

***Leptophis santamartensis* (Serpentes, Colubridae), a Junior Synonym of *Leptophis ahaetulla occidentalis***

Author(s): Nelson R. de Albuquerque, Paulo Passos, and Steve W. Gotte

Source: *Journal of Herpetology*, 46(2):248-252. 2012.

Published By: The Society for the Study of Amphibians and Reptiles

DOI: <http://dx.doi.org/10.1670/10-263>

URL: <http://www.bioone.org/doi/full/10.1670/10-263>

---

BioOne ([www.bioone.org](http://www.bioone.org)) is a nonprofit, online aggregation of core research in the biological, ecological, and environmental sciences. BioOne provides a sustainable online platform for over 170 journals and books published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Web site, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/page/terms\\_of\\_use](http://www.bioone.org/page/terms_of_use).

Usage of BioOne content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

## *Leptophis santamartensis* (Serpentes, Colubridae), a Junior Synonym of *Leptophis ahaetulla occidentalis*

NELSON R. DE ALBUQUERQUE,<sup>1,2</sup> PAULO PASSOS,<sup>3</sup> AND STEVE W. GOTTE<sup>4</sup>

<sup>1</sup>Universidade Federal de Mato Grosso do Sul, Campus do Pantanal, Laboratório de Zoologia, Avenida Rio Branco 1270, Universitário, Corumbá, Mato Grosso do Sul 79304-902, Brazil

<sup>3</sup>Universidade Federal do Rio de Janeiro, Museu Nacional, Departamento de Vertebrados, Quinta da Boa Vista, São Cristóvão, Rio de Janeiro, RJ 20940-040, Brazil

<sup>4</sup>U.S. Geological Survey, Patuxent Wildlife Research Center, Biological Survey Unit, National Museum of Natural History, Museum Support Center, MRC 534, 4210 Silver Hill Road, Suitland, Maryland 20746 USA

**ABSTRACT.**—*Leptophis santamartensis*, known only from Sierra Nevada de Santa Marta, Colombia, is one of the more poorly known species of the genus *Leptophis*. The characters used for its diagnosis largely overlap with those of other *Leptophis*, mainly with *Leptophis ahaetulla occidentalis*, the only other *Leptophis* known to occur in the Sierra Nevada de Santa Marta. A detailed comparison of *L. a. occidentalis* with the two known specimens of *L. santamartensis* leads to the conclusion that the latter should be relegated to the synonymy of the former.

The Sierra Nevada de Santa Marta (SNSM), declared as a Biosphere Reserve by UNESCO, is an isolated mountain of about 17,000 km<sup>2</sup> on the Caribbean coast of northern Colombia. The SNSM, reaching an elevation of 5,700 m, are the world's highest coastal peaks (Maldonado, 1996). They extend through the Departments of Magdalena, Cesar, and La Guajira.

Because of its elevational variation as well as its location at 11° north latitude, the SNSM contains samples of almost all climatic zones found in tropical America. The SNSM was a Pleistocene refuge for hundreds of species, many of which evolved in isolation (e.g., Bartels, 1984; Carbonó and Lozano-C, 1997). This fact accounts for the high diversity and endemism of species found in the area (e.g., Lynch, 1998; Strattersfield et al., 1998; Lynch, 1999), including 100% endemism of amphibians and reptiles above the 3,000 m (Maldonado, 1996 and references therein).

Among squamates, endemic species and subspecies known to occur on this mountain include *Anolis santamartae*, *Atractus sanctaemartae*, *Proctoporus specularis*, *Pseudogonatodes furvus*, and *Ptychoglossus romaleos* (Ruthven, 1922; Dunn, 1946; Williams, 1982; Harris, 1994). Endemic amphibians include various species of *Pristimantis*, especially at higher elevations (e.g., *Pristimantis cristinae*, *Pristimantis ruthveni*, *Pristimantis tayrona*, *Pristimantis sanctaemartae*, and a species of the only endemic genus of the SNSM, *Geobatrachus walkeri* (Hernández et al., 1992).

