

## New records and geographic distribution map of *Pseudopaludicola pocoto* (Anura: Leptodactylidae: Leiuperinae) in Northeastern Brazil

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### Novos registros e mapa de distribuição geográfica de *Pseudopaludicola pocoto* (Anura: Leptodactylidae: Leiuperinae) no Nordeste do Brasil

**Resumo:** Fornecemos novos registros e um mapa de distribuição geográfica atualizado de *Pseudopaludicola pocoto* Magalhães, Loebmann, Kokubum, Haddad & Garda, 2014 para os estados brasileiros do Ceará, Rio Grande do Norte e Pernambuco. O presente trabalho auxilia a preencher lacunas na distribuição desta espécie descrita para o domínio Caatinga, o que pode ser útil em futuros planos de conservação.

**Palavras chave:** Amphibia, Caatinga, neotrópicos, Semi-árido.

**Abstract:** We provide new records and an updated geographic distribution map of *Pseudopaludicola pocoto* Magalhães, Loebmann, Kokubum, Haddad & Garda, 2014 for the Brazilian states of Ceará, Rio Grande do Norte and Pernambuco. The present work helps to fill gaps in distribution of this recently described species in Caatinga Biome, which can be useful in future conservation plans.

**Key words:** Amphibia, Caatinga, neotropics, Semiarid.

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Frog genus *Pseudopaludicola* Miranda-Ribeiro, 1926 constitute a basal taxon within Leptodactylidae Werner, 1896, subfamily Leiuperinae Werner, 1896 (Pyron *et al.* 2011), comprising currently 21 species (Frost 2017). They are widely distributed in South America, from northern Argentina to east of Andes in Venezuela, being associated to open formations close to Tropical forests, such as Chaco, Pampas, Cerrado and Caatinga (Frost 2017). In Brazil, the genus is represented by 19 species (Lantyer-Silva *et al.* 2016), five of which known from Caatinga: *P. mystacalis* (Cope, 1887), *P. ternetzi* Miranda-Ribeiro, 1937, *P. parnaíba* Roberto, Cardozo & Avila, 2013, *P. pocoto* Magalhães, Loebmann, Kokubum, Haddad & Garda, 2014 and

*P. jaredi* Andrade, Magalhães, Nunes-de-Almeida, Veiga-Menoncello, Santana, Garda, Loebmann, Recco-Pimentel, Giaretta & Toledo, 2016, the latter has the narrower distribution, restricted to the Serra das Flores mountain range in the Planalto da Ibiapaba, in the State of Ceará, and in the Floresta Nacional de Nísia Floresta, in the state of Rio Grande do Norte; while *P. mystacalis* and *P. pocoto* have wider geographic distribution within the Caatinga (Loebmann *et al.* 2010; Magalhães *et al.* 2014; Pansonato *et al.* 2014; Andrade *et al.* 2016; Caldas *et al.* 2016).

*Pseudopaludicola pocoto* is widespread in Caatinga Domain, in the states of Ceará (Magalhães *et al.* 2014), Paraíba (Lantyer-Silva *et al.* 2016), Pernambuco (Lantyer-Silva *et al.* 2016; Pereira *et al.* 2015), Piauí (Silva *et al.* 2015), Rio Grande do Norte (Magalhães *et al.* 2014) and Bahia (Andrade *et al.* 2017). The record of the species from the Atlantic Forest in the state of Minas Gerais evidenced a large distributional gap for the species that needs investigations regarding its occurrence (Andrade *et al.* 2015).

In northeastern Brazil, *Pseudopaludicola pocoto* is known to occur in ten municipalities from Ceará (Magalhães *et al.* 2014; Santana *et al.* 2015; Roberto & Loebmann 2016), two of them in the north, Fortaleza (03°43'S, 38°32'W) and Pacatuba (03°59'S, 38°37'W), two in the west, Santa Quitéria (04°19'S, 40°09'W) and Nova Russas (04°42'S, 40°33'W), three along the Jaguaribe River Valley, Jaguaribe (05°53'S, 38°37'W), Limoeiro do Norte (05°08'S, 38°05'W) and Morada Nova (05°06'S, 38°22'W), and the remaining in the south Barbalha (07°18'S, 39°18'W), Jati (07°41'S, 39°00'W) and Missão Velha (07°14'S, 39°08'W). From the state of Rio Grande do Norte: municipalities of Macaíba (05°51'S, 35°21'W) and Serra Negra do Norte (06°39'S, 37°24'W); state of Paraíba: municipalities of Patos (07°01'S, 37°16'W) and Serra de Santa Catarina (07°89'S, 38°17'W); and Pernambuco: municipalities of Betânia (08°16'S, 38°02'W) and Serrita (07°56'S, 39°17'W) (Magalhães *et al.* 2014; Pereira *et al.* 2015; Caldas *et al.* 2016).

Herein, we provide 12 new records of *Pseudopaludicola pocoto* in Ceará, Rio Grande do Norte and Pernambuco states, with an updated geographic distribution map. Fieldwork took place in Caatinga remnants from October 2010 to February 2014 in the states of Ceará, Rio Grande do Norte and Pernambuco. Frogs were collected manually, euthanized with a Sodium-Thiopental solution, fixed in 10% formalin and placed in vials of 70% ethanol. Amphibians were collected according to authorization for activities with scientific purpose – ICMBio/SISBio N° 29613–1; 55467–1 were deposited in the Coleção Herpetológica da Universidade Regional do Cariri (URCA-H), Crato, Ceará (see **Appendix**).

