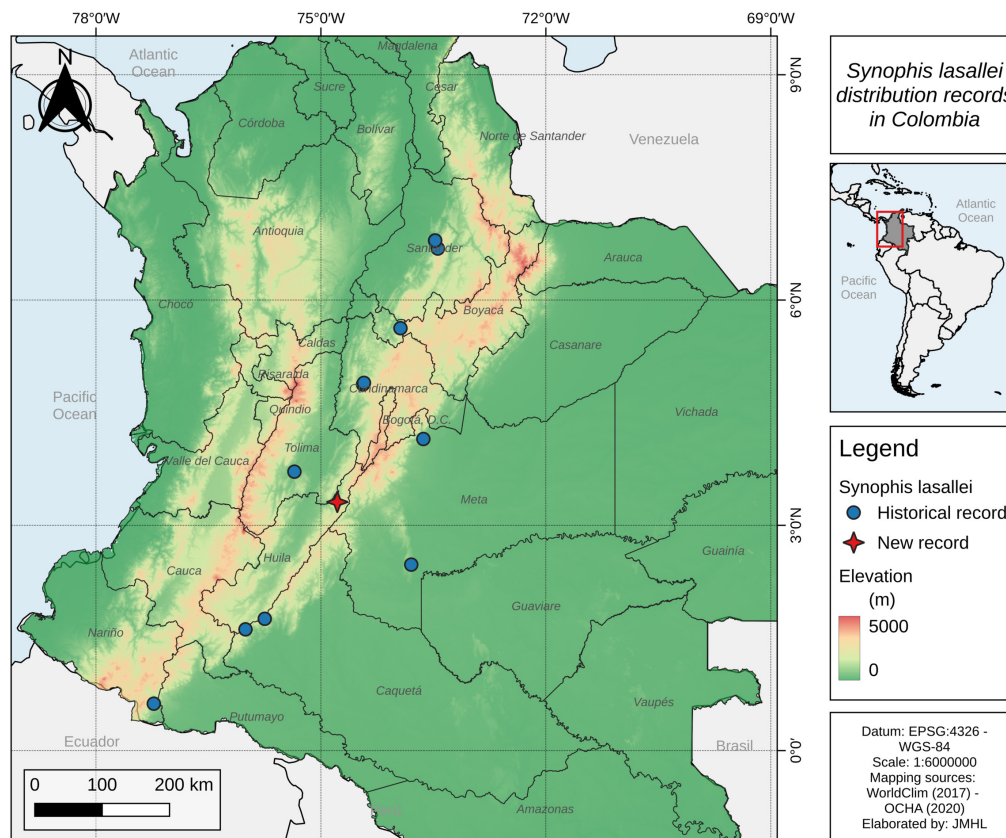


Figura 1. Distribución geográfica de *Synophis lasallei* en Colombia. Círculos azules representan los registros históricos de la especie; la estrella roja indica el registro reportado en el presente trabajo en el departamento del Huila.

Figure 1. Geographic distribution of *Synophis lasallei* in Colombia. Blue circles are the historical records of the species; red star indicates the record reported in the present work in the Huila department.

of *Synophis* are mostly rare and hard to find in nature (Sheil & Grant, 2001). In Colombia three species have been documented, including: *S. lasallei* (Níceforo-María, 1950), *S. niceforomariae* Pyron, Arteaga, Echevarría, & Torres-Carvajal, 2016, and *S. plectrovertebralis* Sheil & Grant, 2001.

Synophis lasallei is a small snake distributed in Colombia and Ecuador (Torres-Carvajal et al., 2015). It was described by Niceforo-María (1950) as *Diaphorolepis lasallei* based on a specimen (Museo La Salle - MLS-OFI: 357) collected in the municipality of Alban (4° 52' 35.7" N, 74° 26' 15.6" W; 2,200 m a.s.l.), Department of Cundinamarca in the Cordillera Oriental, Colombia. Subsequent additional records of *S. lasallei* in Colombia are from both slopes of the Cordillera Oriental (Table 1. Fig. 1). Recently, a new locality was provided for this species by Toro-Sánchez et al. (2019) in the

municipality of Chaparral, Department of Tolima, representing the first record of *S. lasallei* in the Cordillera Central.

To contribute to the distribution of this little studied species, The present work provides a new record from the Cordillera Oriental of Colombia that fills a geographic gap of the species distribution along the Andes. Besides, this work consolidates and corrects the localities available in previous works (i. e., Sánchez & Fonseca 2021) and the Global Biodiversity Information Facility – GBIF (Gbif.org) using Google Earth Pro (Table 1). Only were used the records for Colombia. For the records extracted from GBIF, the identity of the species was corroborated (when possible) by the staff of the respective collections where the specimens are deposited (i.e., Colección de Reptiles of the Instituto Alexander von Humboldt – IAvH; Table 1).

