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New records and distribution extension of two species of the genus *Leposternon* (Amphisbaenia: Amphisbaenidae) in Sergipe, northeastern Brazil

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Resumo

A compreensão biogeográfica de répteis fossoriais é frequentemente limitada pela baixa detectabilidade inerente a esses organismos. Entre esses répteis, as anfisbênias do gênero *Leposternon* destacam-se por apresentarem espécies com padrões de distribuição contrastantes. *Leposternon polystegum* Duméril, 1851 possui ampla distribuição na região Nordeste do Brasil, enquanto *L. octostegum* Duméril, 1851 apresenta distribuição historicamente restrita ao litoral norte da Bahia e é classificada como ameaçada. Neste estudo, reportamos quatro novos registros para Sergipe, sendo dois de *L. polystegum* (municípios de Simão Dias e Itaporanga d'Ajuda) e dois de *L. octostegum* (Parque Nacional Serra de Itabaiana, Areia Branca), incluindo a primeira ocorrência de *L. octostegum* fora do estado da Bahia, o que amplia significativamente a distribuição conhecida de ambas as espécies.

Palavras-chave

anfisbênias, distribuição, espécies ameaçadas

Abstract

The biogeographical understanding of fossorial reptiles is often limited by the inherent low detectability of these organisms. Among these reptiles, species of the genus *Leposternon* stand out for exhibiting contrasting distribution patterns. *Leposternon polystegum* Duméril, 1851 has a wide distribution in the Northeast region of Brazil, while *L. octostegum* Duméril, 1851 has a historically restricted distribution to the northern coast of Bahia and is classified as threatened. In this study, we report four new records for Sergipe, including two of *L. polystegum* (municipalities of Simão Dias and Itaporanga d'Ajuda) and two of *L. octostegum* (Serra de Itabaiana National Park, Areia Branca), including the first occurrence of *L. octostegum* outside the state of Bahia, which significantly expands the known distribution of both species.

Keywords

amphisbaenians, distribution, threatened species

Amphisbaenians of the genus *Leposternon* currently comprise 11 species distributed across South America, most of which are endemic to Brazil (Guedes et al., 2023; Uetz et al., 2026). Despite this diversity, the group remains poorly represented in surveys, a direct consequence of their fossorial habits and, consequently, the low detectability that characterizes amphisbaenians (Navega-Gonçalves & Benites, 2019). Among the species of the genus, *Leposternon polystegum* and *Leposternon octostegum* (Duméril & Duméril, 1851) stand out, as they exhibit marked differences in both their geographic distribution and conservation status, with *L. polystegum* classified as Least Concern (LC) and *L. octostegum* listed as Endangered (EN) by the IUCN Red List (Silveira et al., 2021a, 2021b).

Leposternon polystegum is considered a relatively common species, with a wide distribution throughout northeastern Brazil (Fig. 1; Table 1), with confirmed records in the states of Alagoas, Bahia, Ceará, Maranhão, Pará, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, and Tocantins (Guedes et al., 2023). This pattern reflects a geographically extensive distribution, encompassing different domains and vegetation formations across the Brazilian territory. In contrast, *L. octostegum* has a distribution historically restricted to the northern coast of the state of Bahia (Fig. 1; Table 1). Its records are mainly concentrated in the municipalities of Salvador, Simões Filho, Camaçari, and Dias d'Ávila (Barros-Filho et al., 2013), as well as Mata de São João (Couto-Ferreira et al., 2011; Assis & Costa, 2020), all within a relatively continuous strip of coastal Atlantic Forest remnants. The concentration of these records within a reduced geographic area constitutes one of the main factors supporting its classification as "Endangered" (MMA, 2022), indicating an extremely limited geographic range and reinforcing the need to expand knowledge on its distribution and ecology. In this context, we report four new records for the state of Sergipe, consisting of two of *L. polystegum* and two of *L. octostegum* (Fig 1). These records expand the known distribution of both species in the Northeast and represent the first confirmed occurrence of *L. octostegum* outside Bahia.