Records of *Pseudopaludicola pocoto* belongs to ten municipalities in Ceará state: Acopiara (06°20'S, 39°50'W), Mauriti (07°22'S, 38°38'W), Aiuaba (06°65'S, 40°13'W), Banabuiú (05°18'S, 38°55'W), Barro (07°17'S, 38°78'W), Farias Brito (06°78'S, 39°53'W), Jaguaruana (04°79'S, 37°86'W), Tauá (06°00'S, 40°17'W), Várzea Alegre (06°47'S, 39°17'W) and Juazeiro do Norte (07°12'S, 39°18'W). For the state of Pernambuco there are records from municipality Exu (07°57'S, 39°75'W) and a new record from Rio Grande do Norte state, Ceará Mirim municipality (05°38'S, 36°25'W).

Many specimens were identified in the field based on advertisement calls, and the remaining were identified from preserved specimens, which fits well with the characteristics given in the original description by Magalhães *et al.* (2014): cream vocal sac with longitudinal folds, absence of T-shaped finger tips, short legs and complete abdominal fold (**Figure 1**).

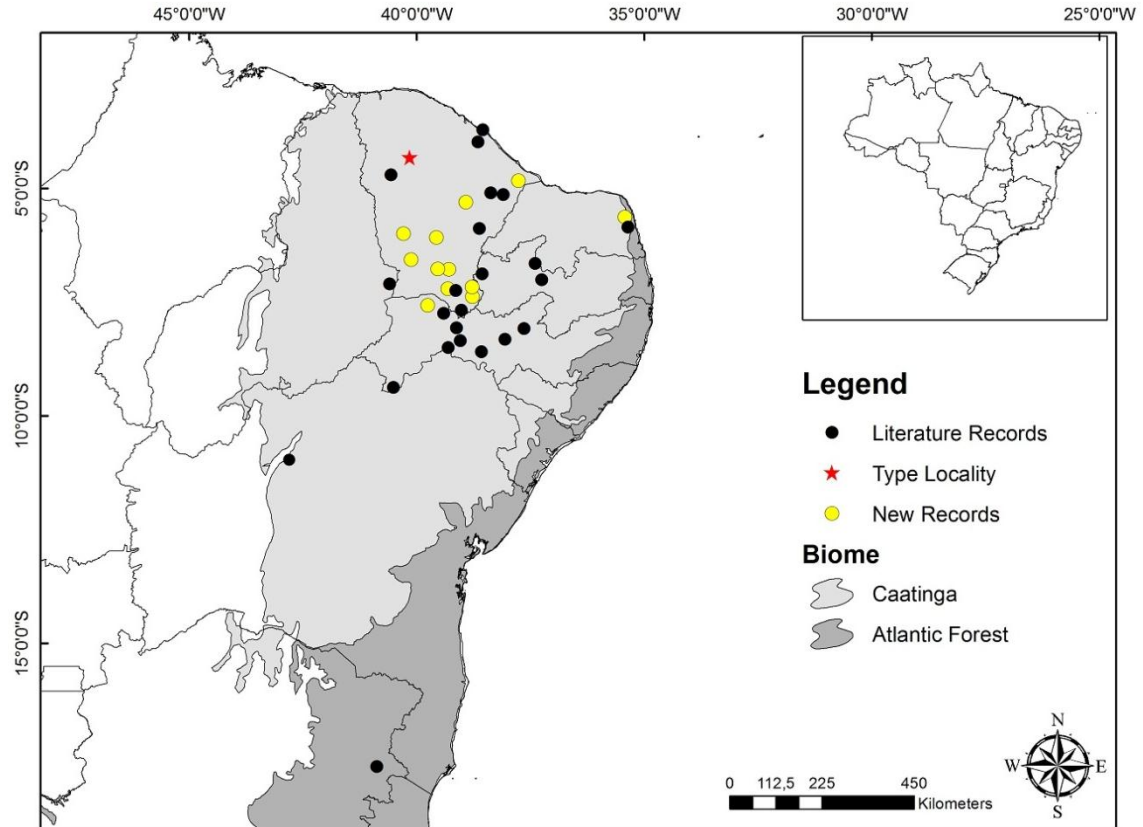
Our study filled some gaps of the geographic distribution of *Pseudopaludicola pocoto*, especially in the state of Ceará (**Figure 2**). Despite the record of the species in the Atlantic Forest of Minas Gerais state (Andrade *et al.* 2015), in the state of Ceará, it's found in the coastal zone, in dry forests, but mostly in the Caatinga *sensu strictu* areas, however, until then, never registered in the humid forests “Brejos de Altitude”.

*Pseudopaludicola pocoto* seems to be the most widespread species of the genus in the Caatinga. Still, there is a need of more wider geographic sampling of the genus in the Caatinga and surrounding areas, specially using acoustic survey techniques, associated with natural history data collection and molecular research, to help elucidate the geographic boundaries and

evolution history of the genus in the Caatinga, a biome of a diverse and complex evolutionary history of its biodiversity (Werneck *et al.* 2015; Thomé *et al.* 2016).



**Figure 1.** *Pseudopaludicola pocoto* collected in municipality Aiuaba, Ceará, Brazil (Photo: Drausio H. Morais).



**Figure 2.** Geographic distribution of *Pseudopaludicola pocoto* in northeast Brazil.

## Appendix

The specimens used in this study are preserved in the Coleção Herpetológica da Universidade Regional do Cariri (URCA-H), Crato, Ceará. Here we provide the voucher number of each specimen. *Pseudopaludicola pocoto*: 105, 1766, 3075, 3185, 3233, 3987, 3993, 4452, 4918, 6936, 11113, 11874.

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