

# *Aparasphenodon brunoi* Miranda-Ribeiro, 1920 (Anura: Hylidae): Distribution extension and geographic distribution map for Bahia state, Brazil

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**ABSTRACT:** The casque-headed frog *Aparasphenodon brunoi* is recorded for the first time in the municipalities of Ilhéus and Igrapiúna, southern region of Bahia state, northeastern Brazil. The new record of *A. brunoi* in the municipality of Igrapiúna, represents an increase of its known geographic distribution of approximately 150 km north from its nearest locality (airline), in municipality of Una, state of Bahia, representing now the northernmost known record for this species.

The genus *Aparasphenodon* Miranda-Ribeiro 1920 is currently represented by four species: *A. arapapa* Pimenta, Napoli and Haddad 2009; *A. bokermanni* Pombal 1993; *A. brunoi* Miranda-Ribeiro 1920, and *A. venezolanus* (Mertens 1950). All species of the genus occur in the coastal region of Brazil, except *A. venezolanus* (Lynch and Ramírez 2000; Frost 2013). The tree frogs of the genus *Aparasphenodon* are commonly called “Casque-headed Treefrogs”, due the strongly ossified skull (Pombal 1993).

The species *Aparasphenodon bokermanni*, recorded in the municipality of Guaramirin, Santa Catarina state, Brazil, represents the southernmost locality for the genus in the Atlantic Forest. To date, the occurrence of *A. arapapa* between the municipalities of Cairu and Ituberá, in a region known as Baixo Sul in the south of the Bahia state, represents the northernmost record for the genus, in the coastal region in Brazil (Woehl and Woehl 2003; Pimenta, *et al.* 2009; Mollo Neto and Teixeira Jr 2012).

*Aparasphenodon brunoi* (Figure 1) is mostly distributed along the coast of São Paulo, Rio de Janeiro and Espírito Santo states, inland Minas Gerais state and southern Bahia state (Feio *et al.* 1998; Argôlo 2000; Silvano and Pimenta 2003; Rocha *et al.* 2004; Mollo Neto and Teixeira

Jr 2012). The species is relatively common in the Restinga, a typical environment found along the southeastern coast of Brazil consisting in sand dunes covered by greatly diversified vegetation (Rizzini 1997), where it is usually found associated to bromeliads (Mesquita *et al.* 2004; Rocha *et al.* 2008). *Aparasphenodon brunoi* is also found in lowland forests of the Atlantic Forest biome (Feio *et al.* 1998; Silva-Soares *et al.* 2010). Males can be found calling from bromeliad phytotelmata, cactus, lianas or trunks (Mesquita *et al.* 2004). The tadpole inhabits temporary ponds and was described by Wogel *et al.* (2006).

According to Pimenta *et al.* (2009), *Aparasphenodon brunoi* is distinguished from its known congeners in the Atlantic Forest of Brazil by a dorsum marbled with irregular dark brown markings, and arms and legs with transverse dark brown stripes or irregular dark brown markings.

The new records of *Aparasphenodon brunoi* are reported here based on two specimens collected during field surveys conducted respectively in the years 2007 and 2010 in two areas in the south of the state of Bahia, Brazil.

The first record was made in the Reserva Ecológica Michelin, municipality of Igrapiúna (13°49'15"S and 39°11'52"W) in March 2007 in an Atlantic Forest fragment. One adult male (UESB 623) was found in the forest fragment called “Vila 5”. The second record is from the urban area of the municipality of Ilhéus (14°47'28"S and 39°01'54"W), where one adult male (MZUESC 8052) was collected in February 2010.

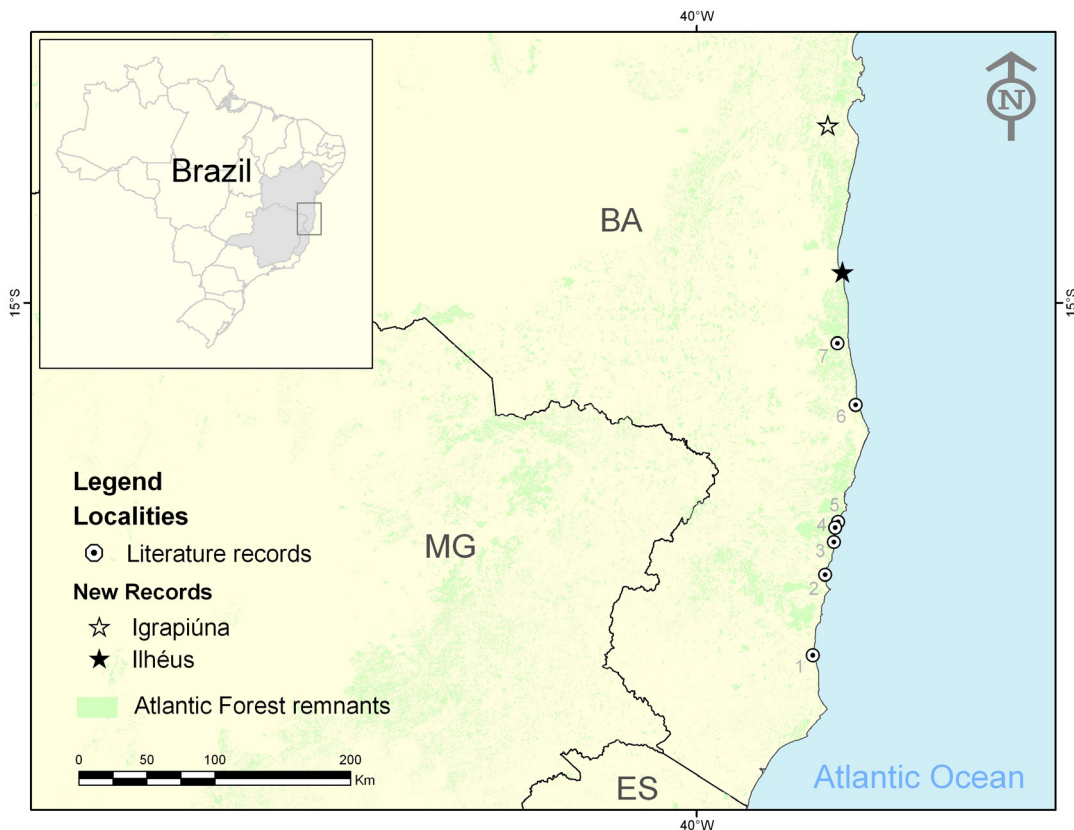
The specimens were euthanized with lidocaine 2% (Xylocaína®), fixed in 10% formalin and preserved in 70% ethanol, and deposited in the Coleção de Anfíbios da Universidade Estadual do Sudoeste da Bahia, Vitória da Conquista (UESB) and Museu de Zoologia da Universidade Estadual de Santa Cruz (MZUESC). The collecting permit was issued by the Instituto Chico Mendes de Conservação da Biodiversidade (ICMBIO) (Permanent License 13708-1 and 12394-2).