Despite the relatively high diversity of amphibians and reptiles, the herpetofauna of SNSM is still poorly known taxonomically. Several recent articles (e.g., Bernal-Carlo, 1994; Bernal-Carlo and Roze, 1994; Lynch, 1999), and pioneering works by Ruthven (1914, 1916a,b, 1917, 1922), Amaral (1928), and Dunn (1944) provide substantial information on the distribution, variation, and description of many species in the area. However, several nomenclatural changes have been proposed in recent studies (e.g., Harding, 1991; Murphy, 1997; Dixon, 2000; Hedges et al., 2008; Passos et al., 2008).

Among the reptiles of SNSM, *Leptophis santamartensis* (Fig. 1A–B) is a poorly known snake of the genus *Leptophis*. It was described by Bernal-Carlo and Roze (1994) on the basis of two specimens from Ciudad Perdida, Departamento de Magdalena, Colombia (Fig. 2). *Leptophis ahaetulla occidentalis*, the only other

species of *Leptophis* known to occur in the SNSM, was recorded from the banana belt of Santa Ana and Aracataca and Bonda by Griffin (1916:185), Ruthven (1922:66), and Amaral (1928:7).

As part of an ongoing revision of the genus *Leptophis* (Albuquerque, 2008, 2009; Albuquerque and McDiarmid, 2010), we assess the taxonomic status of *L. santamartensis* by analysis of external morphology and color pattern of its type specimens in comparison to four other taxa of *Leptophis*.

### MATERIALS AND METHODS

We examined specimens housed in the following institutions: Brazil—Coleção Herpetológica da Universidade de Brasília (CHUNB), Brasília, D.F.; Museu de Zoologia da Universidade Federal de Viçosa (MZUFV), Viçosa. Colombia—Instituto Alexander Von Humboldt (IAvH, formerly IND-R), Villa de Leyva. United Kingdom—The Natural History Museum (BMNH), London. United States—American Museum of Natural History (AMNH), New York; Academy of Natural Sciences of Philadelphia (ANSP), Philadelphia; California Academy of Science (CAS), San Francisco; Carnegie Museum (CM), Pittsburgh; Field Museum of Natural History (FMNH), Chicago; University of Kansas, Museum of Natural History (KU), Lawrence; Museum of Comparative Zoology (MCZ), Harvard, Boston; Texas Cooperative Wildlife Collection, College Station (TCWC); Museum of Zoology of University of Michigan (UMMZ), Ann Arbor; National Museum of Natural History (USNM), Washington, DC; University of Texas at Arlington (UTA), Arlington. Venezuela—Museo de Historia Natural La Salle (MNHLS), Caracas. Specimens examined are listed in Appendix 1. In addition, we compared the diagnostic characters of the type specimens of *L. santamartensis* (our data are within parentheses if different from that presented in the original description) with those of *L. ahaetulla ahaetulla*, *Leptophis ahaetulla coeruleodorsus*, *Leptophis ahaetulla liocercus*, and *L. a. occidentalis* and data from the literature (e.g., Oliver, 1948; Albuquerque, 2008, 2009). Ventral scales were counted according to Dowling (1951).

### RESULTS AND DISCUSSION

Since its original description, *L. santamartensis* has been mentioned only a few times on Web sites (e.g., Uetz et al., 2012). According to Bernal-Carlo and Roze (1994), *Leptophis santamartensis* differs from other species of *Leptophis* “in having

<sup>2</sup>Corresponding Author. E-mail: nelson\_rufino@hotmail.com  
DOI: 10.1670/10-263

