Check List the journal of biodiversity data
NOTES ON GEOGRAPHIC DISTRIBUTION

Review of *Erythrolamprus taeniogaster* (Jan, 1863) (Serpentes, Colubridae) specimens from Bolivia and report of the first record from the Department of Pando

Cord B. Eversole[1], Luis R. Rivas[2], Randy L. Powell[2], Vincent A. Vos[3], Ruben D. Layme[4]

1 *Arthur Temple College of Forestry and Agriculture, Stephen F. Austin State University, Nacogdoches, Texas, USA*
2 *Centro de Investigación de Recursos Acuáticos (CIRA), Universidad Autónoma del Beni José Ballivián. Trinidad, Beni, Bolivia*
3 *Instituto de Investigaciones Forestales de la Amazonía (IIFA), Universidad Autónoma del Beni José Ballivián. Riberalta, Beni, Bolivia*
4 *Escuela Militar de Ingeniería (EMI), Riberalta, Beni, Bolivia*

Corresponding author: *Cord B. Eversole (cord.eversole@gmail.com)*

Abstract. We present a new departmental record for *Erythrolamprus taeniogaster* (Jan, 1863) and discuss the species' distribution in Bolivia and South America. There is a lack of consolidated and updated information on museum specimens and associated locality data for this species from Bolivia. This is largely because of changes in taxonomy that are not broadly reflected in contemporary literature and from limited sampling in this part of South America. This information improves knowledge of this species' distributional status and summarizes known and available data from the Bolivian portion of its range.

Key words. Biogeography, museum records, natural history collections, Neotropics, range extension, species distribution

Eversole CB, Rivas LR, Powell RL, Vos VA, Layme RD (2025) Review of *Erythrolamprus taeniogaster* (Jan, 1863) (Serpentes, Colubridae) specimens from Bolivia and report of the first record from the Department of Pando. Check List 21 (5): 784–788. https://doi.org/10.15560/21.5.784

INTRODUCTION

The genus *Erythrolamprus* Boie, 1826 is comprised of 56 species of snakes widely distributed across the Neotropics, from Honduras to Argentina (Uetz et al. 2023). While the taxonomic history of the genus has been somewhat controversial (i.e. with respect to *Liophis* Wagler, 1830 and *Erythrolamprus*; see Curcio et al. 2009 and Zaher et al. 2009); Grazziotin et al. (2012) and Curcio et al. 2009 presented evidence for the monophyly of *Erythrolamprus*, revised the definition of the genera, and additionally argued priority of the name *Erythrolamprus* over *Liophis*. Species of *Erythrolamprus* occur in many different environments, from humid to xeric conditions, along different elevational gradients, and exhibit mainly terrestrial and semi-aquatic, as well as both diurnal and nocturnal habits (Dixon 1983, 1989, 2000; Martins and Oliveira 1998; Duellman 2005; Sawaya et al. 2008; Rivas et al. 2012; Santos-Costa et al. 2015; Marques et al. 2016). More specifically, the *E. cobella* group is composed of four species: *E. breviceps* (Cope, 1860), *E. cobella* (Linnaeus, 1758), *E. frenata* (Werner, 1909), and *E. taeniogaster* (Jan, 1863) (Fernandes et al. 2002; França and Bezerra 2010), which are broadly distributed across northern and central South America.

Within this group, *E. taeniogaster* is distributed in the northeastern Amazon basin, which includes the states of Mato Grosso, Rondônia, Amapá, Pará, Maranhão, and Paraíba to Bahia in Brazil, and the countries of Colombia, Ecuador, Peru, and Bolivia, while the distribution of *E. cobella* is restricted to extreme northern Brazil, French Guiana, Guyana, Suriname, and Venezuela (Fernandes et al. 2002; Hladki et al. 2019; Hoogmoed et al. 2019; Nogueira et al. 2019; Uetz et al. 2023). Historically, *E. taeniogaster* has been reported as *E. cobella* in Bolivia (Fugler et al. 1995; Pincheira-Donoso 2002 listed as *Liophis cobella*); however, Fernandes et al. (2002) assessed the group and determined that only *E. taeniogaster* occurs within the geographic borders of Bolivia. Nevertheless, the distribution of this species, along with a comprehensive list of voucher specimens from Bolivia, has not been fully documented or updated following the distinction reported by Fernandes et al. (2002) and Nogueira et al. (2019). More specifically, little information exists on the specific natural history and ecology of this species, especially in underreported parts of its range (e.g. Bolivia).

