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NOTES ON GEOGRAPHIC DISTRIBUTION

First record of *Erythrolamprus semiaureus* (Cope, 1862) (Serpentes, Dipsadidae, Xenodontinae) in the state of Santa Catarina, southern Brazil, with an updated distribution map

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Abstract. During a survey of snake specimens in the Scientific Collection of Reptiles at the Universidade Comunitária da Região de Chapecó University on 10 December 2024, we reidentified a specimen previously labeled *Liophis miliaris* as *Erythrolamprus semiaureus* (Cope, 1862). This record, collected in Chapecó in 1986, extends the known distribution of *E. semiaureus* by 265 km northeast of the nearest previously known locality (Porto Xavier, Rio Grande do Sul). It represents the first occurrence of the species in the state of Santa Catarina, southern Brazil. We provide an updated distribution map and photographs of the preserved specimen.

Key words. Ecological corridors, Atlantic Forest, Chaco, Pampa, Prata Basin, rivers, South America

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Introduction

The genus *Erythrolamprus* Boie, 1862 currently comprises 56 snake species, 24 of which are found in Brazil (Uetz et al. 2025). Species of *Erythrolamprus* are distributed throughout most of the Neotropical Region, ranging from Costa Rica and the Lesser Antilles in Central America to Argentina and Uruguay in southern South America (Dixon 1989; Grazziotin et al. 2012; Uetz et al. 2025). In Brazil, representatives of the genus have been recorded across all biomes and in every state of the federation (Nogueira et al. 2019).

Erythrolamprus semiaureus (Cope, 1862) was long regarded as a subspecies of *Erythrolamprus miliaris* (Linnaeus, 1758) until it was elevated to species status by Giraudo et al. (2006). This species is diurnal with semi-aquatic habits (López et al. 2009; Alcalde et al. 2019) and inhabits alluvial plains encompassing a variety of lentic and lotic environments (Giraudo et al. 2006). Unlike its congener, *E. miliaris*, which is widely distributed throughout most of Brazil and also occurs in Argentina, Bolivia, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, and Venezuela (Nogueira et al. 2019), *E. semiaureus* is found in the lowlands of the Chaco-Pampean plain and marginal areas of the Atlantic Forest in Uruguay, southern and southwestern Paraguay, northeastern Argentina, and southern Brazil. Until now *E. semiaureus* was believed to be restricted to the state of Rio Grande do Sul (Giraudo et al. 2006; Nogueira et al. 2019; Guedes et al. 2023). Its distribution is associated with major rivers of the La Plata Basin, including the Paraguay, Uruguay, Paraná, and La Plata rivers, as well as several of their main tributaries (Giraudo et al. 2006; López et al. 2009; Nogueira et al. 2019). In the present study, we expand the known range of the species northeastward, providing the first record of *E. semiaureus* from the state of Santa Catarina.

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Methods

The *Erythrolamprus semiaureus* specimen was discovered found during a revision at the in the Scientific Collection of Reptiles of the Universidade Comunitária da Região de Chapecó (CRUC; municipality of Chapecó, Santa Catarina, Brazil). The specimen was initially identified as *E. miliaris*. However, after a detailed analysis, we reassign it to *E. semiaureus*. The specimen was collected in the municipality of Chapecó, in southwestern Santa Catarina. As the exact collection site or geographic coordinates were not recorded, we used the central coordinates of the urban area of Chapecó to document and map this new occurrence.

