

# First record of *Adelophryne baturitensis* Hoogmoed, Borges & Cascon, 1994 for the state of Pernambuco, Northeastern Brazil (Anura, Eleutherodactylidae, Phyzelaphryninae)

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The genus *Adelophryne* Hoogmoed & Lescure, 1984 currently comprises six species: *Adelophryne adiaistola* Hoogmoed & Lescure, 1984, *A. guttuurosa* Hoogmoed & Lescure, 1984, and *A. patamona* MacCulloch, Lathrop, Kok, Minter, Khan & Barrio-Amoros, 2008 from the Amazonian Rainforest Biome, *A. baturitensis* Hoogmoed, Borges & Cascon, 1994 and *A. maranguapensis* Hoogmoed, Borges & Cascon, 1994 from the Caatinga Biome; and *A. pachydactyla* Hoogmoed, Borges & Cascon, 1994 from the Atlantic Rainforest Biome (Hegdes et al., 2008; Macculloch et al., 2008). Until recently *Adelophryne baturitensis* was considered an endemic species of the Maciço de Baturité, a restricted area of high altitude moist forest remnants in the state of Ceará, Brazil (Hoogmoed et al., 1994; Eterovick et al., 2005). However, a population of *A. baturitensis* was discovered in 2010 in the Planalto da Ibiapaba (03°48'S, 40°54'W) another moist forest remnants in Ceará, ca. 220 km straight line westwards from the type-locality (Loebmann & Haddad, 2010). Currently, *A. baturitensis* has been considered as "vulnerable" in the Red List of Threatened Species of Brazil (Haddad, 2008) and Red List of Threatened Species of International Union for Conservation of

Nature (Silvano and Borges-Nojosa, 2004).

On December 2009, in a highland area of Atlantic Rainforest remnant known as Brejo dos Cavalos, located in the municipality of Caruaru, state of Pernambuco (08°22'23.98" S, 36°02'00.20"W; ca. 900 m above sea level) one specimen of *A. baturitensis* was collected (Figure 1). The specimen was deposited in Célio F. B. Haddad Amphibian Collection (CFBH 24627), Universidade Estadual Paulista "Júlio de Mesquita Filho", Rio Claro, São Paulo, Brasil.

Due to their small size (all species of the genus do not reach 20 mm in SVL) and the fact that species within the genus are morphologically very similar, the taxonomy of *Adelophryne* is considered difficult. However, *Adelophryne baturitensis* is unique within the genus for having tubercles, instead of pads, in the feet (Hoogmoed et al., 1994). In addition to this feature, all diagnostic characters are present in the specimen examined, i.e. size, ventral and dorsal color pattern, number and position of tubercles in the hands and feet, and relation between eye diameter and distance from the tympanum to the eye. As a result, we can attribute that the specimen from Brejo dos Cavalos to *A. baturitensis*. We also compared the specimen with seven voucher specimens from the type-locality (Maciço de Baturité; CFBH 20469-20472; 20474-20476) and did not find any characters which distinguished the topotypes of *A. baturitensis* from the specimen of Pernambuco.

This is the second record for the species outside from its type-locality, extending the species distribution ca. 550 km towards the southeast (Figure 2). Also, this is the first record of the species for the Atlantic Rainforest Biome. The record of this threatened species for other localities is extremely relevant for its conservation status. In addition, the presence of the species for Brejos dos Cavalos highlights the importance of preservation of this area which has suffered intense degradation due to agriculture activities and clay exploration (Braga et al., 2002).

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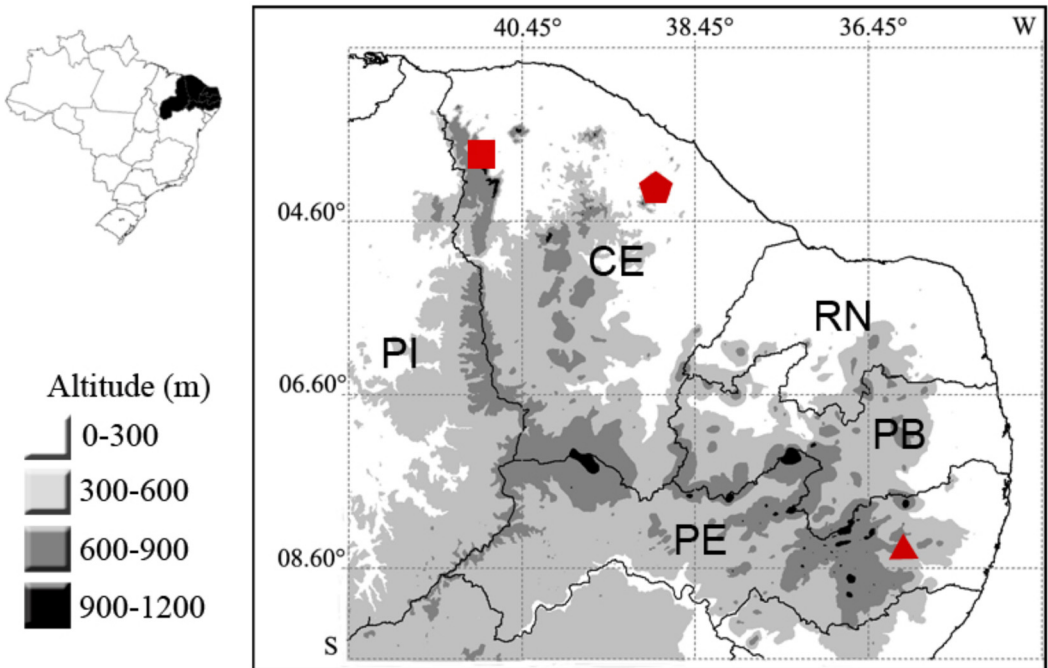
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**Figure 1.** A. Dorsal and ventral view of the specimen collected (SVL=13.2 mm) at Brejo dos Cavalos, municipality of Caruaru, state of Pernambuco; B. Adult male of *Adelophryne baturitensis* from the type-locality, Maciço de Baturité, municipality of Pacoti, state of Ceará.

