

Notas de História Natural & Distribuição Geográfica

Filling gap on the distribution of *Dendropsophus sarayacuensis* (Shreve, 1935) (Amphibia: Anura: Hylidae) and geographic distribution map

Diego Gomiero Cavalheri^{1*}, Flora Ortiz², Luã Carlos Rocha Diógenes³, Diego José Santana⁴

1 Programa de Pós-graduação em Biodiversidade, Instituto de Biociências, Letras e Ciências Exatas, Universidade Estadual Paulista, 15054-000 São José do Rio Preto, SP, Brazil.

2 Laboratório de Coleções Zoológicas, Instituto Butantan, 05503-900, São Paulo, SP, Brazil.

3 Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio - Estação Ecológica Rio Acre, 69932-000 Brasiléia, AC, Brazil.

4 Instituto de Biociências, Universidade Federal de Mato Grosso do Sul, Cidade Universitária, 79070-900 Campo Grande, MS, Brazil.

* Corresponding author. E-mail: diego.cavalheri@unesp.br

DOI: [10.5281/zenodo.7410904](https://doi.org/10.5281/zenodo.7410904)

The captivating clown tree frogs of the *Dendropsophus leucophyllatus* group comprise a monophyletic lineage that includes 14 species that are widespread in rainforests in South and Central America (Caminer et al., 2017; Pirani et al., 2020; Orrico et al., 2021). One of the species of this group is *Dendropsophus sarayacuensis*, a small, nocturnal, arboreal frog, typically Amazonian, occurring in Mato Grosso and northern

Brazil, Bolivia, Peru, Ecuador and Colombia (Frota & Vaz-Silva, 2013; Ávila et al., 2021). It differs from the other species in the group by its size [snout-vent length (SVL) in males 24.9–33 mm]; an interorbital “T-shaped” light mark; a light dorsolateral mark, extending from tympanic region to mid-body; light blotches in arms and legs, at least one on elbow, on knee and on heel (Shreve, 1935; Rivera-Correa & Orrico, 2013; Peloso et al., 2016). During field-

work in Estação Ecológica Rio Acre, in West Amazon Forest, we found an individual of *D. sarayacuensis* that filled a gap in its known distribution. Herein we provide a table with literature records of this species and a geographic distribution map.

On February 10th 2021 at 20:47h, in Estação Ecológica Rio Acre (hereafter ESEC Rio Acre; -11.038°, -70.220°), municipality of Assis Brasil, state of Acre, northern Brazil, we found a male of *Dendropsophus sarayacuensis* (SVL = 30.3 mm; Fig. 1) vocalizing on the upper surface of a leaf of Heliconiaceae, approximately 170 cm above ground, in an *igapó* area (seasonally flooded forest). When we approached the calling male, a distinct herbal odor was detected. The specimen was collected under SISBIO licence (SISBIO 81835-1), killed with lidocaine (5%), fixed in 10% formalin, preserved in 70% ethanol, and deposited in the Zoological Collection of the Universidade Federal de Mato Grosso do Sul (ZUFMS-AMP15377).

The herbal smell of the species was first noticed by Rodrigues and Duellman (1994) and this feature, along with the advertisement call, helped us to find the specimen. *Dendropsophus sarayacuensis* is frequently associated with lentic ecosystems, where males vocalize perched on branches and leaves of emergent herbaceous vegetation (see Bartlett & Bartlett, 2003; Rodrigues

& Duellman, 1994). However, in this study the specimen was calling on a leaf approximately 170 cm above ground. This behavior may be due to the torrential rains that occurred during our sampling period, flooding the sites where the species is most often found in reproductive activity.

In this study, we report for the first time the presence of *D. sarayacuensis* in ESEC Rio Acre (Table 1). The species had never been previously recorded from the region (Freitas et al., 2020). Frota and Vaz-Silva (2013) indicated erroneously a study in Rondônia as a literature record for the species. In fact, this paper not only did not report finding the species, but also suggested that it does not occur there (Vanzolini, 1986). Peloso et al. (2016) later reported a record for the west of the state while analyzing collection material. Although the species has been reported from elevations between 20 m and 600 m, some locations were defined based on the centroid of the locality provided by the paper, as the record for Bolivia (Riva et al., 2000), reported from 3,694 m elevation, likely an erroneous record. This map updates the information about the distribution pattern of *D. sarayacuensis* in the Amazon basin and includes a new record in a Conservation Unit (ESEC Rio Acre) (Fig. 2), which reinforces the Amazonian distribution of this species.

ACKNOWLEDGMENTS

DGC thanks Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Funding code 001. DJS thanks Conselho Nacional de Desenvolvimento Científico e Tecnológico for his research fellowship (CNPq 309420/2020-2). LCRD thanks ARPA program for financial support.