We counted the number of supralabial, infralabial, preocular, postocular, and temporal scales (pretemporals + posttemporals), as well as the presence and condition of the loreal scale. We also counted the number of dorsal, ventral, and paired subcaudal scales. For dorsal scales, we recorded the number of rows at midbody and identified the point at which a reduction in scale rows occurs. Ventrals were counted from the first scale that is wider than long to the scale immediately anterior to the vent scale; pairs of subcaudals were counted from the first pair located after the vent to the pair preceding the terminal scale. The condition of the anal (cloacal) scale, whether divided or undivided, was recorded. Snout–vent length (SVL), tail length (TL), and total length (TTL) were measured in millimeters, and the TL/TTL ratio was calculated. Sex was determined through a longitudinal incision between the first pairs of subcaudal scales. The description of coloration considered overall head condition, the extent of ventral pigmentation, speckling of the background color, and the degree of dark scale margining. Specimen identification was based on diagnostic information provided by Dixon (1983), Giraudo (2001), Giraudo et al. (2006), and Lima (2012).

After confirming the species' identity, we reviewed the scientific literature for occurrence records of *E. semiaureus* published since Lima (2012). We initially extracted all occurrence records from the Atlas of Brazilian Snakes (Nogueira et al. 2019). These records were supplemented with additional data obtained through our literature search which were not included by Lima (2012) publication (i.e. Prigioni et al. 2011; Cunha et al. 2015; Outeiral et al. 2018). Using all compiled occurrence points, we