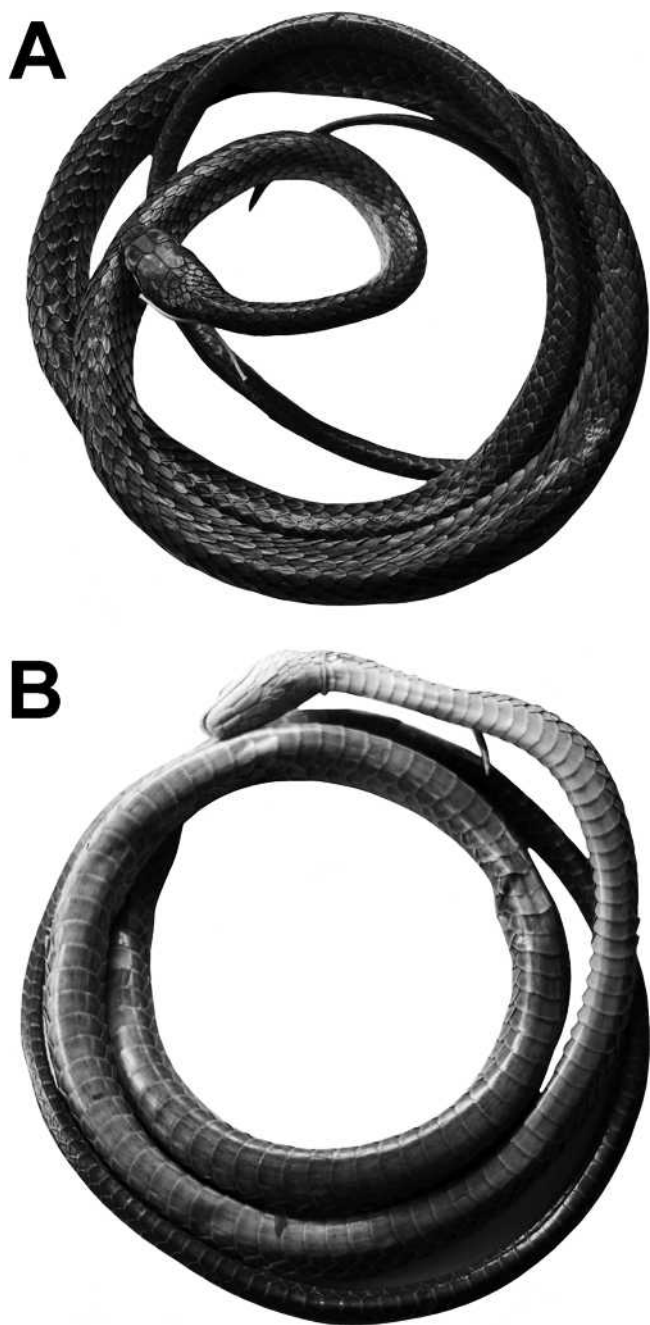


FIG. 1. (A), (B): Dorsal and ventral views of the holotype of *Leptophis santamartensis* (IAvH 3241), from Ciudad Perdida, Departamento de Magdalena, Colombia.

an uniformly gray [green] coloration above, with a light lateral stripe on second and third dorsal that reaches to the anus, and a postorbital black stripe that begins on the second supralabial and covers 10 to 12 dorsals." In addition, these authors used the number of ventral scales to distinguish *L. santamartensis* from *L. a. occidentalis*, stating that the former has a lower number of ventrals (males with about 152 and females with about 157 vs. males with 163–177 and females with 166–181 ventrals in *L. a. occidentalis*).

From a taxonomic point of view, the extensive variation in color pattern and scutellation variation within and among the widely distributed snakes of the genus *Leptophis* (Oliver, 1948; Mertens, 1973) had not been fully documented when Bernal-

Carlo and Roze (1994) described *L. santamartensis*. Many specimens of *Leptophis* lose their natural color upon preservation and become gray to light gray (e.g., *L. a. ahaetulla*, *Leptophis ahaetulla marginatus*, *Leptophis riveti*; see Oliver, 1948). Otherwise, the dorsal coloration uniformly green in life, which is thought by Bernal-Carlo and Roze (1994) to be characteristic of living specimens of *L. santamartensis*, can be also noted in living *L. a. occidentalis* (see Savage, 2002:plate 430).