REFERENCES

- Ávila R.W., Morais D.H., Maffei F., Pansonato A., Kawashita-Ribeiro R.A., Rodrigues D.D.J., Strüßmann, C. 2021. Herpetofauna de Mato Grosso. CRV, Curitiba.
- Bartlett R.D., Bartlett P. 2003. Reptiles and Amphibians of the Amazon: An ecotourist's guide. University Press of Florida, Florida.
- Bernarde P.S., Machado R.A., Turci L.C.B. 2011. Herpetofauna da área do Igarapé Esperança na Reserva Extrativista Riozinho da Liberdade, Acre – Brasil. *Biota Neotropica* 11:117–144.
- Caminer M.A., Milá B., Jansen M., Fouquet A., Venegas P.J., Chávez G., ... Ron S.R. 2017. Systematics of the *Dendropsophus leucophyllatus* species complex (Anura: Hylidae): Cryptic diversity and the description of two new species. *PLoS ONE* 12:1–42. doi:[10.1371/journal.pone.0171785](https://doi.org/10.1371/journal.pone.0171785)
- França F.G.R., Venâncio N.M. 2010. Reptiles and amphibians of a poorly known region in southwest Amazonia. *Biotemas*. 23:71–84. doi:[10.5007/2175-7925.2010v23n3p71](https://doi.org/10.5007/2175-7925.2010v23n3p71)
- Freitas M.A., Venâncio N.M., Abegg A.D., Azevedo W.D.S., Pereira V.O., Zanotti A.P., ... Moura G.J.B. 2020. Herpetofauna from the Estação Ecológica Rio Acre, Amazon Rainforest, Brazil. *Herpetology Notes* 13:33–48.
- Frota J.G., Vaz-Silva W. 2013. *Dendropsophus sarayacuensis* (Shreve, 1935) (Amphibia: Anura: Hylidae): Filling gap on the geographic distribution. *Check List* 9:129–130. doi:doi.org/10.15560/9.1.129
- Knispel S.R., Barros F.B. 2009. Anfíbios anuros da região urbana de Altamira (Amazônia Oriental), Pará, Brasil. *Biotemas*. 22:191–194. doi:[10.5007/2175-7925.2009v22n2p191](https://doi.org/10.5007/2175-7925.2009v22n2p191)
- López L.K.J., Santillán J.A.R. 2016. Parque Nacional del Manu, Madre de Dios, Peru: Anfíbios de la Estación Biológica Cocha Cashu. Chicago. Field Museum.
- Metcalf M.F., Marsh A., Pacaya E.T., Graham D., Gunnels C.W. 2020. Her-

petofauna of the Santa Cruz Forest Reserve in the Peruvian Amazon Basin. *Herpetology Notes* 13:753–767.

Miranda D.B., Albuquerque S., Turci L.C.B., Bernarde P.S. 2015. Richness, breeding environments and calling activity of the anurofauna of the lower moa river forest, state of acre, Brazil. *Zoologia* 32:93–108. doi:[10.1590/S1984-46702015000200001](https://doi.org/10.1590/S1984-46702015000200001)

Navarro-Morales A., Ruiz-Valderrama D.H. 2019. Descripción, ampliación y nuevo registro de distribución para *Dendropsophus manonegra* (Rivera & Orrico, 2013) y *Dendropsophus sarayacuensis* (Shreve, 1935) (Amphibia: Anura: Hylidae) en el piedemonte andino-amazónico del departamento de Caquetá, Colombia. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 43:502–507. doi: doi.org/10.18257/raccefyn.889

Neckel-Oliveira S., Gordo M. 2004. Anfíbios, Lagartos e Serpentes do Parque Nacional do Jaú. Pp. 161–176, in Borges S.H., Iwanaga S. Durigan C.C., Pinheiro M.R. (Eds), Janelas para a biodiversidade no Parque Nacional do Jau: uma estratégia para o estudo da biodiversidade na Amazonia. Fundação Vitória Amazônica. Manaus.

Orrico V.G.D., Grant T., Faivovich J., Rivera-Correa M., Rada M.A., Lyra

M.L., ... Haddad C.F.B. 2021. The phylogeny of Dendropsophini (Anura: Hylidae: Hylinae). *Cladistics* 37:73–105. doi:doi.org/10.1111/cla.12429

Peloso P.L.V., Orrico V.G.D., Haddad C.F.B., Lima-Filho G.R., Sturaro M.J. 2016. A new species of clown tree frog, *Dendropsophus leucophyllatus* species group, from Amazonia (Anura, Hylidae). *South American Journal of Herpetology* 11:66–80. doi:doi.org/10.2994/SAJH-D-16-00003.1