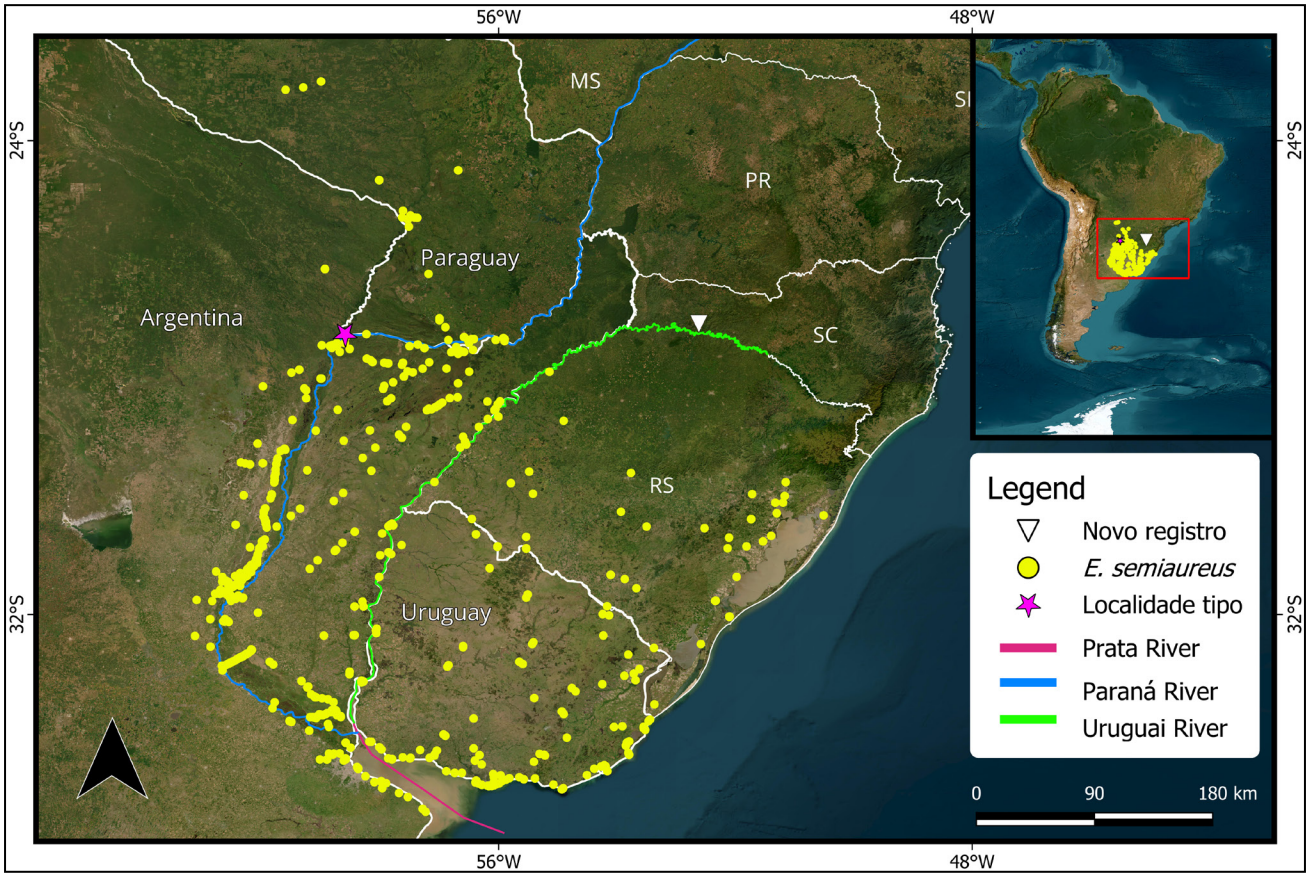

Figure 1. Distribution of *Erythrolamprus semiaureus* based on literature records, including the new record. Yellow circles: Prigioni et al. 2011; Cunha et al. 2015; Outeiral et al. 2018; Nogueira et al. 2018. White triangle: new record from the municipality of Chapecó, Santa Catarina, Brazil. Pink star: type locality in Paraguay, probably near the mouth of the Paraguay River (Gans 1964; Giraudo et al. 2006; Nogueira et al. 2019).

produced an updated geographic distribution map of the species (Figure 1) with QGIS v. 3.38 (QGIS Development Team 2025).

Results

***Erythrolamprus semiaureus* (Cope, 1862)**
Figure 2

New record. BRAZIL — **Santa Catarina** • Municipality of Chapecó; [ca. 27°05′43″S, 052°37′12″W]; 657m a.s.l.; 1986; José A. Fereira leg.; 1 ♀, CRUC0002.

Identification. Adult, female. Pholidosis: supralabials 8/8 (4th and 5th in contact with the eye); infralabials 10/10 (1st to 5th in contact with the genials); preoculars 1/1; postoculars 2/2; temporals (1+2/1+2). Loreal scale is rectangular, slightly longer than high (Figure 2A, B). Dorsal scale row: 17 at midbody and 15 near the vent, with reduction occurring between the third and fourth rows, at the level of ventral 111. Ventrals scale: 175; subcaudals scale 57/57; anal scute undivided. Measurements: SVL = 727 mm; TL = 141 mm; TTL = 868 mm; TL/TTL = 0.16. Color pattern: dorsum of head uniform brown, with posterior edges of the prefrontal, parietals, postparietal, and posterior temporal scales dark brown. Supralabials scale light-colored with brown upper margins. Infralabials, chinshields, and gulars scales are light and immaculate (Figure 2A, C). Dorsum of body predominantly light at first glance, with narrow, dark-brown scale edges forming a characteristic "salt-and-pepper" pattern described by Peters and Orejas-Miranda (1970) (Figure 2E). Ventral, anal, and subcaudal scales light, with dark-brown margins (Figure 2D). Small, scattered, dark-brown spots present on posterior half of the belly (Figure 2.F).

The above description corresponds well to the diagnostic characteristics provided by Giraudo et al. (2006) and Lima (2012), namely, a high number of ventral scales, without significant overlap (Giraudo et al. 2006), more than 164 ventral scales in females (Lima 2012), and a generally lighter coloration

