

# Amphibia, Anura, Leptodactylidae, *Leptodactylus thomei* Almeida and Angulo, 2006: Distribution extension and geographic distribution map

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**ABSTRACT:** The current study reports the collection of one individual of *Leptodactylus thomei* at the municipality of Mimoso do Sul, state of Espírito Santo, southeastern Brazil, extending the distribution of this species over 200 Km southwards.

The *Leptodactylus marmoratus* species group (formerly the genus *Adenomera*) is taxonomically controversial; some cryptic species can be recognized only by behavioral aspects, such as call structure, genes, reproductive mode and natural history (Angulo *et al.* 2003; Almeida and Angulo 2006); recent studies encompassing advertisement calls revealed several cryptic species (Kwet and Angulo 2002; Angulo and Icochea 2003; Angulo *et al.* 2003; Kokubum and Giaretta 2005; Boistel *et al.* 2006; Almeida and Angulo 2006; Berneck *et al.* 2008; Angulo and Reichle 2008). Additionally, actual species diversity in the group is far greater than what is currently recognized (Angulo *et al.* 2003; Kokubum and Giaretta 2005; Angulo and Reichle 2008).



FIGURE 1. Male *Leptodactylus thomei* (CFBH 22295) collected at Mimoso do Sul, southern Espírito Santo.

*Leptodactylus thomei* Almeida and Angulo, 2006 is a recently described species of the *L. marmoratus* group, only known from the northern region of the state of Espírito Santo. The type locality (Povoação, Linhares, 19°33' S, 39°46' W) is located in cocoa plantations within alluvial forests, at sea level (Almeida and Angulo, 2006). In addition, the original species description reports one specimen heard and collected at Governador Lindemberg,



FIGURE 2. General view of the site where *Leptodactylus thomei* was collected at Mimoso do Sul.

Espírito Santo, and, based on preserved specimens, argues its occurrence also in southern state of Bahia.

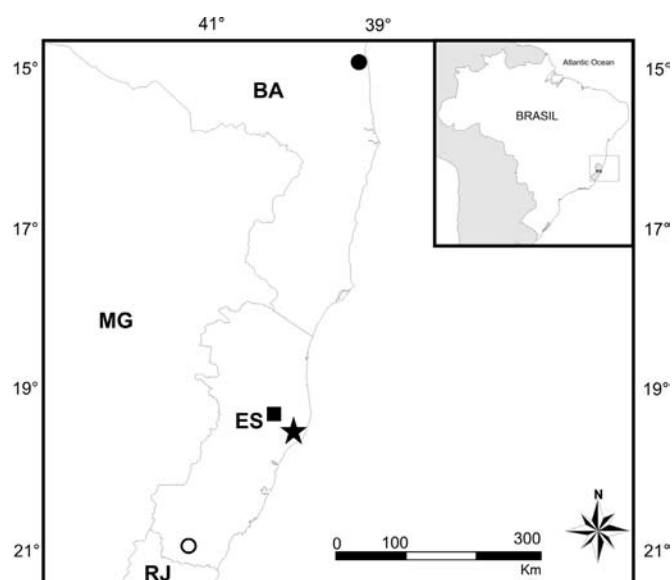
Herein we report the collection of one individual during fieldwork carried out in the municipality of Mimoso do Sul, state of Espírito Santo, extending the distribution of this species over 200 km southwards. Collecting permits were granted by Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – IBAMA (Permits NUFAUNA/IBAMA/ES 45/06 and 78/07).

In Mimoso do Sul, one male (CFBH 22295, Figure 1) was captured in December, 2007, during acoustic and visual sampling, calling under grass, at the margin of Muqui do Sul river (21°01'15" S, 41°23'45" W, 225m).

*Leptodactylus thomei* can be found in high numbers at the type locality, widespread along the entire alluvial plain; there was one single individual calling at Mimoso do Sul, where the vegetation corresponds to semi-deciduous forest remnants (Figure 2). The altered environment of cocoa plantations at the type locality (extensive portions of seasonally flooded lowlands, covered by a uniform, abundant leaf-litter) probably favored reproductive conditions for semi-terrestrial tadpoles of

*L. thomei* (Almeida and Angulo 2002), leading to the high abundances commonly recorded during the rainy season. On the other hand, the semi-deciduous forest offers less flooding environments, and more variable topography and micro-habitats.

Considering that there are records in different types of forest environments, the gap between the distributional known limits (Figure 3) suggests limited taxonomic sampling, rather than environmental restrictions to the presence of *L. thomei* along the area. Hence, additional inventories encompassing areas within this distributional gap are desirable.



**FIGURE 3.** Known geographic distribution of *Leptodactylus thomei*. Star: type locality; black circle: Ilhéus; square: Governador Lindenberg; open circle: Mimoso do Sul. Abbreviations correspond to the states' names: Bahia (BA), Minas Gerais (MG), Espírito Santo (ES) and Rio de Janeiro (RJ).

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#### LITERATURE CITED

- Almeida, A.P. and A. Angulo. 2002. *Adenomera* aff. *marmorata*. Reproduction. *Herpetological Review* 33(3): 197-198.
- Almeida, A.P. and A. Angulo. 2006. A new species of *Leptodactylus* (Anura: Leptodactylidae) from the State of Espírito Santo, Brazil, with remarks on the systematics of associated populations. *Zootaxa* 1334: 1-25.
- Angulo, A. and J. Icochea. 2003. *Adenomera* cf. *andreae* (NCN). Vocalization. *Herpetological Review* 34(1): 47-48.
- Angulo, A. and S. Reichle. 2008. Acoustic signals, species diagnosis, and species concepts: the case of a new cryptic species of *Leptodactylus* (Amphibia, Anura, Leptodactylidae) from the Chapare region, Bolivia. *Zoological Journal of the Linnean Society* 152: 59-77.
- Angulo, A., R.B. Cocroft and S. Reichle. 2003. Species identity in the genus *Adenomera* (Anura: Leptodactylidae) in southeastern Peru. *Herpetologica* 59(4): 490-504.
- Berneck, B.V.M., C.O.R. Costa and P.C.A. Garcia. 2008. A new species of *Leptodactylus* (Anura: Leptodactylidae) from the Atlantic Forest of São Paulo State, Brazil. *Zootaxa* 1795: 46-56.
- Boistel, R., Massary, J.-C. and A. Angulo. 2006. Description of a new species of the genus *Adenomera* (Amphibia, Anura, Leptodactylidae) from French Guiana. *Acta Herpetologica* 1: 1-14.
- Kokubum, M.N.C. and A.A. Giaretta. 2005. Reproductive ecology and behavior of a species of *Adenomera* (Anura, Leptodactylinae) with endotrophic tadpoles: Systematic implications. *Journal of Natural History* 39(20): 1745-1758.
- Kwet, A. and A. Angulo. 2002. A new species of *Adenomera* (Anura, Leptodactylidae) from the Araucaria forest of Rio Grande do Sul (Brazil), with comments on the systematic status of southern populations of the genus. *Alytes* 20(1-2): 28-43.

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