Pirani R.M., Peloso P.L.V., Prado J.R., Polo É.M., Knowles L.L., Ron S.R., ... Werneck F.P. 2020. Diversification history of clown tree frogs in Neotropical rainforests (Anura, Hylidae, *Dendropsophus leucophyllatus* group). *Molecular Phylogenetics and Evolution* 150:1–13. doi:doi.org/10.1016/j.ympev.2020.106877

Prudente A.L.C., Sturaro M.J., Travassos A.E.M., Maschio G.F., Santos-Costa, M.C. 2013. Anurans of the Urucu petrol Basin, municipality of Coari, State of Amazonas, northern Brazil. *Check List* 9:601–606. doi:doi.org/10.15560/9.3.601

Riva I., Köhler J., Lötters S., Reichle S. 2000. Ten years of research on Bolivian amphibians: updated checklist, distribution, taxonomic problems, literature and iconography. *Revista Española de Herpetología* 14:19–164.

Rivera-Correa M., Orrico V.G.D. 2013. Description and phylogenetic relationships of a new species of treefrog of the. *Zootaxa* 3686:447–460. doi: [dx.doi.org/10.11646/zootaxa.3686.4.3](https://doi.org/10.11646/zootaxa.3686.4.3)

Rodrigues L.O., Duellman W.E. 1994. Guide to the frogs of the Iquitos Region, Amazonian Peru. Kansas. The University of Kansas Natural History Museum - Special Publication.

Shreve, B. 1935. On a new Teiid and Amphibia from Panama, Ecuador, and Paraguay. *Occasional Papers of the Boston Society of Natural History* 8:209–218.

Souza, M.B. 2009. Anfíbios: Reserva Extrativista do Alto Juruá e Parque Nacional da Serra do Divisor, Acre. IFCH. Campinas. Vanzolini P.E. 1986. Levantamento herpetológico da área do estado de Rondônia sob a influência da Rodovia BR-364. Brasília. Programa Polonoeste.

Venâncio N.M., Souza M.B. 2016. Anfíbios do Parque Ambiental Chico Mendes, Rio Branco – Acre, Brasil. *Biotemas* 29:85–95. doi:10.5007/2175-7925.2016v29n1p85

Editora: A.F. Sabbag



Figure 1. *Dendropsophus sarayacuensis* (ZUFMS-AMP15377) from Estação Ecológica Rio Acre, municipality of Assis Brasil, AC, Brazil. Photo by DGC.