The "light lateral stripe on second and third dorsal that reaches to the anus" appears also to be typical of subadults of *L. a. occidentalis* (Oliver, 1948). According to Bernal-Carlo and Roze (1994) the holotype of *L. santamartensis* is an adult male with 152 (1 + 153) ventrals and a total length of 764 mm whereas the paratype is an adult female with 157 (2 + 158) ventrals and a total length of 630 mm (625 mm). According to Oliver (1948:243), subadult *L. a. occidentalis* have the two lower rows of dorsal scales on either side of the body (i.e., Bernal-Carlo and Roze's "light lateral stripe on second and third dorsal that reaches to the anus") lighter in color than the remainder of the dorsal surface. Three specimens of *L. a. occidentalis* (CAS 78919, UMMZ 155718, UMMZ 152914) examined by the senior author present this condition, though the longest of these specimens reaches no more than 822 mm in total length. Although Oliver's (1948) statement should be interpreted with caution given the lack of a study on ontogenetic variation in the color pattern of *L. a. occidentalis*, we assume that the type specimens of *L. santamartensis* are subadults.

Concerning the length of the postorbital black stripe (10–12 dorsal scales), long postorbital stripes are found in other *Leptophis*. For example, in CHUNB 24750 (*L. a. ahaetulla*) the postocular stripes extend across 10 scales posterior to the last supralabial on each side, in AMNH 9022 (*L. a. coeruleodorsus*) the postocular stripes extend across eight/seven scales posterior to the last supralabial on right/left sides, respectively, in TCWC 46262 (*L. a. coeruleodorsus*) the postocular stripes extend across six scales posterior to the last supralabial on each side, and in MZUFV 913 and CHUNB 6640 (*L. a. liocercus*) the postocular stripes extend across 10–12 scales posterior to the last supralabial, respectively. Despite the absence of long postocular stripes in *L. a. occidentalis* until the present study, this character is of little taxonomic value because it appears to be unstable within the genus *Leptophis* (Oliver, 1948; Albuquerque, 2008; this study). Thus, the long postorbital stripe does not diagnose *L. santamartensis*. Finally, the lower number of ventral scales, which was used to distinguish *L. santamartensis* from *L. a. occidentalis* (152–157 vs. 163–181), can be an artifact of the low number of specimens used to describe *L. santamartensis*. One of us (NA) examined a total of 37 *L. a. occidentalis* from Venezuela, Colombia, and Ecuador, including four specimens collected in SNSM, the number of ventrals of which ranged from 147–174 in males and 153–180 in females (see Appendix 1). Moreover, one of the syntypes of *Ahaetulla occidentalis* (= *L. a. occidentalis*) (BMNH 1946.1.6.62) is a male with only 151 ventrals.

According to Bernal-Carlo and Roze (1994), *L. santamartensis* occurs in cloud forests on the northern slopes of the Santa Marta Mountains at 1,100 m, whereas in SNSM *L. a. occidentalis* has been reported only from the northwestern xerophytic dry lowlands. Those different types of habitats might act as potential geographic barriers between these species; however, the statements of Bernal-Carlo and Roze (1994) statements were based on Griffin (1916), Ruthven (1922), and Amaral (1928), and some of the localities mentioned by these three authors deserve some comments.

