

Amphibia, Anura, Hylidae, *Scinax pusillus* Pombal, Bilate, Gambale, Signorelli & Bastos, 2011: Distribution extension

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ABSTRACT: *Scinax pusillus* is endemic to the Cerrado biome in Brazil and restricted to the state of Goiás from where the species was originally described. Herein, we report the first record of *Scinax pusillus* in Brazilian protected areas, update its distribution in the state of Goiás, and present the first record for the state of Mato Grosso do Sul.

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Treefrogs belonging to the genus *Scinax* Wagler 1830 are widespread in the Neotropics, from eastern and southern Mexico to Argentina Uruguay, and some Caribbean islands (Frost 2014). Currently, 112 species are assigned to this genus (Frost 2014). In Brazil, 90 *Scinax* species are recognized, occurring in all major Brazilian biomes (Segalla *et al.* 2014). The species in the *Scinax ruber* clade (*sensu* Faivovich *et al.* 2005) can be found from Mexico to Argentina (Duellman 1999, Faivovich 2002). That clade contains species related to open and forested areas, with the majority of known species found in the Cerrado-Caatinga-Chaco biogeographic domain (Duellman 1999, Faivovich 2002).

Scinax pusillus Pombal, Bilate, Gambale, Signorelli & Bastos, 2011 was recently described and considered endemic to the Brazilian Cerrado. According to Pombal *et al.* (2011), *S. pusillus* can be distinguished from other species in the *S. ruber* clade by the very thin and small body; head about as wide as the body; snout subelliptical dorsally and very acute laterally; nostrils directed laterally, nearly elliptical and slightly protuberant; medium-sized eyes; *canthus rostralis* straight, poorly defined; loreal region oblique and narrow; tympanum inconspicuous, medium in size and slightly rounded. The advertisement call of this species is easily distinguished from others species in the *S. ruber* clade, being constituted by a single pulsed note, with each call showing 63.86 pulses, with pulse period of 2–13 ms and a dominant frequency in the range 2.51–5.95 kHz (Pombal *et al.* 2011). In the original description, this species was only found along permanent ponds close to farms, pasture or natural areas, such as veredas formations.

Scinax pusillus (Figure 1) was until now found only at Rio Verde (17°48'01" S, 51°05'05" W), Serranópolis (18°16'05" S, 51°56'05" W), and Jataí (17°44'12" S, 51°37'54" W) (Figure 2), all in the state of Goiás, central Brazil, and at approximately 800 m a.s.l. During some

fieldwork periods carried out between 2010–2012, we found *Scinax pusillus* at seven additional localities (Figure 2). Voucher specimens were euthanized with 5% lidocaine, fixed in a solution of 70% alcohol and 15% formalin; voucher tadpoles were euthanized in a 5% benzocaine solution and fixed in 10% formalin. Adults and tadpoles were deposited in the Coleção Zoológica da Universidade Federal de Goiás (ZUFG), Goiânia, Goiás, Brazil, under the labels ZUFG 5299, 5310 (Coxim), 5496, 6060, 6062-3, 6933-5, 6949, 6950-1, 6953-4 (Mineiros), 6145-7 (Cristalina), 6874 (Britânia), 7262-3, 7272-5 (Chapadão do Céu), 7374 (Luziânia), 7631 (Aporé), for adults, and lots ZUFG 553, 556, 558, 563, 566, 570, 577, 585-6, 588, 590, 593, 595, 598, 621, 625-6 (Extractivist Reserve Lago do Cedro), 1313, 1322, 1327, 1331 (Emas National Park), 1338, 1353 (Chapadão do Céu) for tadpoles. Identification of adults was confirmed by one of the authors of the original description (RPB). For identification of tadpoles we followed the development of some of the larvae until adult stage in the laboratory.

Two of these new records were obtained from areas included in the Brazilian National System of Conservation Units (*Sistema Nacional de Unidades de Conservação* — SNUC), although with different conservation objectives. One of these areas is the Emas National Park (ENP) (17°06'23" S, 52°55'40" W), which is located in the southwestern region of the state of Goiás. The ENP is located in the central Brazilian plateau, between Mineiros and Chapadão do Céu (17°49'–18°28' S and 52°39'–53°10' W). We also found specimens in these two municipalities and around the park boundaries. In the ENP, *S. pusillus* was found in temporary and permanent ponds in open areas. The second protected area is the Extractivist Reserve Lago do Cedro (ERLC) (14°55'12" S, 51°04'58" W, SAD69), located in the northeastern region of Goiás. The ERLC covers an area of 17,337 ha and is located in the Cerrado domain (Villanueva 2009), in the Rio Vermelho microregion. In the ERLC, *S. pusillus* was found in temporary and permanent