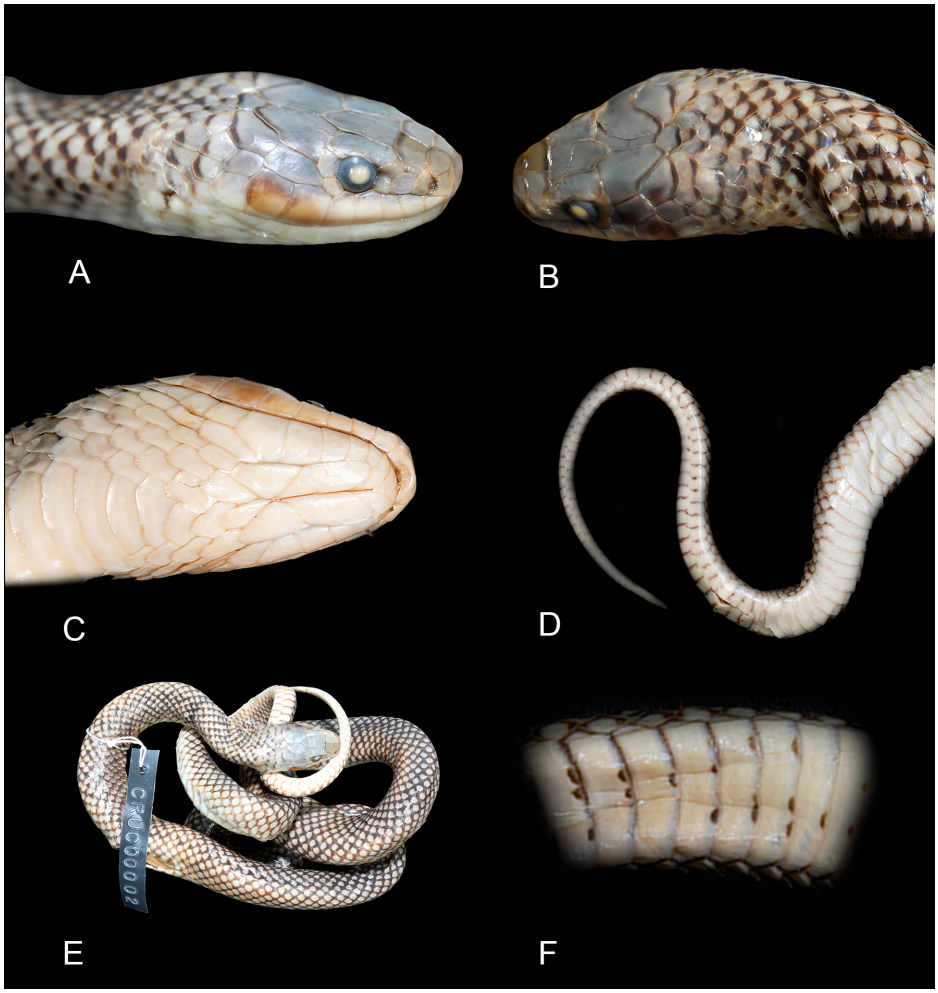

Figure 2. Specimen of *Erythrolamprus semiaureus* from the municipality of Chapecó, Santa Catarina, Brazil (CRUC0002). **A.** Lateral view of the head. **B.** Dorsal view of the head. **C.** Ventral view of the head. **D.** Dorsal view of the tail, the anal plate, and the ventral scales near the cloaca. **E.** Dorsal view of the body. **F.** Ventral scales, with the white arrow highlighting the brown spots and the brown margins. Photos by Alexandre Arrata Pohl de Souza.

compared to the typical olive-green *Liophis miliaris orinus* (Griffin, 1916), still perceptible in the preserved specimen.

Discussion

The record of *Erythrolamprus semiaureus* in the municipality of Chapecó represents the first from Santa Catarina, Brazil. The nearest previously known occurrence is in Porto Xavier, in Rio Grande do Sul, Brazil. Therefore, our record extends the known distribution of this species by 265 km to the northeast of the closest previously known locality.