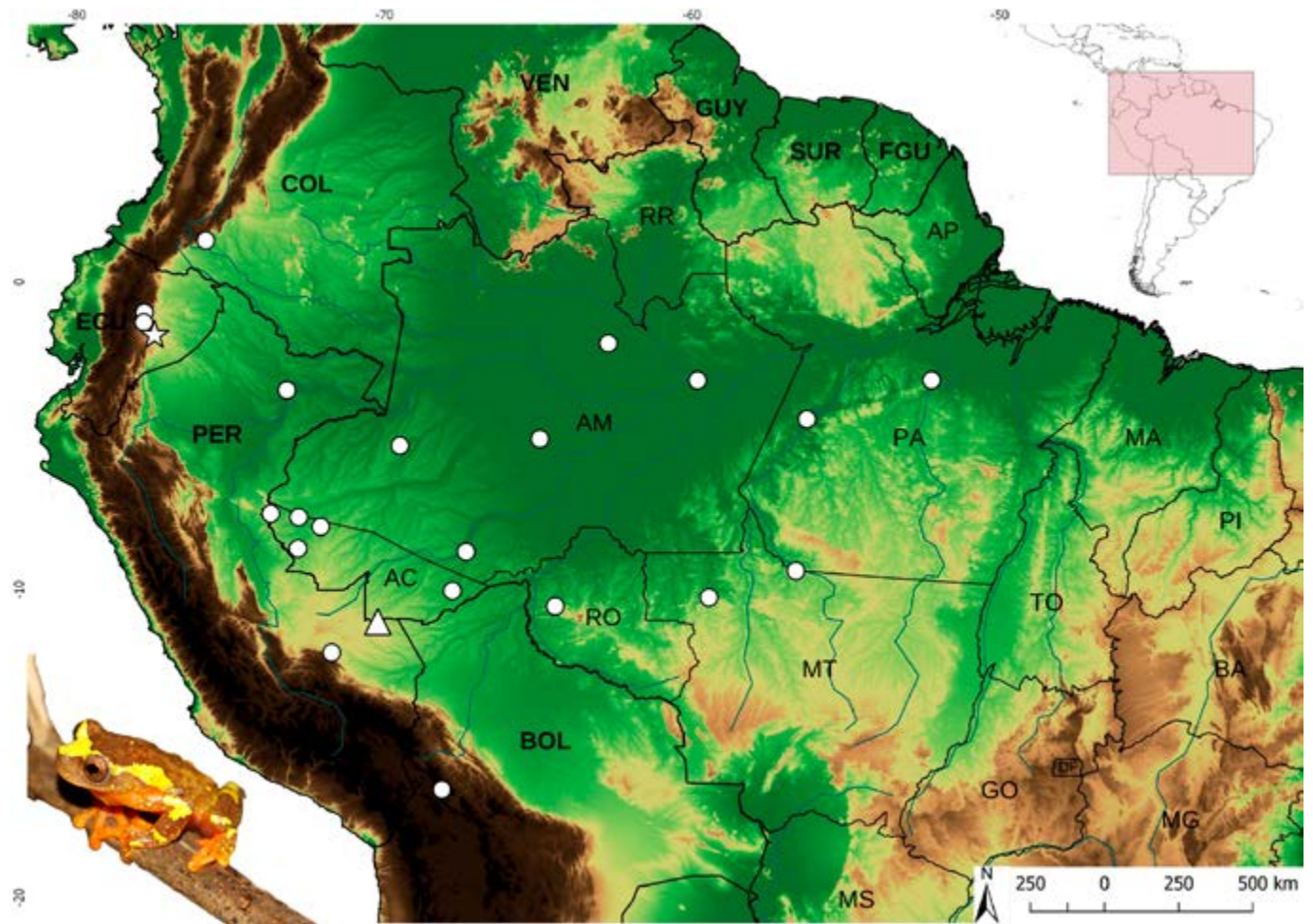


Figure 2. Distribution map based on records (see Tab. 1) of the clown-tree-frog, *Dendropsophus sarayacuensis*. Circles represent literature records; the triangle represents the new record, and the star represents the type locality. Abbreviations of the Brazilian states: AC = Acre; AM = Amazonas; MT = Mato Grosso; PA = Pará; RO = Rondônia.

Table 1. Literature records of localities where it occurs *Dendropsophus sarayacuensis*. Localities are referred to as locality, municipality, and state.

Locality	Country	Lat.	Long.	Altitude	Reference
Pando, La Paz, Beni	Bolivia	-16.491°	-68.140°	3,694 m	Riva et al., 2000
Vila Raiol, Itaituba, Pará	Brazil	-4.464°	-56.269°	23 m	Frota & Vaz-Silva, 2013
Jutaí, R.D.S. Cujubim, Rio Curuena, Amazonas	Brazil	-5.321°	-69.503°	117 m	Peloso et al., 2016
Careiro da Várzea, Manaus, Amazonas	Brazil	-3.197°	-59.825°	19 m	Peloso et al., 2016
Parque Estadual Guajará Mirim, Rondônia	Brazil	-10.537°	-64.454°	339 m	Peloso et al., 2016
Parque Nacional do Jaú, Amazonas	Brazil	-1.998°	-62.728°	49 m	Neckel-Oliveira & Gordo, 2004
Boca do Acre, Amazonas	Brazil	-8.770°	-67.346°	106 m	França & Venâncio, 2010
Altamira, Pará	Brazil	-3.194°	-52.217°	145 m	Knispel and Barros, 2009
Reserva Extrativista Riozinho da Liberdade, Acre	Brazil	-7.955°	-72.076°	195 m	Bernarde et al., 2011
Coari, Amazonas	Brazil	-5.099°	-64.954°	85 m	Prudente et al., 2013
Lower Moa River, Acre	Brazil	-7.639°	-72.795°	194 m	Miranda et al., 2015
Parque Ambiental Chico Mendes, Acre	Brazil	-10.036°	-67.795°	156 m	Venâncio & Souza, 2016
Parque Nacional da Serra do Divisor, Cruzeiro do Sul, Acre	Brazil	-7.529°	-73.703°	268 m	Souza, 2009
Estação Ecológica Rio Acre, Assis Brasil, Acre	Brazil	-11.038°	-70.220°	326 m	This study
Aripuanã, Mato Grosso	Brazil	-10.250°	-59.457°	240 m	Ávila et al., 2021
Paranaita, Mato Grosso	Brazil	-9.387°	-56.628°	285 m	Ávila et al., 2021
Caquetá, Belén de los Andaquíes, Agua Dulce	Colombia	1.338°	-75.813°	266 m	Navarro-Morales & Ruiz-Valderrama, 2019
Sarayacu, Pastaza (type locality)	Ecuador	-1.733°	-77.483°	407 m	Peloso et al., 2016
Napo	Ecuador	-0.995°	-77.813°	507 m	Peloso et al., 2016
Palta, Pastaza	Ecuador	-1.804°	-77.348°	377 m	Peloso et al., 2016
Santa Cruz Forest Reserve	Peru	-3.521°	-73.180°	115 m	Metcalf et al., 2020
Parque Nacional del Manu, Madre de Dios	Peru	-12.040°	-71.723°	633 m	López & Ruiz Santillán, 2016