Here, we review previously collected specimens of *E. taeniogaster* from Bolivia and discuss the species' distribution in South America. We also report on recently collected specimens from the department of Beni,

OPEN ACCESS

Academic editor: Julie Ray
Received: 9 April 2025
Accepted: 7 September 2025
Published: 11 September 2025

as well as specimens from the Department of Pando that represent a range extension in Bolivia that helps clarify the known geographic range of this species.

METHODS

We conducted visual encounter surveys along non-fixed transect routes to assess herpetofaunal abundance and diversity. We traversed the area on foot and searched for reptiles and amphibians with the aid of headlamps and handheld flashlights. Specimens were captured using hooks, tongs, or by hand. Collection of specimens was approved and permitted by the Dirección General de Biodiversidad y Áreas Protegidas Bolivia (permit #0120/2022).

Following collection, we photographed each specimen and measured their morphology using a flexible tape measure and mass using an Ohaus model HH 320 electronic balance. Subsequently, we fixed specimens in a 20% formalin solution and preserved them in a 70% ethanol solution. Collection methodology followed Cacciali (2013) and Eversole et al. (2019). Voucher specimens were deposited in the herpetological natural history collection of Centro de Investigación de Recursos Acuáticos (CIRAH) of the Universidad Autónoma del Beni José Ballivián in Trinidad, Beni, Bolivia. We georeferenced the collection locations in decimal degrees using a Garmin eTrex GPS receiver and generated a point map using ArcGIS software (ArcPro v. 3.3).

RESULTS

***Erythrolamprus taeniogaster* (Jan, 1863)**
Figures 1, 2, Table 1

New records. BOLIVIA — Pando • Manuripi Province, Community of Ucia, on dirt road near Villa Roxana during herpetofaunal survey; 304 m elev.; –11.77042, –68.95342; 07.II.2024; L. R. Rivas leg.; 20:40 h; 1♂, CIRAH-1372 • on road near Villa Roxana; 304 m elev.; –11.77089, –68.95406; 07.II.2024; L. R. Rivas leg.; 21:05 h; 1♀, CIRAH-1374 — Beni • Vaca Diez, municipality of Riberalta, on a road between the neighborhood of El Cerrito and the community of San Vicente in a várzea forest within the primary floodplain of the Beni River in the Bolivian Amazon; 134 m elev.; –11.03000, –66.08861; 29.X.2022; V.A. Vos and R.D. Layme leg.; 22:15 h; 1 individual, sex undetermined, CIRAH-1006.

Identification. The *E. taenigaster* specimens collected from Pando (CIRAH 1372, 1374) had a snout–vent length (SVL) between 34.7–44.0 cm and a tail length between 7.3–9.6 cm; dorsal scale rows 17/17/15; ventrals 138–140; paired subcaudals 44–54; divided cloacal; loreal 1/1; preocular 1/1; postocular 2/2; supralabial 8/8; 4-5/4-5 contact with the orbit; infralabial 9-10/10, and 1+2/1+2 temporals. All adult specimens were of almost uniform dark-brown color and flank region with diffuse yellowish or orange bars, wider towards the ventrolateral region than vertebral; they present a yellowish nuchal ring; ventral orange-reddish color with 30–32 incomplete black bands (Figure 1). These characters match the description and diagnosis of the species by Fernandes et al. (2002) and França and Bezerra (2010).