FIGURE 1. . *Scinax pusillus* (ZUFG 7631) collected in Jataí municipality, State of Goiás, Central Brazil. Photo by Sheila P. Andrade.

ponds near to forest edges or in open areas. We also recorded *S. pusillus* in Cristalina (16°46'08" S, 47°36'50" W), Luziânia (16°15'10" S, 47°57'0" W), and Britânia (15°21'58" S, 51°07'25" W), outside protected areas. The specimens were found in ponds with predominant herbaceous vegetation, located at the boundary between fragments of secondary forest and agricultural landscapes. In such ponds, males of *S. pusillus* were captured during calling activity, on marginal shrubs.

In all localities, the behavior and habitat use of *Scinax pusillus* were very similar to those depicted in the original description, including the peculiar position during calling (Pombal *et al.* 2011). The males were observed vocalizing on marginal vegetation, perched on vertical branches of bushes or upon leaves, with their head upward or downward. Individuals of *Scinax pusillus* can be easily confused with *Scinax fuscomarginatus* that also present the same calling behavior (Nomura, pers. obs.). Thus, it is possible that the distribution of *S. pusillus* could be even greater if specimens of this species have been erroneously identified as *S. fuscomarginatus*. We also found a specimen of *S. pusillus* deposited in the "Zoological Collection of the Universidade Federal de Goiás" (ZUFG), from Coxim

(18°30'25" S, 54°45'36" W), in Mato Grosso do Sul that was previously identified as *S. fuscomarginatus*, and one specimen from Aporé (18°56'56" S, 51°54'32" W), in Goiás that was previously identified as *Scinax* sp.

The new records presented herein increase the distribution of the species (from the type locality) towards southern Goiás of approximately 130 km to Aporé, and 199 km to ENP; towards northwestern Goiás, 282 km to Britânia and 329 km in direction to the ERLC; towards eastern Goiás 409 km to Luziânia, and 401 km eastward, to Cristalina. The record from Coxim represents a distribution extension of 402 km towards the southwest in a straight line from the type locality and represents the first record of the species in the state of Mato Grosso do Sul, which suggests that the species could also occur in the Pantanal.

Scinax pusillus seems to withstand and inhabit lands converted to agricultural fields, especially pastures. The records of *S. pusillus* from protected areas is important because species occurrence in protected areas is often used for definition of conservation status. The distribution extension of *S. pusillus* to the Araguaia/Tocantins river basin reinforces this region as an important repository of the anuran biodiversity for the Cerrado biome.