This new record, the northeasternmost known occurrence of *E. semiaureus*, reinforces the hypothesis of the relationship between the species' distribution and one of the main rivers of the La Plata Basin, as the specimen reported in the present study was collected near the Uruguay River. The main rivers of the La Plata Basin originate in tropical–subtropical latitudes and flow north to south toward subtropical–temperate regions, influencing the spatial distribution of several snake species, including *E. semiaureus* (e.g. Arzamendia and Giraudo 2009). The ecological dynamics associated with these rivers may facilitate the species' dispersal across different latitudes, allowing it to exploit its semi-aquatic habits to move along river channels or riparian vegetation and access resources found in nearby streams, marshes, and ponds (Giraudo et al. 2006; Arzamendia and Giraudo 2009).

Rivers, in general, including those of the La Plata Basin, function as ecological and biogeographical corridors (Willis et al. 2010; Rinaldo et al. 2018), facilitating species dispersal and enabling, for example, the expansion of tropical species into temperate latitudes. During flood events, individuals of this species could reach the coast at the mouth of La Plata and the Atlantic Ocean in Uruguay on "rafts" of water hyacinths drifting downstream from the Upper Paraná (Sarli et al. 1992). Many individuals arrive alive, together with specimens of *Helicops*, indicating that they are capable of withstanding such long journeys (Sarli et al. 1992). Range expansions mediated by these river systems have already been documented for various animal groups, including snakes and, more specifically, *E. semiaureus* (e.g. Rabinovich and Rapoport 1975; Giraudo and Arzamendia 2004; Arzamendia and Giraudo 2009). The existence of these natural corridors highlights the importance of conservation efforts in the La Plata Basin and along its major rivers, as well as in the associated continental aquatic and terrestrial ecosystems, to ensure gene flow and demographic connectivity among populations, thereby maintaining biodiversity.

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Additional information

Conflict of interest

The authors declare that they have no competing interest.

Ethical statement

No ethical statement is reported.

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Author contributions

Conceptualization: UD, MVG. Data curation: UD. Formal analysis: UD, MVG. Funding acquisition: MVG. Investigation: UD, JCML, VIMB, MVG. Methodology: UD, JCML. Resources: JCML, VIMB. Validation: JCML. Writing – original draft: UD, MVG. Writing – review and editing: JCML, VIMB, MVG.

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Data availability

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

References

Alcade L, Cassano MJ, Sánchez RM, Tenorio AB (2019) Species composition, abundance and diet of a squamate assemblage from the Carnaval stream headwaters (Buenos Aires, Argentina). Urban Ecosystems 22 (6): 1165–1172. https://doi.org/10.1007/s11252-019-00888-0

Arzamendia V, Giraudo AR (2009) Influence of large South American rivers of the Plata Basin on distributional patterns of tropical snakes: a panbiogeographical analysis. Journal of Biogeography 36 (9): 1739–1749. https://doi.org/10.1111/j.1365-2699.2009.02116.x

Cunha GG, Hartmann MT, Hartmann PA (2015) Roadkills of vertebrate species in the Pampa Region, South Brazil. Ambiência 11 (2): 307–320. https://doi.org/10.5935/ambiencia.2015.02.03

Dixon JR (1983). Taxonomic status of the South American snakes *Liophis miliaris*, *L. amazonicus*, *L. chrysostomus*, *L. mossoroensis* and *L. purpurans*. Copeia (3): 791–802.

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.

Gans C (1964) A redescription of, and geographic variation in, *Liophis miliaris* Linné, the common water snake of southeastern South America. American Museum Novitates 2178: 1–58.

Giraudo AR (2001) Serpientes de la Selva Paranaense y del Chaco Húmedo. L.O.L.A., Buenos Aires, Argentina, 328 pp.

Giraudo AR, Arzamendia V (2004) ¿Son las planicies fluviales de la cuenca del Plata, corredores de biodiversidad? Los vertebrados amniotas como ejemplo. In: Neiff JJ (Ed.) Humedales de Iberoamérica. Red Iberoamericana de Humedales, Argentina, 157–170.