Tabla 1. Registros de *Synophis lasallei* en Colombia. Información extraída de literatura especializada y Gbif.org. IAvH-R: Colección de Reptiles of the Instituto Alexander von Humboldt; ICN: Instituto de Ciencias Naturales of the Universidad Nacional de Colombia; MLS-OFI: Colección de Ofidios of the Museo La Salle; FMNH: Field Museum of Natural History; UIS-MHN-R: Colección de Reptiles of the Museo de Historia Natural de la Universidad Industrial de Santander. MHN-Uca-R: Colección de Reptiles of the Museo de Historia Natural de la Universidad de Caldas; CZUT-R: Reptiles of la Colección Zoológica de la Universidad del Tolima. (*): Coordenadas extraídas de Google Earth Pro usando la localidad provista por los autores. (**): registros de GBIF con la identidad de la especie corroborada. (***): registros de GBIF con la identidad de la especie pendiente de corroboración.

Table 1. Records of *Synophis lasallei* in Colombia. Data extracted from Gbif.org and specialized literature. IAvH-R: Colección de Reptiles of the Instituto Alexander von Humboldt; ICN: Instituto de Ciencias Naturales of the Universidad Nacional de Colombia; MLS-OFI: Colección de Ofidios of the Museo La Salle; FMNH: Field Museum of Natural History; UIS-MHN-R: Colección de Reptiles of the Museo de Historia Natural de la Universidad Industrial de Santander. MHN-Uca-R: Colección de Reptiles of the Museo de Historia Natural de la Universidad de Caldas; CZUT-R: Reptiles of the Colección Zoológica of the Universidad del Tolima. (*): Coordinates extracted from Google Earth Pro using the locality provide by the authors. (**): records from GBIF with the identity of the species corroborated. (***): records from GBIF with the identity of the species pending for corroboration..

Record	Localities	Latitude	Longitude	Elevation (m a.s.l.)	Voucher	Source
1	Boyacá, Pauna, Vereda Manote alto, Finca Villanueva	5.625333	-73.93842	2132	IAvH-R-9237	GBIF**
2	Caquetá, Florencia, Vereda la Portada	1.755278	-75.74889	2022	ICN-10663	GBIF***
3	Cundinamarca, Alban	4.876608	-74.43768	2245	MLS-OFI-357	Niceforo-Maria, 1950
4	Cundinamarca, Alban, Granjas del Padre Luna	4.897781	-74.42555	2011	ICN-59688	GBIF***
5	Huila, Municipality of Colombia, PNR Páramo de Miraflores, Vereda El Dorado	3.3115	-74.78103	1881	MHN-Uca-R-843	This work
6	Huila, Acevedo, San Adolfo, PNN Cueva de los Guacharos	1.614744	-76.00558	1821	-	Gómez-Sánchez & Fonseca, 2021*
7	Meta, Villavicencio	4.15	-73.63333	539	WWL-977-978	Pyron et al., 2015
8	Meta, Pico Renjifo, PNN Serranía de la Macarena	2.476901	-73.79485	520	FMNH-81313	Pyron et al., 2015
9	Nariño, Ipiales, Jardines de Sucumbios	0.625	-77.22861	1270	IAvH-R-4888	GBIF**
10	Tolima, Chaparral, Vereda la Virginia	3.714722	-75.35333	1437	CZUT-R-0450	Toro-Sánchez et al., 2019
11	Santander, El Carmen de Chucurí, Finca Buenos Aires	6.686408	-73.44039	1743	UIS-MHN-R-3803	GBIF***
12	Santander, San Vicente de Chucurí, Vereda La Colorada	6.79435	-73.47676	1298	UIS-MHN-R-3147	GBIF***
13	Santander, San Vicente de Chucurí, Vereda La Colorada	6.791888	-73.47742	1285	UIS-MHN-R-2689	GBIF***
14	Santander, San Vicente de Chucurí, Vereda La Colorada	6.79326	-73.47537	1239	UIS-MHN-R-4417	GBIF***



Figure 2. *Synophis lasallei*. MHN-UCa-R-843.

Figura 2. *Synophis lasallei*. MHN-UCa-R-843.