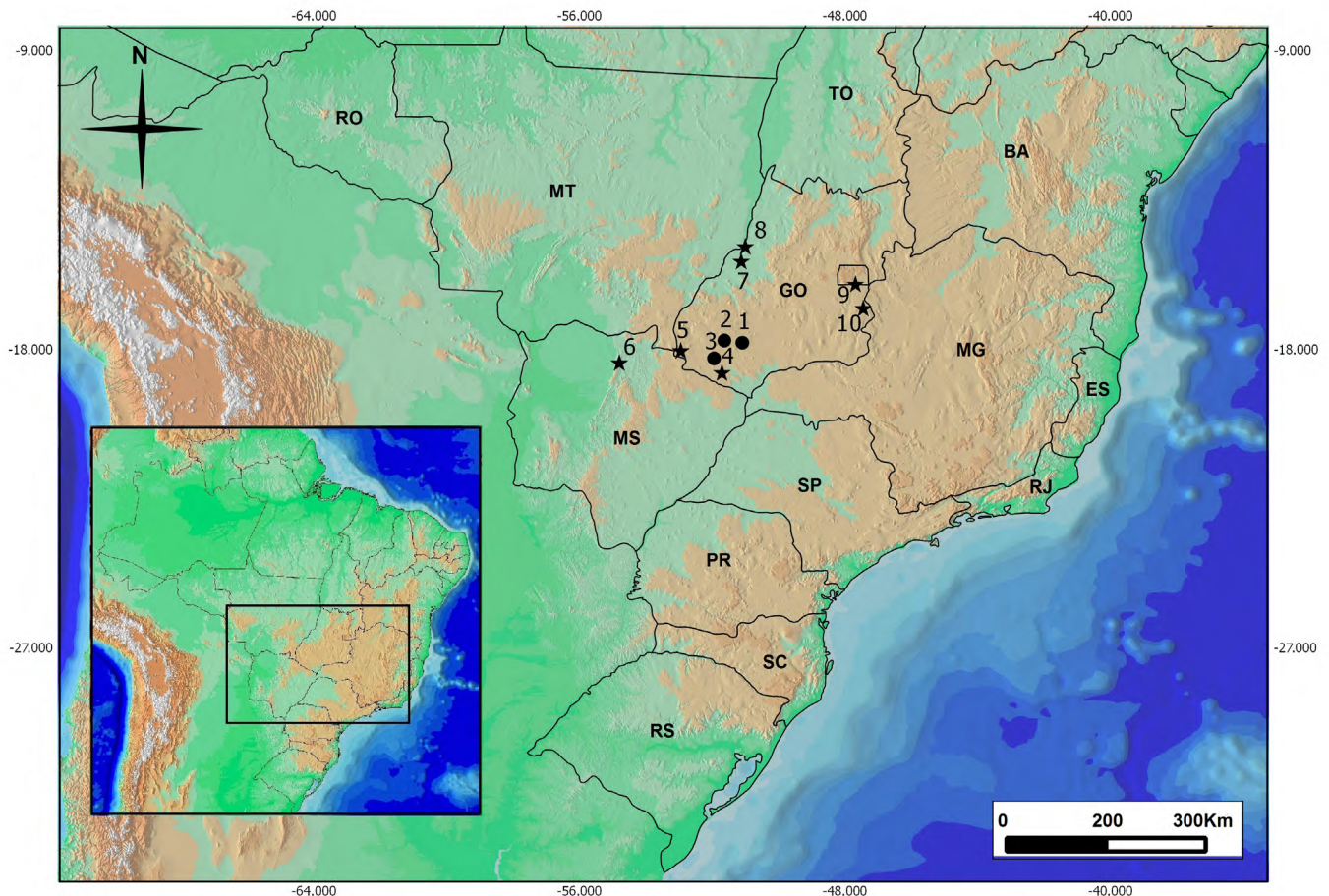


FIGURE 2. Geographic distribution of *Scinax pusillus* in Brazil. Symbols: Circles: type localities, Stars: new records. Numbers: 1: Rio Verde-GO, 2: Jataí-GO, 3: Serranópolis-GO, 4: Aporé-GO, 5: Emas National Park-GO, 6: Coxim-MS, 7: Britânia-GO, 8: Extrativist Reserve Lago do Cedro-GO, 9: Luziânia-GO, and 10: Cristalina-GO.

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LITERATURE CITED

- Duellman, W.E. 1999. *Patterns of Distribution of Amphibians*. Baltimore: The Johns Hopkins University Press. 623 pp.
- Faivovich, J. 2002. A cladistic analysis of *Scinax* (Anura: Hylidae). *Cladistics* 18(4): 367–393 (doi: 10.1111/j.1096-0031.2002.tb00157.x).
- Faivovich, J., C.F.B. Haddad, P.C.A. Garcia, D.R. Frost, J.A. Campbell, and W.C. Wheeler. 2005. Systematic review of the frog family Hylidae, with special reference to Hylinae: Phylogenetic analysis and taxonomic revision. *Bulletin of the American Museum of Natural History* 294: 240 pp. (<http://hdl.handle.net/2246/462>).
- Frost, Darrel R. 2014. *Amphibian Species of the World: An Online Reference*. Version 6.0. Electronic Database accessible at <http://research.amnh.org/herpetology/amphibia/index.html>. Captured on 26 February 2014.

- Pombal Jr, J.P., M. Bilate, P.G. Gambale, L. Signorelli and R.P. Bastos. 2011. A new miniature treefrog of the *Scinax ruber* clade from the Cerrado of central Brazil (Anura: Hylidae). *Herpetologica* 67(3): 288–299 (doi: 10.1655/HERPETOLOGICA-D-10-00067.1).
- Ramos-Neto, M.B. and V.R. Pivello. 2000. Lightning fires in a Brazilian savanna national park: Rethinking management strategies. *Environmental Management* 26(6): 675–684 (doi: 10.1007/s002670010124).
- Segalla, M.V.; U. Caramaschi; C.A.G. Cruz; P.C.A. Garcia; T. Grant; C.F.B. Haddad and J. Langone. 2012. *Brazilian Amphibians — List of Species*. Accessible at <http://www.sbherpetologia.org.br>. Captured on 26 February 2013.
- Villanueva, R.E. 2009. *Apoio à Elaboração do Plano de Manejo Participativo da Reserva Extrativista Lago do Cedro, GO*. Instituto Chico Mendes de Conservação da Biodiversidade, Brasília.

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