

SHORT NOTE

New records of *Lithodytes lineatus* (Anura: Leptodactylidae) in the Cerrado-Amazon transition

Nuevos registros de *Lithodytes lineatus* (Anura: Leptodactylidae) en la transición Cerrado-Amazonas

Rafaela Thaler^{1*} | Henrique Folly² | Renata Fadel¹ | Leandro Alves-Da-Silva³ | Sarah Mângia¹ | Diego José Santana¹

- Received: 17/jan/2019
- Accepted: 13/aug/2019
- Published online: 12/nov/2019

Citation: Thaler R, Folly H, Fadel R, Alves-da-Silva L, Mângia S, Santana DJ 2020. New records of *Lithodytes lineatus* (Anura: Leptodactylidae) in the Cerrado-Amazon transition. *Caldasia* 42(1):157-160. doi: <https://dx.doi.org/10.15446/caldasia.v42n1.77257>.

ABSTRACT

Lithodytes lineatus is widely distributed in the Amazon and currently found in the Cerrado domain. We document two new records of the species in the transition zone of Amazon-Cerrado located in the state of Tocantins, Brazil. These records extend the geographic distribution of this species and help to fill information gaps in the state of Tocantins, Brazil.

Keywords. Ecotone zone, geographic distribution, gold-striped frog

RESUMEN

Lithodytes lineatus tiene amplia distribución en el dominio amazónico y actualmente se encuentra en el dominio Cerrado. Documentamos dos nuevos registros de la especie en la zona de transición de Amazon-Cerrado ubicada en el estado de Tocantins, Brasil. Estos registros extienden la distribución geográfica de esta especie y ayudan a llenar los vacíos de información en el estado de Tocantins, Brasil.

Palabras clave. Distribución geográfica, rana terrestre rayada, zona ecotónica

¹ Laboratório de Zoologia, Universidade Federal de Mato Grosso do Sul, 79002-970, Campo Grande, MS, Brazil. rafaelathaler@gmail.com*, fadel.renata@yahoo.com.br, sarahmangia@yahoo.com.br, santanadiegojose@yahoo.com

² Pós-graduação em Biologia Animal, Universidade Federal de Viçosa, 36570-000, Viçosa, MG, Brazil. folly.henrique@gmail.com

³ Pós-Graduação em Ciências Biológicas - Concentração em Zoologia, Universidade Federal da Paraíba, 58051-900, João Pessoa, PB, Brazil. leandro.herpeto@gmail.com

* Corresponding author



Lithodytes lineatus (Schneider, 1799) is a monotypic species of the genus *Lithodytes*, commonly known as Gold-striped frog (Frank and Ramus 1996). This is a widely distributed species throughout the Amazon domain, and can also be found in transitional areas between the Amazon and Cerrado domains (La Marca et al. 2010, Valdujo et al. 2012, Cintra et al. 2014). In Brazil, *L. lineatus* occurs in the states of Acre, Amazonas, Pará, Rondônia, Mato Grosso, Tocantins, Maranhão, and Amapá (Pavan 2007, La Marca et al. 2010, Cintra et al. 2014, Freitas et al. 2014).

Here we provide new distribution records for *L. lineatus* in the Tocantins state, northern Brazil (Fig. 1). We obtained the new records during herpetofaunal studies in the Araguaia-Tocantins hydrographic basin, a transitional area between Amazonia and Cerrado. We captured individuals of *L. lineatus* (Fig. 2) using pitfall traps (collecting permit issued by IBAMA: 63228-1), and deposited the specimens in the Coleção Zoológica da Universidade Federal de Mato Grosso do Sul, Campo Grande municipality, Mato Grosso do Sul state, Brazil. To create the distribution map, we use the ecoregions shapefile from World Wild Life - WWF (Olson et al. 2001) modified to display the Brazilian domains

highlighting the Ecoregion “Mato Grosso tropical dry forests” usually named as “Cerrado-Amazon ecotone” (e.g. Bezerra et al. 2009, Cintra et al. 2014). We used the International Union for Conservation of Nature - IUCN spatial data with the proposed *L. lineatus* distribution (La Marca et al. 2010). Then, we added literature records from Tocantins (Pavan 2007, Cintra et al. 2014 and present study), Maranhão (Freitas et al. 2014) and Pará state (Bernardo et al. 2012). There is no information about *Lithodytes lineatus* type locality; thus, we expanded its distribution based on the nearest known locality for the species.

In March 2016, we collected two individuals of *L. lineatus* in Araguaína municipality (vouchers ZUFMS-AMP 08393 and 08394), northern Tocantins (7°6'17.03" South; 48°11'23.32" West). This record extends the geographic distribution of *L. lineatus* approximately 79 km northwest from the nearest locality, Filadélfia municipality, Tocantins state, Brazil (Cintra et al. 2014) (Fig. 1).