During a herpetological survey conducted on 11 December 2021 at the buffer zone of the Parque Natural Regional Páramo de las Oseras the Vereda El Dorado in the municipality of Colombia, Department of Huila, Colombia (03° 18' 41.4" N, 74° 46' 51.7" O, 1,881 m a.s.l.; Fig. 1; Table 1), an adult individual of *Synophis lasallei* was found at 10:56 h inside a rotting log in a pasture area approximately five meters from a fragment of secondary forest. The individual was euthanized in the camp with 2% lidocaine and fixed with 10% formalin, re-hydrated in water, and preserved in 70% ethanol at the Colección de Reptiles, Museo de Historia Natural, Universidad de Caldas (MHN-UCa-R: 843). Tissues from heart and muscle were extracted before the euthanized process and preserved in 96% ethanol for further analysis (MHN-UCa-T: 487).

The identity of the species was corroborated using the original description (Niceforo-María, 1950), taxonomic keys (i.e., Peters & Orejas 1986), and comparisons with previous records available in the literature (e.g., Pyron et al., 2016; Table 2). For this, the specimen was measured (Snout-Vent-Length and Tail-Length), and the scales were counted. The collections were done in the framework of the project “Proyecto de Transición Andino-Amazónica”, working with the local monitoring group “Guardianes del Ambiká” developed by Conservación Internacional Colombia.

Identification. The *S. lasallei* specimen (MHN-UCa-R 843) exhibited the following traits: SVL: 212 mm; TL: 111 mm; Fig. 2). The body is slender, and the head is well differentiated from the neck; the dorsal scales are strongly keeled (Fig. 2); there is dorsal scale rows reduction from 21 at the middle of body to 19 at the vent part. The number of scales is: 157 ventral, 119 subcaudals, eight supralabials, 10 infralabials, one post-ocular on each side (which might be a variation for this species; Table 2); and the internasal scales are in contact. The color in life of this individual is dark blue in the dorsum and translucent white with few greyish marks in the venter, the subcaudal scales are dark blue with white margins. The lips are as white as the venter.

Thus, this specimens presents the characters belonging to *S. lasallei* and differ from the other two species of the genus inhabit Colombia by the presence of 21 dorsal scale rows at the middle of body (19 dorsal scale rows in *S. niceforomariae* and *S. plectovertebralis*; Table 2) and although there is a variation in *S. lasallei*, in which this character ranges from 19 to 21, the specimen found in the present work has 21 and none of the other two species reach that amount of dorsal scale rows; 19 dorsal scale rows at the vent (17 in *S. niceforomariae* and *S. plectovertebralis* Table 2). Finally, another differences present by these three species is their distribution, *S. lasallei* is distributed along both slopes of the Cordillera Oriental

Tabla 2. Caracteres morfológicos de las tres especies de *Synophis* que habitan en Colombia. Los estados de carácter para *S. lasallei* y *S. plectovertebralis* fueron tomados de Pyron et al., 2015 y para *S. niceforomariae* se tomaron de Pyron et al., 2016.

Table 1. Morphological characters of the three *Synophis* species that inhabit Colombia. Characters states for *S. lasallei* and *S. plectovertebralis* were taken from Pyron et al., 2015 and for *S. niceforomariae* from Pyron et al., 2016.

Characters	<i>S. niceforomariae</i>	<i>S. plectovertebralis</i>	<i>S. lasallei</i> literature	<i>S. lasallei</i> from this work
Infralabial scales	10-12	7-8	10-11	10
Supralabial scales	8	7-8	7-9	8
Post-ocular scales	2	1	1-2	1
Ventral scales	184-193	144-147	144-165	157
Subcaudal scales	127-131	79-91	86-126	119
Dorsal scales at neck	19	19	19-23	21
Dorsal scales at middle body	19	19	19-22	21
Dorsal scales at vent	17	17	17-21	19
Snout vent length	407	196-212	153-415	212
Tail length	210	76.5-100	86-201	111

and in the eastern slope of the Cordillera Central, while *S. plectovertebralis* is only known in the department of Valle del Cauca in the Cordillera Occidental and *S. niceforomariae* is distributed only in the Cordillera Central.

A total of 14 records of *S. lasallei* from Colombia were found (Table 1). The distance between this record and the closest records along the Cordillera Oriental is of 233 km to the south (Department of Huila, Parque Nacional Natural Cueva de Los Guacharos; Gómez-Sánchez & Fonseca, 2021), and 177 km to the north (Department of Cundinamarca, Albán, MLS-OFI-357; Niceforo-María, 1950). The record provided here fills a gap of 401 km in the distribution of *S. lasallei* along the western slope of the Cordillera Oriental (Fig 1). Thus, despite the few records of *S. lasallei*, this species might be present along the entire extension of the Cordillera Oriental in Colombia. Moreover, the presence of this species in the Cordillera Central recorded by Toro-Sánchez et al., (2019), suggest that the distribution of *S. lasallei* could be larger in the Andes, however, due to the cryptic habits of this species more records are needed to prove it.

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