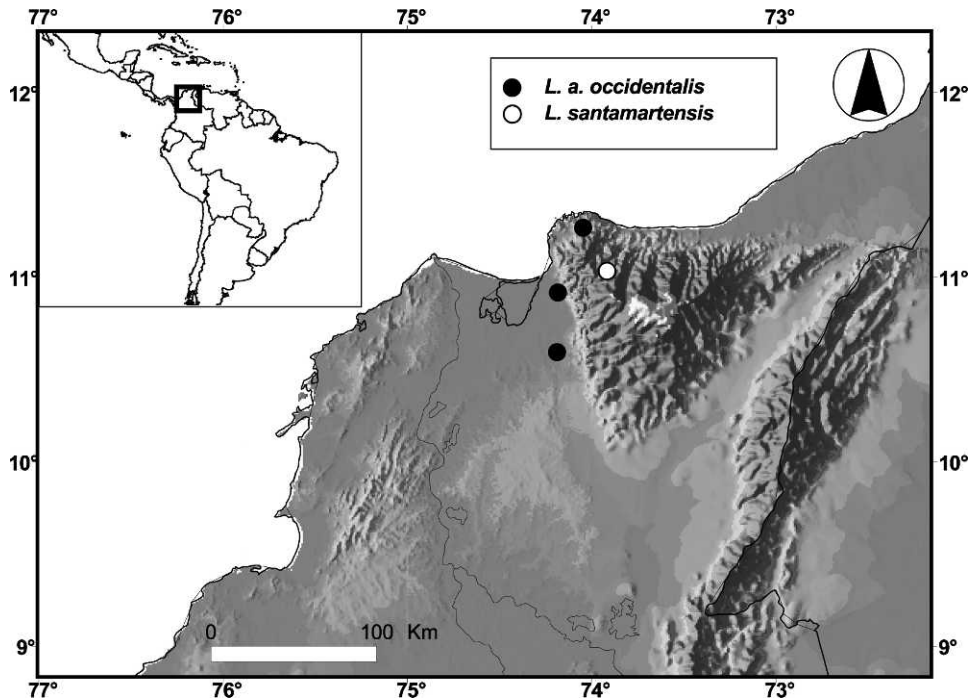


FIG. 2. Geographical distribution of *Leptophis ahaetulla occidentalis* in SNSM. Closed circles: data from Griffin (1916), Ruthven (1922), and this study; open circle: type locality of *Leptophis santamartensis*.

Three of the five specimens of *L. a. occidentalis* reported by Griffin (1916) were collected in Bonda, Magdalena Department, by Herbert H. Smith and collaborators. However, as mentioned subsequently by Ruthven (1922:15):

The late Mr. H. H. Smith arrived in Santa Marta in May, 1898, with his wife, and other assistants. They made their first headquarters at Bonda, where they remained for a considerable period, working the surrounding country for long distances. Mr. Smith himself did no collecting of birds or mammals, and probably secured but few reptiles and amphibians, confining his efforts to botanical and entomological work, in which he was, I understand, most proficient. All vertebrates collected were taken by native hunters employed by him, so that as a consequence we have a vast collection of skins labeled "Bonda" which in many instances came from places far removed from that village, both in actual distance and especially in altitude. Bonda lies in the valley of the Rio Manzanares, at about 200 feet above sea level, but near the foothills of the Horqueta Mountain, so that a collector starting out from Bonda might easily reach an altitude of 3,000 feet or more in a day's shooting. For this reason it is impossible to use much of Mr. Smith's data for plotting altitudinal distribution of species.

One of us (NA) examined two of these three specimens (CM 141, CM 1095). In fact, both are identified as *L. a. occidentalis*, but if the Ruthven's statements are true we cannot be sure that these specimens were collected in Bonda. In addition, Griffin (1916) reported one specimen (CM 2011) from Cacagualito (Magdalena Department) as *L. bocourti*. According to Ruthven (1922:30), Cacagualito was a small farm, abandoned at the time of his article, situated on the trail between Bonda and the north coast, where H. H. Smith collected. Griffin (1916:164) listed the elevations for each locality visited by H. H. Smith, including Cacagualito, situated at 1,500 feet (~457.2 m) above sea level.

Otherwise, according to the Global Gazetteer, this farm is located at an elevation of 615 m. We reidentified this specimen as *L. a. occidentalis*.

Ruthven (1922:66) reported one specimen of *L. a. occidentalis* from Aracataca. However, he did not indicate the museum number of specimens on which he based his records but simply wrote that it was based on specimens deposited in the ANSP, MCZ, and UMMZ collections. Fortunately, Ruthven (1922) associated the collector names with some of the specimens listed, which allowed us to discover the catalog numbers and respective collections. The Aracataca specimen (ANSP 19784) was examined by the senior author. It is a male with 173 ventral scales, collected by J. A. Rehn and M. Hebard in 1920.

The specimen of *L. a. occidentalis* reported by Amaral (1928) came from the "banana belt of Santa Ana and Aracataca." Amaral's article (1928) was based on three shipments of SNSM snakes, which were sent directly to him for identification, but there is no specimen of *L. a. occidentalis* from that locality entered in the electronic databases of MCZ—the depository for SNSM specimens examined by Amaral (1928). Instead, three heads-only specimens from the banana belt of Rio Frio region (MCZ 25046, MCZ 177402, and MCZ 177403) are identified as *L. a. occidentalis*.