In January 2017 and May 2018, we found six individuals of *L. lineatus* in Caseara municipality (vouchers ZUFMS-AMP 11243–11246), western Tocantins

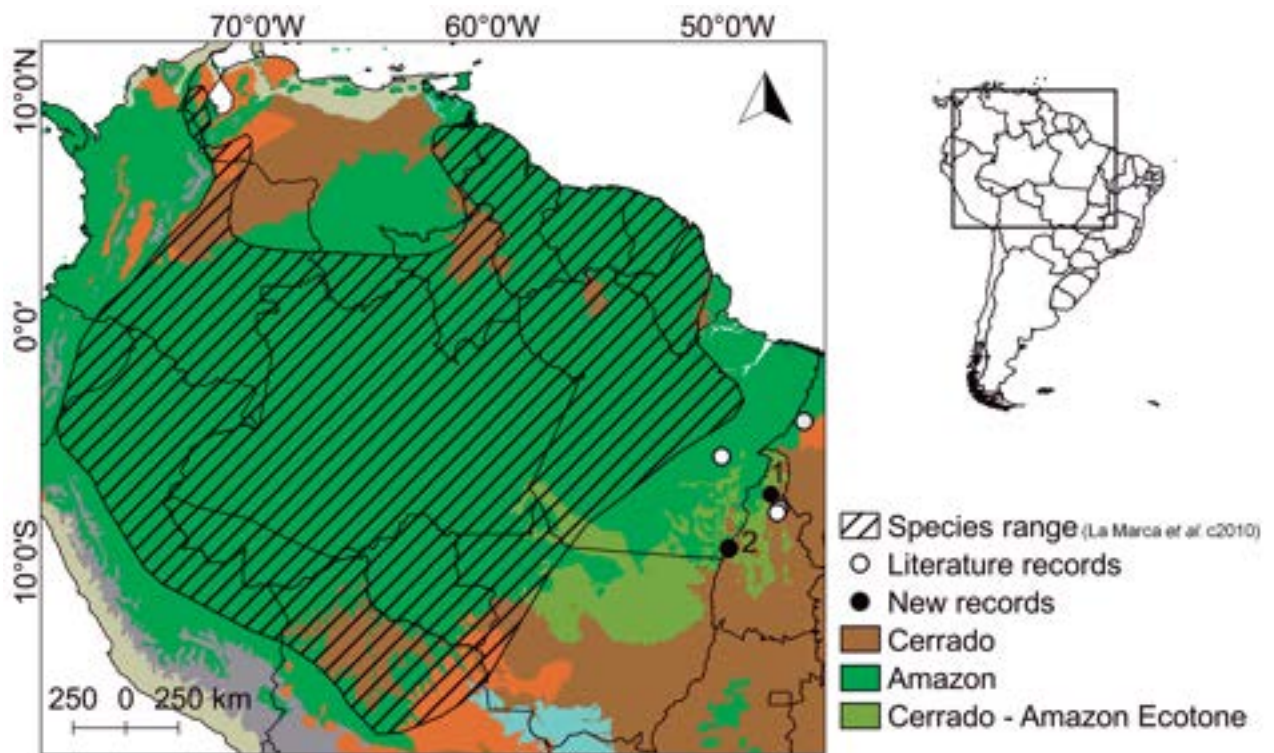


Figure 1. Distribution map of *Lithodytes lineatus* in South America. Colors on map represent Domains and Ecoregions from South America (modified from Olson et al. 2001). Striped area indicates the distribution suggested for the species by International Union for Conservation of Nature - IUCN (La Marca et al. 2010). White circles indicate literature records which were not included in the distribution indicated by IUCN, and black circles indicate the new records in Tocantins state, Brazil (1: Araguaína and 2: Caseara).



Figure 2. Individual of *Lithodytes lineatus* (ZUFMS-AMP: 08394) from Caseara municipality, Tocantins state, Brazil.

(9°24'25.36" South; 49°58'21.33" West). The records of *L. lineatus* to the Caseara municipality extend its distribution in approximately 280 km south-west from the previously southernmost locality in the state, reported from Palmeirantes municipality (Pavan 2007) (Fig. 1).