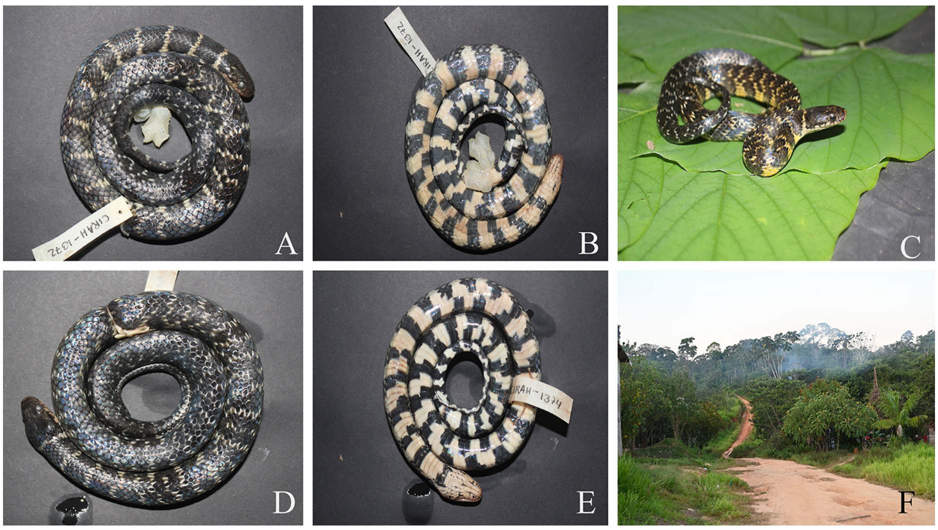

Figure 1. Dorsal, ventral, and live photos of the first *Erythrolamprus taeniogaster* specimens (CIRAH-1372 (**A-C**) and CIRAH-1374 (**D-E**)) collected in the community of Ucia, Pando Department, Bolivia. The habitat surrounding the community of Ucia is characteristic of the Bolivian Amazon (**F**).

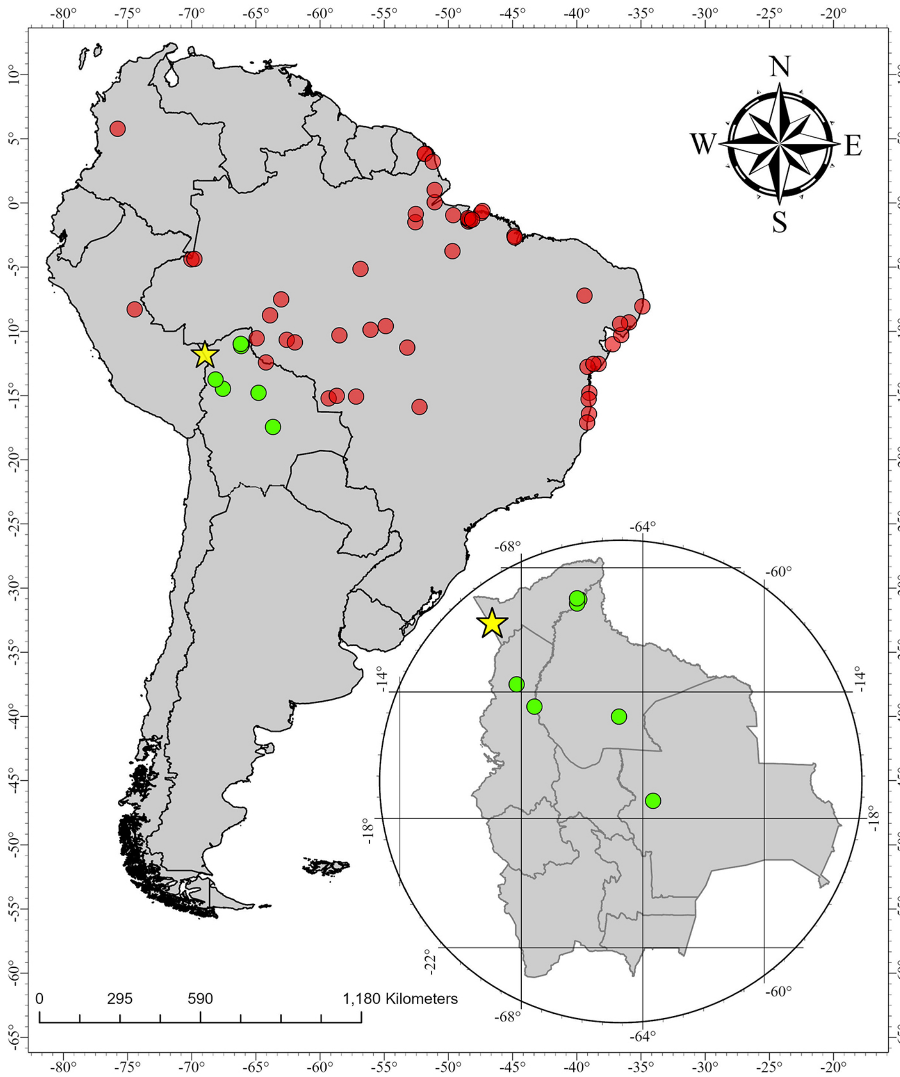

Figure 2. Distribution of *Erythrolamprus taeniogaster* in South America. Records of *E. taenigaster* reported by Fernandes et al. (2002) (red circle), previous records of the species (initially identified as *E. cobella*) in Bolivia based on Dixon (1983), Fugler et al. (1995), and CIRAH-1006 (green circle), and novel records of *E. taenigaster* for the Department of Pando reported herein (yellow star).