The habitat differences between *L. santamartensis* and *L. a. occidentalis* claimed by Bernal-Carlo and Roze (1994) do not constitute an isolating mechanism inasmuch as the latter taxon occurs in a wide range of habitats along Central and South America (Oliver, 1948; Albuquerque, 2008). Concerning elevation differences, three Colombian *L. a. occidentalis* were found at 800 m (FMNH 54971, FMNH 54972, FMNH 54973) whereas three Panamanian specimens were captured in three areas of cloud forest in elevations as high as 550 m (KU 75727, KU 75728) and 980 m (AMNH 119881).

In summary, we see no reason to maintain *Leptophis santamartensis* and *L. a. occidentalis* as distinct taxa. The former should be considered as a junior synonym of *L. a. occidentalis*.

An ongoing taxonomic study that addresses the validity of the recognized subspecies of *L. ahaetulla* will be discussed elsewhere (Albuquerque, unpubl. data).

*Acknowledgments.*—NA would like to thank D. R. Frost and D. Kizirian (AMNH) for access to specimens under their care. He also thanks N. Glimore (ANSP), C. McCarthy (BMNH), J. Vindum (CAS), G. Colli and M. Zatz (CHUNB), S. Rogers (CM), H. Voris and A. Resetar (FMNH), J. Simmons and L. Trueb (KU), J. Rosado (MCZ), G. Rivas (MHNLS), R. Feio (MZUFV), T. Hibbitts (TCWC), G. Schneider (UMMZ), J. Campbell and C. Franklin (UTA), and R. W. McDiarmid (USNM), who kindly loaned or granted permission to examine specimens under their care. We especially thank D. Perico (IAVH) for allowing PP to examine the type specimens of *L. santamartensis* under his care. R. W. McDiarmid and R. Reynolds (U.S. Geological Survey/USNM) kindly read and improved an earlier version of this manuscript. We are grateful to Philippe Kok for his comments on the final version. Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) provided a partial doctoral fellowship to NA while he was at the American Museum of Natural History. For financial support PP thanks the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), and Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ).