The data presented here on the geographic range of *L. lineatus* south into the Cerrado show that this species does not occur exclusively in the Amazon domain, reaching transitional areas and forest habitats in the Brazilian Cerrado. This result reinforces the species structure demonstrated by Valdujo *et al.* (2012) that Amazonian species of

marginal occurrence in the Cerrado are concentrated in the western and northern of this domain. Despite harboring a unique anuran species composition comprised of species typical to the Cerrado and neighboring domains (Amazonia and Caatinga; Silvano *et al.* 2016), the Brazilian state of Tocantins still has many gaps of knowledge related to biodiversity and distribution patterns of anurans (Diniz-Filho *et al.* 2005). Additional sampling effort and new records will help to fill these gaps and improve strategies for conservation of biodiversity in this anuran species-rich region of northern Brazil.

AUTHOR'S CONTRIBUTION

RT, HF and RMF significant contribution in conception and design of the study, data acquisition, and writing of the manuscript; LAS significant contribution in data acquisition and critical review adding intellectual content; SM and DJS significant contribution and critical review adding intellectual content.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest

ACKNOWLEDGMENTS

RT thanks to Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq for the master fellowship (133289/2019-2). RMF thanks to Comitê de Aperfeiçoamento de Pessoal de Nível Superior – CAPES for the master fellowship (financing code 001). LAS thanks to CNPq for the doctoral fellowship (140408/2018-5). SM thanks to CAPES for the postdoctoral fellowship and DJS thanks to CNPq (311492/2017-7).

LITERATURE CITED

- Bernardo PH, Guerra-Fuentes RA, Matiazzi W, Zaher H. 2012. Checklist of amphibians and reptiles of Reserva Biológica do Tapirapé, Pará, Brazil. *Check List* 8(5):839–846. doi: <https://doi.org/10.15560/8.5.839>.
- Bezerra AMR, Carmignotto AP, Rodrigues FHG. 2009. Small non-volant mammals of an ecotone region between the Cerrado hotspot and the Amazonian rainforest, with comments on their taxonomy and distribution. *Zool. Stud.* 48(6):861–874.
- Cintra CED, da Silva HLR, Junior NJS. 2014. First record of *Lithodytes lineatus* (Schneider, 1799) (Anura: Leptodactylidae) in the state of Tocantins, ecotone zone Amazon-Cerrado biomes, with notes on its natural history. *Herpetol. Notes.* 7:179–184.
- Diniz-Filho JAF, Bastos RP, Rangel TF, Bini LM, Carvalho P, Silva RJ. 2005. Macroecological correlates and spatial patterns of anuran description dates in the Brazilian Cerrado. *Global Ecol. Biogeogr.* 14(5):469–477. doi: <https://doi.org/10.1111/j.1466-822X.2005.00165.x>.
- Frank N, Ramus E. 1996. A complete guide to scientific and common names of reptiles and amphibians of the world. *Copeia* 1996(4):1066–1069. doi: <https://doi.org/10.2307/1447688>.
- Freitas MA, Farias T, Sousa SO, Vieira RS, de Moura GJB, Dias IR. 2014. First record of *Lithodytes lineatus* (Schneider, 1799) (Anura: Leptodactylidae) in northeastern Brazil. *Check List* 10(3):615–617. doi: <https://doi.org/10.15560/10.3.615>.
- La Marca E, Azevedo-Ramos C, Coloma LA, Ron S, Hardy J. 2010. *Lithodytes lineatus*. Red List of Threatened Species 2010: e.T57177A11580398. [last accessed: 16 Jul 2018]. <http://dx.doi.org/10.2305/IUCN.UK.2010-2.RLTS.T57177A11580398.en>
- Olson DM, Dinerstein E, Wikramanayake ED, Burgess ND, Powell GVN, Underwood EC, D’Amico JA, Itoua I, Strand HE, Morrison JC, Loucks CJ, Allnutt TF, Ricketts TH, Kura Y, Lamoreux JF, Wettengel WW, Hedao P, Kassem KR. 2001. Terrestrial ecoregions of the world: a new map of life on Earth. *Bioscience* 51(11):933–938. doi: [https://doi.org/10.1641/0006-3568\(2001\)051\[0933:TEOTWA\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2).
- Pavan D. 2007. Assembleias de répteis e anfíbios do Cerrado ao longo da bacia do rio Tocantins e o impacto do aproveitamento hidrelétrico da região na sua conservação. [Thesis]. [São Paulo]. Universidade de São Paulo.
- Silvano DL, Valdujo PH, Colli GR. 2016. Priorities for Conservation of the Evolutionary History of Amphibians in the Cerrado. In: Pellens R, Grandcolas P, editors. *Biodiversity Conservation and Phylogenetic Systematics*. Springer, Cham. p. 287–304.
- Valdujo PH, Silvano DL, Colli G, Martins M. 2012. Anuran species composition and distribution patterns in Brazilian Cerrado, a Neotropical hotspot. *South Am J Herpetol.* 7(2):63–78. doi: <https://doi.org/10.2994/057.007.0209>.