Table 1. Voucher specimens of *Erythrolamprus taeniogaster* collected from Bolivia (initially reviewed and identified as *E. cobella dyticus* by Dixon (1983), later reclassified as *E. taeniogaster* by Fernandes et al. (2002) and the new specimens (CIRAH-1006, 1372, 1374) reported in this study.

Department, province	Locality	Latitude	Longitude	Voucher code	Date collected	Source
Pando, Manuripi	Ucia community	−11.77089	−68.95406	CIRAH-1374	7 Feb. 2024	This study
Pando, Manuripi	Ucia community	−11.77042	−68.95342	CIRAH-1372	7 Feb. 2024	This study
Beni, Vaca Diez	Trail El Cerrito to San Vicente, Riberalta	−11.0300	−66.0886	CIRAH-1006	29 Oct. 2022	This study
Beni, Vaca Diez	Ivón	−11.1521	−66.1625*	AMNH 22481	No data	Dixon 1983
Beni, Vaca Diez	Riberalta	−10.9833	−66.1666*	AMNH 63209 AMNH 22269	No data	Dixon 1983
Beni, José Ballivián	Rurrenabaque	−14.4666	−67.5666*	AMNH 22489	No data	Dixon 1983
Beni, Cercado	Trinidad, Mamoré river	−14.7833	−64.7833*	BMNH 93.4.22.1	No data	Dixon 1983
La Paz, A. Iturralde	Ixiamas	−13.7500	−68.1500	AMNH 22442	No data	Dixon 1983
Santa Cruz, Ichilo	Buena Vista	−17.4500	−63.6666	FMNH 16791 UMMZ 60771 UMMZ 60772 UMMZ 64003 UMMZ 63241 UMMZ 67909	No data	Dixon 1983

*Corrected coordinates.

DISCUSSION

The distribution of *Erythrolamprus taeniogaster* in South America appears to be broader than that of *E. cobella* (Fernandes et al. 2002; Nogueira et al. 2019) and includes the eastern and northern regions of Bolivia. More specifically, the distribution of *E. taeniogaster* in Bolivia extends from the Amazonian forests of Buena Vista (Santa Cruz department), Ixiamas (La Paz department), Ivón, Riberalta, Rurrenabaque and Tumi Chucua (Beni department) to the floodplains of Rancho San Marcos and Trinidad in the department of Beni to the northern Amazonian region of Pando (Figure 2). However, it is important to note that the *E. cobella* specimens reported by Dixon (1983), Fugler (1983), and Fugler et al. (1995) (collected in the department of Beni) were also likely *E. taeniogaster*, as the meristic characters of *E. cobella* specimens described by Dixon (1983) and Fernandes et al. (2002) are consistent with *E. taeniogaster* and are similar to those of our novel Bolivian specimens.

Our novel records, the compilation of historical records, and the data associated with each aid in improving the delimitation of the distribution of *E. taeniogaster* in Bolivia. Published information on the occurrence of this species in Bolivia is scarce. Future research is needed to fully understand the range of *E. taeniogaster* and to continue to improve the accuracy and precision of species distribution estimates and knowledge of biogeography. In addition to intrinsic scientific value, this information is also imperative in fully understanding the ecological niche of this species and how it may be shaped by landscape level and climatic variables (Lourenço-de-Moraes et al. 2019; Biber et al. 2023). These insights can inform future predictive modeling efforts under scenarios of habitat change or climate shift (Urban et al. 2016). This is particularly important in ecologically heterogeneous regions like Bolivia, where short geographic distances can encompass substantial environmental variation (Josse et al. 2011). Without a comprehensive understanding of a species' full distribution, accurately delineating its ecological niche becomes exceedingly difficult, as key environmental associations and range limits may be overlooked.

ACKNOWLEDGEMENTS

We thank the Dirección General de Biodiversidad y Áreas Protegidas for the collection permits CAR/MMAYA/VMABCCGDF/DGBAP/MEG No. 0120/2022. We also thank the community of Ucia for their hospitality and access to field sites, Emerson Alves de Oliveira for field assistance, and Edson Castro and the Idea Wild Foundation for financial support and field equipment.

ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

Funding

This study was financially supported by Edson Castro and the Idea Wild Foundation

Author contributions

Conceptualization: CBE, LRR, RLP. Data curation: CBE, LRR, RLP. Formal analysis: CBE, LRR, RLP. Funding acquisition: CBE, RLP. Investigation: CBE, LRR, RLP, VV, RL. Methodology: CBE, LRR, RLP. Visualization CBE. Project administration: CBE, LRR, RLP, VV, RL. Writing – original draft: CBE. Writing – review and editing: CBE, LRR, RLP, VV, RL.

Author ORCID iDs

Cord B. Eversole https://orcid.org/0000-0002-7643-6201
Luis Rivas https://orcid.org/0000-0002-3156-9705
Vincent A. Vos https://orcid.org/0000-0002-0388-8530
Ruben D. Layme https://orcid.org/0000-0002-7932-7449

Data availability

All data that support the findings of this study are available in the main text.

REFERENCES

Biber MF, Voskamp A, Hof C (2023) Potential effects of future climate change on global reptile distributions and diversity. Global Ecology and Biogeography 32: 519–534. https://doi.org/10.1111/geb.13646

Cacciali P (2013) Colecta y preparación de anfibios y reptiles: manual para colecta científica. Editorial Académica Española, Saarbrücken, Germany, 177 pp.

Curcio FF, Piacentini V, Fernandes DS (2009) On the status of the snake genera *Erythrolamprus* Boie, *Liophis* Wagler and *Lygophis* Fitzinger (Serpentes, Xenodontinae). Zootaxa 2173: 66–68. https://doi.org/10.11646/zootaxa.2173.1.7

Dixon JR (1983) The *Liophis cobella* group of the neotropical colubrid snake genus *Liophis*. Journal of Herpetology 17: 149–165. https://doi.org/10.2307/1563456

Dixon JR (1989) A key and checklist to the neotropical snake genus *Liophis* with

country lists and maps. Smithsonian Herpetological Information Service 79: 1–40.

Dixon JR (2000) Ecuadorian, Peruvian, and Bolivian snakes of the *Liophis taeniurus* complex with descriptions of two new species. Copeia 2000: 482–490. https://doi.org/10.1643/0045-8511(2000)000[0482:epabso]2.0.co;2

Duellman WE (2005) Cuzco Amazónico, The lives of amphibians and reptiles in an Amazonian rainforest. Cornell University Press, Ithaca, NY, USA, 456 pp.

Eversole CB, Powell RL, Lizarro D, Moreno F, Calderón G, Aparicio J, Crocker AV (2019) Introduction of a novel natural history collection: a model for global scientific collaboration and enhancement of biodiversity infrastructure with a focus on developing countries. Biodiversity and Conservation 28 (7): 1921–1931. https://doi.org/10.1007/s10531-019-01765-0

Fernandes DS, Germano VJ, Fernandes R, Franco FL (2002) Taxonomic status and geographic distribution of the lowland species of the *Liophis cobella* group with comments on the species from the Venezuelan Tepuis (Serpentes, Colubridae). Boletim do Museu Nacional, Rio de Janeiro 481: 1–14.

França FGR, Bezerra ES (2010) Reptilia, Serpentes, Dipsadidae, *Liophis taeniogaster* Jan, 1863: Distribution extension, new state record and geographic distribution map. Check List 6: 614–615. https://doi.org/10.15560/6.4.614

Fugler CM (1983) Lista preliminar de los anfibios y de los reptiles de Tumi Chucua, Provincia Vaca Diez, Departamento de Beni. Museo Nacional de Historia Natural de Bolivia Comunicación 2: 4–11.

Fugler CM, De la Riva I, Cabot J (1995) Herpetológica Boliviana: Una lista comentada de las serpientes con datos sobre distribución. Ecología en Bolivia 24: 4–50.

Grazziotin, FG, Zaher H, Murphy RW, Scrocchi G, Benavides MA, Zhang YP, Bonatto SL (2012) Molecular phylogeny of the New World Dipsadidae (Serpentes: Colubroidea): a reappraisal. Cladistics 28 (5): 437–459. https://doi.org/10.1111/j.1096-0031.2012.00393.x

Hladki AI, Ramírez M, Renjifo J, Urbina N, Gagliardi G, Nogueira CC, Gonzales L, Schargel W, Rivas G, Silveira AL, Prudente ALC, Argôlo AJS, Abrahão CR, Barbo FE, Costa GC, Pontes GMF, Colli GR, Zaher HD, Borges-Martins M, Martins MRC, Oliveira ME, Passos P, Bérnils RS, Sawaya RJ, Cechin CTZ, Costa TBG (2019) *Erythrolamprus taeniogaster*. The IUCN Red List of Threatened Species 2019: e.T15179400A15179403. https://doi.org/10.2305/iucn.uk.2019-2.rlts.t15179400a15179403.en