## LITERATURE CITED

- ALBUQUERQUE, N. R. 2008. Revisão Taxonômica das Subespécies de *Leptophis ahaetulla* (Linnaeus, 1758) (Serpentes, Colubridae). Unpubl. Ph.D. diss., Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil.
- ALBUQUERQUE, N. R. 2009. New records of *Leptophis ahaetulla ahaetulla* (Serpentes, Colubridae) for Venezuela, Colombia and the placement of *L. a. copei* into the synonymy of *L. a. ahaetulla*. *Biota Neotropica* 4: 1–5.
- ALBUQUERQUE, N. R., AND R. W. MCDIARMID. 2010. Redescription of *Leptophis cupreus* (Serpentes, Colubridae), a rare South American colubrine snake. *Papéis Avulsos de Zoologia* 50(23):375–384.
- AMARAL, A. 1928. Studies of neotropical Ophidia. XI. Snakes from the Santa Marta region, Colombia. *Bulletin of the Antivenin Institute of America* 2(1):7–8.
- BARTELS, G. 1984. Los pisos morfoclimáticos de la Sierra Nevada de Santa Marta (Colombia). In T. Van Der Hammen and P. M. Ruiz (eds.), *La Sierra Nevada de Santa Marta* (Colombia). Transecto Buritaca–La Cumbre. *Estudios de Ecosistemas Tropicandinos*. Vol. 2. J. Cramer, Berlin.
- BERNAL-CARLO, A. 1994. A new subspecies of the colubrid snake *Liophis epinephelus* from Sierra Nevada de Santa Marta, Colombia. *Bulletin of the Maryland Herpetological Society* 30(4):186–189.
- BERNAL-CARLO, A., AND J. A. ROZE. 1994. A new *Leptophis* (Serpentes: Colubridae) from Sierra Nevada de Santa Marta, Colombia. *Bulletin of the Maryland Herpetological Society* 30(1):46–49.
- CARBONÓ, E., AND G. LOZANO-C. 1997. Endemismos y otras particularidades de la Sierra Nevada de Santa Marta. Colombia. Posibles causas de origen y necesidad de conservarlos. *Revista de La Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 81: 409–419.
- DIXON, J. R. 2000. Ecuadorian, Peruvian, and Bolivian snakes of the *Liophis taeniurus* complex with descriptions of two new species. *Copeia* 2000(4):482–490.
- DOWLING, H. G. 1951. A proposed standard system of counting ventral scales in snakes. *British Journal of Herpetology* 1:97–99.
- DUNN, E. R. 1944. Los generos de anfibios y reptiles de Colombia, III. Orden de las serpientes. *Caldasia* 12:155–224.
- DUNN, E. R. 1946. *Atractus sanctaemartae*, a new species of snake from the Sierra Nevada de Santa Marta, Colombia. *Occasional Papers of the Museum of Zoology, University of Michigan* 493:1–6.
- GLOBAL GAZETTEER. Version 2.1. by Falling Grain Genomics. [cited 2012 March 27]. Available from: <http://www.fallingrain.com/world/>.
- GRIFFIN, L. E. 1916. A catalog of the ophidia from South America at present (June, 1916) contained in the Carnegie Museum, with description of some new species. *Memoirs of the Carnegie Museum* 7:163–277.
- HARDING, K. A. 1991. The taxonomic status of *Hyloopsis platycephalus* Werner, 1894 and *Centrolenella* Noble, 1920 (Amphibia: Anura). *Zoological Journal of the Linnean Society* 103:413–418.
- HARRIS, D. M. 1994. Review of the teiid lizard genus *PtychoGLOSSUS*. *Herpetological Monographs* 8:226–275.
- HEDGES, S. B., W. E. DUELLMAN, AND M. P. HEINICKE. 2008. New World direct-developing frogs (Anura: Terrarana): Molecular phylogeny, classification, biogeography, and conservation. *Zootaxa* 1737:1–182.
- HERNÁNDEZ, C., J. A. HURTADO, R. ORTIZ, AND T. WALSHBURGER. 1992. Centros de endemismo en Colombia. *Acta Zoológica Mexicana* E(Suppl.):176–190.
- LYNCH, J. D. 1998. New species of *Eleutherodactylus* from the Cordillera Occidental of western Colombia with a synopsis of the distributions of species in western Colombia. *Revista de La Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 22:117–148.
- LYNCH, J. D. 1999. La riqueza de la fauna anfibia de los Andes Colombianos. *Innovación y Ciencias* 7:46–51.
- MALDONADO, J. M. 1996. Case study: Colombia. In V. Dompka (ed.), *Human Population, Biodiversity and Protected Areas: Science and Policy Issues*, pp. 217–227. American Association for the Advancement of Science, Washington, DC.
- MERTENS, R. 1973. Bemerkenswerte schlangennatters der neotropischen gattung *Leptophis*. *Studies on the Neotropical Fauna* 8:141–154.
- MURPHY, J. C. 1997. *Amphibians and Reptiles of Trinidad and Tobago*. Krieger, Malabar.
- OLIVER, J. A. 1948. The relationships and zoogeography of the genus *Thalerophis* Oliver. *Bulletin of the American Museum of Natural History* 92(4):157–280.
- PASSOS, P., J. D. LYNCH, AND R. FERNANDES. 2008. Taxonomic status of *Atractus sanctaemartae* and *Atractus nebularis*, and description of a new *Atractus* from Atlantic coast of Colombia. *Herpetological Journal* 18(4):175–186.
- RUTHVEN, A. G. 1914. Description of a new species of *Basiliscus* from the region of the Sierra Nevada de Santa Marta, Colombia. *Proceedings of the Biological Society of Washington* 27:9–12.
- RUTHVEN, A. G. 1916a. Description of a new species of *Atelopus* from the Santa Marta Mountains, Colombia. *Occasional Papers of the Museum of Zoology, University of Michigan* 28:1–3. 1 plate.
- RUTHVEN, A. G. 1916b. Three new species of *Anolis* from the Santa Marta Mountains, Colombia. *Occasional Papers of the Museum of Zoology, University of Michigan* 32:1–8. Plates 1–3.
- RUTHVEN, A. G. 1917. A new amphibian of the genus *Eleutherodactylus* from the Santa Marta Mountains, Colombia. *Occasional Papers of the Museum of Zoology, University of Michigan* 43:1–3. 1 plate.
- RUTHVEN, A. G. 1922. The amphibians and reptiles of the Sierra Nevada de Santa Marta, Colombia. *Museum of Zoology, University of Michigan, Miscellaneous Publications* 8:1–69. Front piece, 12 plates, 2 charts, 1 map.
- SAVAGE, J. M. 2002. *The Amphibians and Reptiles of Costa Rica: A Herpetofauna between Two Continents, between Two Seas*. University of Chicago Press, Chicago.
- STRAITERSFIELD, A. J., M. J. CROSBY, A. J. LONG, AND D. C. WEGE. 1998. *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation*. BirdLife International, Cambridge, United Kingdom.
- UETZ, P., J. HOŠEK, AND J. HALLERMAN. 2012. *The Reptile Database*. [cited 2012 March 27]. Available from: <http://www.reptile-database.org>.
- WILLIAMS, E. E. 1982. Three new species of the *Anolis punctatus* complex from Amazonian and inter-Andean Colombia, with comments on the eastern members of the *punctatus* species group. *Breviora* 467:1–38.
- WORLD WILDLIFE FUND. 2001. Available from: <http://www.worldwildlife.org>