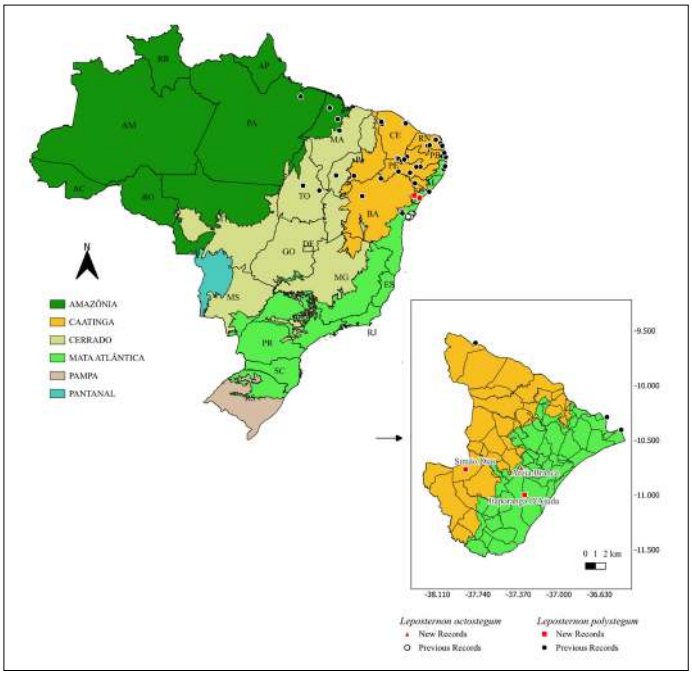


Figure 1. Geographic distribution of *Leposternon octostegum* and *Leposternon polystegum* in Brazil, showing previous and new records across the Brazilian phytogeographic domains. The inset shows the new records from Sergipe in relation to the state's ecoregions and the Caatinga and Atlantic Forest domains.

Table 1. Localities of occurrence of *Leposternon polystegum* and *Leposternon octostegum* in Brazil, highlighting new records from Sergipe reported in this study.

State	Municipalities/Localities	Reference
L. polystegum		
Alagoas (AL)	Penedo, Piaçabuçu and Piranhas	Dubeux et al. (2025); Tavares & Ribeiro (2014)
Bahia (BA)	Casa Nova, Feira de Santana, São Gonçalo dos Campos and Xique-Xique	Barros-Filho & Valverde (1996); Rodrigues et al. (1996)
Ceará (CE)	Chapada do Araripe (Barbalha and Crato); Ibiapaba Plateau (Ibiapina, São Benedito, Tianguá and Ubajara); Serra da Aratanha (Pacatuba); Serra de Maranguape (Maranguape)	Borges-Nojosa & Caramaschi (2003); Ribeiro et al. (2008); Tavares & Ribeiro (2014)
Maranhão (MA)	Igarapé Grande, Paraquéu and Santa Luzia do Paruá	Tavares & Ribeiro (2014)
Pará (PA)	Belém	Perez & Ribeiro (2008)
Paraíba (PB)	João Pessoa; Guaribas Biological Reserve (Rio Tinto); São José de Piranhas and Sapé	Tavares & Ribeiro (2014); Mesquita et al. (2018)
Pernambuco (PE)	Cabo de Santo Agostinho, Cabrobó, Custódia, Floresta, Dois Irmãos State Park (Recife), Sertânia and Tejipió	Tavares & Ribeiro (2014); Oliveira et al. (2016); Melo et al. (2018); Dubeux et al. (2025)
Piauí (PI)	Uruçuí-Una Ecological Station and Serra das Confusões National Park	Vecchio et al. (2013); Vecchio et al. (2016)

Rio Grande do Norte (RN)	João Câmara, Macaíba, Potengi River Spring, Nísia Floresta and Serra de Santana	Calixto & Morato (2017); Freire et al. (2023); Dubeux et al. (2025)
Sergipe (SE)	Simão Dias and Itaporanga d'Ajuda	This study
Tocantins (TO)	Jalapão and Lajeado	Vitt et al. (2002)
L. polystegum		
Bahia (BA)	Camaçari, Dias d'Ávila, Mata de São João, Salvador and Simões Filho	Barros-Filho et al. (2013); Couto-Ferreira et al. (2011); Assis & Costa (2020)
Sergipe (SE)	Serra de Itabaiana National Park	This study

The first record of *L. polystegum* for the state of Sergipe corresponds to a specimen deposited in the Coleção Herpetológica da Universidade Federal de Sergipe - CHUFS (CHUFS C00358), originating from the municipality of Simão Dias, locality of Pastinho (10°45′58.12″ S, 37°51′6.69″ W), collected by a local inhabitant in August 2009. This specimen represents one of the earliest documented records of the species in the state, confirming its occurrence in the region. Subsequently, a second record was obtained at Santuário da Mata in the municipality of Itaporanga d'Ajuda (11°5′9.36″ S, 37°17′4.36″ W) during fieldwork in October 2025 (SISBIO collecting permit No. 98696-3). The individual was captured using pitfall traps and was found to have an injury in the caudal region (Fig. 2). The specimen was later incorporated into CHUFS (CHUFS C07197), constituting an additional confirmed record of the species for the state.