Hoogmoed M, Rivas G, Nogueira C, Murphy J (2019) *Erythrolamprus cobella*. The IUCN Red List of Threatened Species 2019: e.T15179222A15179229. https://doi.org/10.2305/iucn.uk.2019-3.rlts.t15179222a15179229.en

Josse C, Cuesta F, Navarro G, Barrena V, Becerra MT, Cabrera E, Chacón-Moreno E, Ferreira W, Peralvo M, Saito J, Tovar A (2011) Physical geography and ecosystems in the tropical Andes. In: Herzog SK, Martínez R, Jørgensen PM, Tiessen H (Eds.) Climate change and biodiversity in the tropical Andes. Inter-American Institute for Global Change Research (IAI) and Scientific Committee on Problems of the Environment (SCOPE). Brasilia, Brazil, 152–169.

Lourenço-de-Moraes R, Lansac-Toha FM, Schwind LTF, Arrieira RL, Rosa RR, Terribile LC, Lemes P, Rangel TF, Diniz-Filho JAF, Bastos RP, Bailly D (2019) Climate change will decrease the range size of snake species under negligible protection in the Brazilian Atlantic Forest hotspot. Scientific Reports 9: 8523. https://doi.org/10.1038/s41598-019-44732-z

Marques R, Mebert K, Fonseca E, Rödder D, Solé M, Tinôco MS (2016) Composition and natural history notes of the coastal snake assemblage from northern Bahia, Brazil. ZooKeys 611: 93–142. https://doi.org/10.3897/zookeys.611.9529

Martins M, Oliveira ME (1998) Natural history of snakes in forests of the Manaus region, central Amazonia, Brazil. Herpetological Natural History 6: 78–150.

Nogueira C, Argólo A, Arzamendia V, Azevedo J, Barbo F, Bernils R, Bolochio B, Borges-Martins M, Brasil-Godinho M, Braz H, Buononato M, Cisneros-Heredia D, Colli G, Costa H, Franco F, Giraudo A, Gonzalez R, Guedes T, Hoogmoed M, Marques O, Montingelli G, Passos P, Prudente A, Rivas G, Sanchez P, Serrano F, Silva Jr. N, Strüssmann C, Vieira-Alencar J, Zaher H, Sawaya R, Martins M (2019) Atlas of Brazilian snakes: verified point-locality maps to mitigate the Wallacean Shortfall in a megadiverse snake fauna. South American Journal of Herpetology 14: 1–274. https://doi.org/10.2994/SAJH-D-19-00120.1

Pincheira-Donoso D (2002) Systematic list of the reptiles of Bolivia. Museo Nacional de Historia Natural, Noticiario Mensual 350: 18–27.

Rivas GA, Molina CR, Ugueto GN, Barros TR, Barrio-Amorós CL, Kok PJR (2012) Reptiles of Venezuela: an updated and commented checklist. Zootaxa 3211: 1–64. https://doi.org/10.11646/zootaxa.3211.1.1

Santos-Costa MC, Maschio GF, Prudente ALC (2015) Natural history of snakes from Floresta Nacional de Caxiuanã, Eastern Amazonia, Brazil. Herpetology Notes 8: 69–98.

Sawaya, RJ, Marques OAV, Martins M (2008) Composition and natural history of a Cerrado snake assemblage at Itirapina, São Paulo state, southeastern Brazil. Biota Neotropica 8: 127–149. https://doi.org/10.1590/S1676-06032008000200015

Uetz, P, Freed P, Aguilar R, Hosek J (2023) The reptile database. http://www.reptile-database.org/. Accessed 2024-10-10.

Urban MC, Bocedi G, Hendry AP, Mihoub JB, Pe'er G, Singer A, Bridle JR, Crozier LG, De Meester L, Godsoe W, Gonzalez A (2016) Improving the forecast for biodiversity under climate change. Science 353: 8466. https://doi.org/10.1126/science.aad8466

Zaher H, Grazziotin FG, Cadle JE, Murphy RW, de Moura-Leite JC, Bonatto SL (2009) Molecular phylogeny of advanced snakes (Serpentes, Caenophidia) with an emphasis on South American Xenodontines: a revised classification and descriptions of new taxa. Papéis Avulsos de Zoologia 49: 115–153. https://doi.org/10.1590/S0031-10492009001100001