Accepted: 12 May 2011.

## APPENDIX 1

*Leptophis ahaetulla ahaetulla*: Brazil: Tocantins: Pium, CHUNB 24750.  
*Leptophis ahaetulla coeruleodorsus*: British West Indies: AMNH 9022 (holotype of *L. coeruleodorsus*). Venezuela: Apure: 6 km W of San

Fernando de Apure, TCWC 46262. *Leptophis ahaetulla liocercus*: Brazil: Bahia: Coribe, CHUNB 6640. Minas Gerais: Mocambinho, MZUFV 913. *Leptophis ahaetulla occidentalis*: Colombia: Departamento de Caldas: Pueblo Rico, Sta. Cecilia, Pacific side, 800 m, FMNH 54971, FMNH 54972, and FMNH 54973; Departamento de Magdalena: Bonda, CM 141, CM 1095; Ciudad Perdida, Parque Nacional Sierra Nevada de Santa Marta, IAvH 3240 (formerly IND-R 3240) (paratype of *Leptophis santamartensis*), IAvH 3241 (formerly IND-R 3241) (holotype of *L. santamartensis*); Aracataca, ANSP 19784; Rio Frio, MCZ 25046. Ecuador: West Ecuador, BMNH 1946.1.6.62 (syntype of *Ahaetulla occidentalis*); Provincia El Oro: 10 km SE Machala, 20 m, AMNH 113022; Rosa Delia, USNM 60524; Provincia de Guayas: ca. 20 km ENE Guayaquil, 0 m, KU 152204; Guayaquil, USNM 12269, USNM 12272; ca. 20 km (airline) East Pasaje, 250 m, on Machala-Cuenta Road, AMNH 119837; 3 mi E of Milagro, Hacienda San Miguel, ca. 20 ft, USNM 211035; Provincia de Napo, Jatuncocha: USNM 287931; Mapoto, 1,300 m, UMMZ 88913; "Ecuador," UTA 23523. Panama: Provincia de Chiriquí: vicinity north of Boquete, CAS 78919; Canal Zone: Summit Site, UMMZ 155718; 2.4 mi NNW of Summit Gardens, UMMZ 152914; Provincia de Panama: Cerro Azul region (Cerro Jefe region, Piedras-Pacora Ridge), AMNH 119881; Provincia de Darién: Cerro Tamaturco, KU 75727, KU 75728. Venezuela: Estado Amazonas, San Juan de Manapiare, Cerro Morrocroy, 100–200 m, MHNLS 1631; Estado Yaracuy: Aroa, UMMZ 55896; Estado Sucre: 3–5 km N of Macuro, 0 m, KU 133535; Estado Táchira: San Cristobal, 600 m, MHNLS 1086, Río Caraperro San Feliz, UMMZ 55895.