Figure 2. Live individual of *Leposternon polystegum* from Santuário da Mata, Itaporanga d'Ajuda, Sergipe, Brazil.

For *L. octostegum*, the first record in Sergipe refers to an individual collected in July 2008 (CHUFS: C04451), found road-killed on the access road to Parque Nacional Serra de Itabaiana (PARNASI), a protected area in a transition zone between the Atlantic Forest and the Caatinga (10°45′56.90″ S, 37°20′20.22″ W), in the municipality of Areia Branca. Initially identified as *L. polystegum*, the specimen was recently re-examined and confirmed to be *L. octostegum*. After an interval of 17 years, a second individual was observed on November 20, 2025, at approximately 08h00, moving across the leaf litter near Riacho Água Fria, again within PARNASI (10°45′15.55″ S, 37°20′38.76″ W). The observation was made during field activities and may have been facilitated by heavy rainfall the previous night. The individual exhibited a uniform pinkish coloration in life, with a slightly lighter head, a white venter, and a semicircular cloaca with eight precloacal scales (Fig. 3). After photographic documentation, the specimen was released at the site.

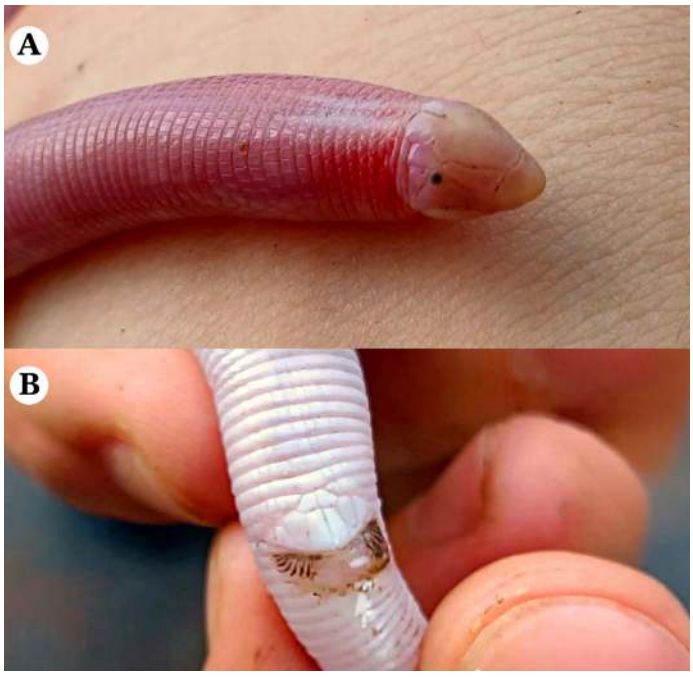


Figure 3. *Leposternon octostegum* in life, showing the uniform pinkish coloration and general appearance of the individual (A), and the white cloaca in ventral view (B), exhibiting the characteristic shape of the species.

The specimens preserved in the collection exhibit diagnostic morphological and pholidosis characters attributed to *L. polystegum* and *L. octostegum*, as described in the literature (Gans, 1971; Barros-Filho et al., 2019) (Fig. 4). The examined specimens of *L. polystegum*

(CHUFS C0358 and CHUFS C07197; Figure 4ABC) are characterized by the presence of two precloacal pores, three supralabial and infralabial scales, postpectoral dorsal annuli ranging from 264 to 321, and postpectoral ventral annuli ranging from 240 to 269. The number of caudal annuli was constant (12), and at midbody, 23–28 dorsal and 21–25 ventral segments were observed. In terms of morphometrics, the specimens exhibited snout–vent lengths ranging from 226–436 mm, tail lengths of 11.91–21.18 mm, midbody widths between 5.64 and 10.84 mm, head lengths of 6.86–9.90 mm, and head widths between 5.47 and 7.71 mm. The ratio between snout–vent length and head width ranged from 41.32 to 56.55 mm.