Giraudo AR, Arzamendia V, Cacciali P (2006) Geographic variation and taxonomic status of the southernmost populations of *Liophis miliaris* (Linnaeus, 1758) (Serpentes: Colubridae). The Herpetological Journal 16 (2): 213–220.

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

Griffin LF (1916) A catalog of the Ophidia from South America at present (June 1916) contained in the Carnegie Museum with descriptions of some new species. Memoirs of the Carnegie Museum 7 (3): 163–228. https://doi.org/10.5962/bhl.title.43279

Guedes TB, Entiauspe-Neto OM, Costa HC (2023) Lista de répteis do Brasil: atualização de 2022. Herpetologia Brasileira 12 (1): 56–161. https://doi.org/10.5281/zenodo.7829013

Lima, AC (2012) Revisão taxonômica da Serpente Neotropical *Liophis miliaris* (Linnaeus, 1758) (Serpentes: Colubridae). PhD thesis, Museu Nacional/Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil, 109 pp.

López SM, Giraudo AR, Arzamendia V, Chiaraviglio M (2009) Biología reproductiva de la serpiente semiacuática *Liophis semiaureus* (Serpentes, Colubridae) en el nordeste de Argentina. Revista Chilena de Historia Natural 82(2): 233–244. https://doi.org/10.4067/S0716-078X2009000200006

Nogueira CC, Argôlo AJS, Arzamendia V, Azevedo JA, Barbo FE, Bérnils RS, Bolochio BE, Borges-Martins M, Brasil-Godinho M, Braz H, Buononato MA, Cisneros-Heredia DF, Colli GR, Costa HC, Franco FL, Giraudo A, Gonzalez RC, Guedes T, Hoogmoed MS, Marques OAV, Montingelli GG, Passos P, Prudente ALC, Rivas GA, Sanchez PM, Serrano FC, Silva NJ, Strüssmann C, Vieira-Alencar JPS, Zaher H, Sawaya RJ, 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 (sp1): 1–274. https://doi.org/10.2994/sajh-d-19-00120.1

Outeiral AB, Oliveira RB, Loebmann D, Tozetti AM (2018) Snake assemblage from Serra do Sudeste, Pampas Biome, southern Brazil. Herpetology Notes 11: 733–745.

Peters, JA, Orejas-Miranda, B (1970) Catalogue of the Neotropical Squamata. Part I. Snakes. Bulletin of the United States National Museum 297: 1–347.

Prigioni C, Borteiro C, Kolenc F (2011) Amphibia and Reptilia, Quebrada de los Cuervos, Departamento de Treinta y Tres, Uruguay. Check List 7 (6): 763–767. https://doi.org/10.15560/11021

QGIS Development Team (2025) QGIS Geographic Information System. QGIS Association. https://www.qgis.org.

Rabinovich JE, Rapoport EH (1975) Geographical variation of diversity in Argentina passerine birds. Journal of Biogeography 2 (2): 141–157.

Rinaldo A, Gatto M, Rodriguez-Iturbe I (2018) River networks as ecological corridors: A coherent ecohydrological perspective. Advances in Water Resources 112: 27–58. https://doi.org/10.1016/j.advwatres.2017.10.005

Sarli V, Santos M, Maneyro R, Achaval F (1992) Nuevos aportes sobre la fauna arribada a las costas uruguayas en balsas de camalotes. Boletín de la Sociedad Zoológica del Uruguay 7: 77–78.

Uetz P, Freed P, Aguilar R, Reyes F, Kudera J, Hošek J (Eds.) (2025) The Reptile Database. http://www.reptile-database.org. Accessed on: 2025-5-15.

Willis SC, Nunes M, Montana CG, Farias IP, Ortí G, Lovejoy NR (2010) The Casiquiare river acts as a corridor between the Amazonas and Orinoco river basins: biogeographic analysis of the genus *Cichla*. Molecular Ecology 19 (5): 1014–1030. https://doi.org/10.1111/j.1365-294X.2010.04540.x