**Acknowledgements.** The authors are grateful to Cristiano Sampaio, Alessandro Giupponi and Amazonas Chagas Junior to have provided the specimen of *Adelophryne baturitensis* recorded in this study. Julian Faivovich for making useful comments on a draft version of the manuscript. Daniel Loebmann was supported by grant n° 140226/2006-0 from CNPq. Victor G. Dill Orrico was

supported by grant n° 2007-57067-9 from FAPESP. Specimen was collected under ICMBio/ SISBIO license n° 12920-4. Célio F. B. Haddad thanks FAPESP and CNPq for financial support.



**Figure 2.** Altitudinal map showing the recognized records of *Adelophryne baturitensis*. Red pentagon - Maciço de Baturité, state of Ceará, Brazil (type-locality); Red Square – Planalto da Ibiapaba, state of Ceará, Brazil (Loebmann & Haddad, 2010); Red triangle - Brejo dos Cavalos, state of Pernambuco, Brazil (present record). Map created by the using of Diva-GIS software (Hijmans et al., 2002).

## References

- Braga, R.A.P., Cabral, J.J.S.P., Montenegro, S.M.G.L., Perrier Jr, G.S. (2002): Conservação dos recursos hídricos em brejos de altitude - O caso de Brejo dos Cavalos, Caruaru, PE. *Rev. Bras. Eng. Agric. Amb.* 6: 539-546.
- Eterovick, P.C., Carnaval, A.C.O.Q., Borges-Nojosa, D.M., Silvano D.L., Segalla, M.V., Sazima, I. (2005): **Amphibian declines in Brazil: an overview.** *Biotrop.* 37: 166-179.
- Haddad, C.F.B. (2008): Anfíbios. In: *Livro vermelho da fauna brasileira ameaçada de extinção (série Biodiversidade 19, vol. 2)*, p. 286-325. Machado, A.B.M., Drummond, G.M., Paglia, A.P., Ed., Brasília, Ministério do Meio Ambiente.
- Hedges, S.B., Duellman, W.E., Heinicke, M.P. (2008): New World direct-developing frogs (Anura: Terrarana): molecular phylogeny, classification, biogeography, and conservation. *Zootaxa.* 1737: 1-182.
- Hijmans, R.J., Guarino, L., Rojas, E. (2002): *DIVA-GIS. A Geographic Information System for the Analysis of Biodiversity Data—Manual.* International Potato Center, Lima, Peru, 73 pp.
- Hoogmoed, M.S. & Lescure, J. (1984): A new genus and two new species of minute leptodactylid frogs from northern South America, with comments upon *Phyzelaphryne* (Amphibia: Anura: Leptodactylidae). *Zool. Meded.* 58: 85-115.
- Hoogmoed, M.S., Borges, D.M., Cascon, P. (1994): Three new species of the genus *Adelophryne* (Amphibia: Anura: Leptodactylidae) from northeastern Brazil, with remarks on the other species of the genus. *Zool. Meded.* 68: 271-300.
- Loebmann, D. & Haddad, C.F.B. (2010): **Amphibians and reptiles from a highly diverse area of the Caatinga domain: composition and conservation implications.** *Biota Neotrop.* 10: 227-256.
- Macculloch, R.D., Lathrop, A., Kok, P.J.R., Minter, L.R., Khan, S.Z., Barrio-Amorós, C.L. (2008): A new species of *Adelophryne* (Anura: Eleutherodactylidae) from Guyana, with additional data on *A. gutturosa*. *Zootaxa.* 1884: 36-50.
- Silvano, D.L., Borges-Nojosa, D. (2004): *Adelophryne baturitensis*. In: IUCN 2009. IUCN Red List of Threatened Species. Version 2009.2. Available at: <http://www.iucnredlist.org>. Downloaded on 30 January 2010.