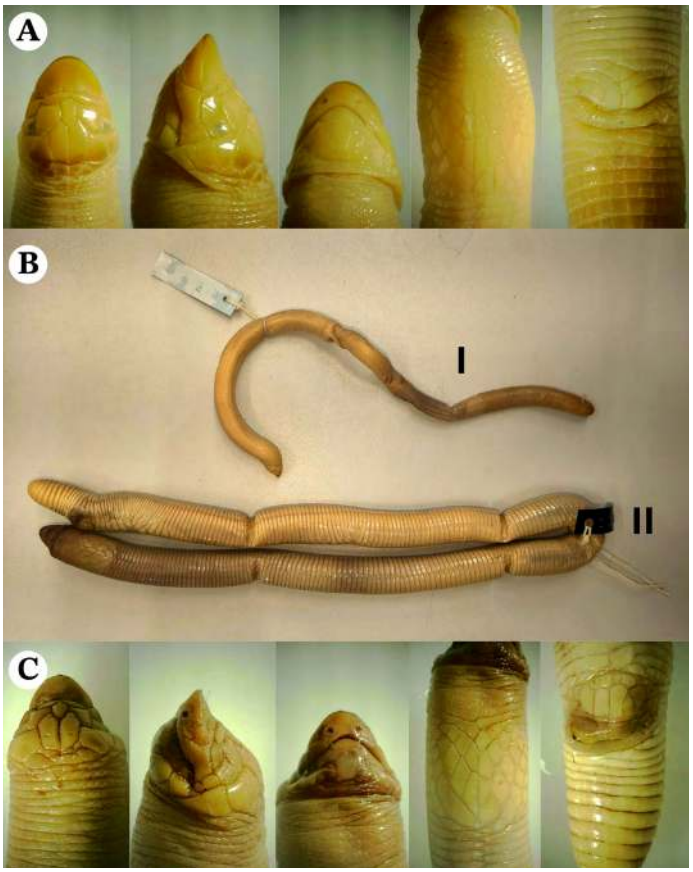


Figure 4. Aspects of head (A) and body morphology (B) of *Leposternon polystegum* (CHUFS C0358 - I; C07197 - II).

In turn, the specimen of *L. octostegum* (CHUFS C04451; Figure 5) is distinguished by the absence of precloacal pores and by a reduced labial formula, with one supralabial and one infralabial scale (1/1). Additionally, this specimen has more body annuli than individuals of *L. polystegum*, with 358 postpectoral dorsal annuli and 362 postpectoral ventral annuli. The number of caudal annuli was 11, while the number of segments at midbody was 29 dorsally and 24 ventrally. Morphometrically, the specimen exhibited a snout–vent length of 281.06 mm, tail length of 11.5 mm, midbody width of 4.33 mm, head length of 7.33 mm, and head width of 5.13 mm. The ratio between snout–vent length and head width was 54.79 mm.



Figure 5. Details of the head (A) and body (B) of *Leposternon octostegum* (CHUFS C04451).

The records presented here significantly expand the known geographic distribution of both species. For *L. polystegum*, this extension corresponds to approximately 113.18 km between Itaporanga d'Ajuda (Sergipe) and Penedo (Alagoas), and about 128.46 km between Simão Dias (SE) and Piranhas (AL), which are the closest previously known localities. In turn, the confirmation of *L. octostegum* in Parque Nacional Serra de Itabaiana extends its known distribution approximately 218 km north of the nearest confirmed record in Mata de São João (Bahia).

The occurrence of *L. polystegum* in Sergipe is consistent with its broad distribution across northeastern Brazil, although it has remained undocumented there until now. In contrast, the new records of *L. octostegum* within a protected area, including the observation of an active individual in its natural habitat, expand current knowledge of its distribution and ecology. These findings highlight the fundamental role of protected areas,

such as PARNASI, in maintaining potentially vulnerable populations and reinforcing the importance of biological collections and field surveys as essential tools for understanding species distributions. Such efforts frequently uncover previously undocumented occurrences, refine known distributional limits, and provide indispensable baseline data for ecological studies, biogeographic analyses, and conservation planning. In this context, the records of *L. octostegum* and *L. polystegum* in Sergipe reveal a greater biogeographic complexity for the genus in the region, highlighting significant knowledge gaps and the need to intensify herpetological surveys throughout the state.

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