**FIGURE 1.** Adult male of *Aparasphenodon brunoi* from the municipality of Ilhéus, state of Bahia, Brazil. Photo by Iuri R. Dias.

These new records of *Aparasphenodon brunoi* from the municipalities of Ilhéus and Igrapiúna represent an increase of its known geographic distribution of approximately 150

km north from its nearest locality (airline), municipality of Una, Bahia State, Brazil (Figure 2). Igrapiúna represents now the northernmost known record for this species.



**FIGURE 2.** Know distribution of *Aparasphenodon brunoi* in Bahia state, Brazil. (1) Prado (Silvano et al. 2003); (2) Caraíva (Mollo Neto and Teixeira Jr 2012), (3) Arrial D'Ajuda (Mollo Neto and Teixeira Jr 2012) (4)Trancoso (Rocha et al. 2008); (5) Porto Seguro (Silvano and Pimenta 2003); (6) Canavieiras (Silvano and Pimenta 2003); (7) Una (Argôlo 2000).

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#### LITERATURE CITED

- Argôlo, A.J.S. 2000. Geographic distribution. *Aparasphenodon brunoi*. *Herpetological Review* 31: 108.
- Feio, R.N., U.M.L. Braga, H. Wiederhecker and P.S. Santos. 1998. *Anfíbios do Parque Estadual do Rio Doce (Minas Gerais)*. Universidade Federal de Viçosa: Instituto Estadual de Florestas. 32p.
- Frost, D.R. 2013. *Amphibian species of the world: an online reference. Version 5.6 (9 January, 2013)*. Electronic Database accessible at <http://research.amnh.org/herpetology/amphibia/index.html>. American Museum of Natural History, New York, USA. Captured on 2 June 2013.
- Lynch, J.D. and M.A.V. Ramírez. 2000. Lista preliminar de especies de anuros del Departamento del Guainía, Colombia. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales* 24(93): 579-589.
- Mertens, R. 1950. Ein neuer Laubfrosch aus Venezuela. *Senckenbergiana Biologica* 31: 1-10.
- Mesquita, D.O., G.C. Costa and M.G. Zatz. 2004. Ecological aspects of the casque-headed frog *Aparasphenodon brunoi* (Anura, Hylidae) in a Restinga habitat in southeastern Brazil. *Phyllomedusa* 3(1): 51-59.
- Miranda-Ribeiro, A. 1920. Tripiron, Diaglénia, Corythomantis, etc. uma subsecção de Hylidae, com duas espécies novas. *Revista do Museu Paulista* 12: 85-89.
- Mollo Neto, A. and M. Teixeira-Jr. 2012. Checklist of the genus *Aparasphenodon* Miranda Ribeiro, 1920 (Anura: Hylidae): Distribution map, and new record from São Paulo state, Brazil. *Check List* 8(6): 1303-1307.
- Pimenta, B.V.S., M.F. Napoli and C.F.B. Haddad. 2009. A new species of casque-headed tree frog, genus *Aparasphenodon* Miranda-Ribeiro (Amphibia: Anura: Hylidae) from the Atlantic Rainforest of southern Bahia, Brazil. *Zootaxa* 2123: 46-54

- Pombal, J.P. 1993. New Species of *Aparasphenodon* (Anura: Hylidae) from Southeastern Brazil. *Copeia* 1993(4): 1088-1091.
- Rizzini, C.T. 1997. *Tratado de fitogeografia do Brasil: aspectos ecológicos, sociológicos e florísticos*. Rio de Janeiro: Âmbito Cultural Edições. 747 p.
- Rocha, C.F., S.P. Carvalho-e-Silva and M.V. Sluys. 2004. *Aparasphenodon brunoi*. In IUCN 2011. *IUCN Red List of Threatened Species. Version 2011.1*. Electronic Database accessible at <http://www.iucnredlist.org>. Captured on 21 July 2011.
- Rocha, C.F.D., F.H. Hatano, D. Vrcibradic and M. Van Sluys. 2008. Frog species richness, composition and  $\beta$ -diversity in coastal Brazilian Restinga habitats. *Brazilian Journal of Biology* 68(1): 101-107.
- Silvano, D.L. and B.V.S. Pimenta. 2003. Diversidade e distribuição de anfíbios na Mata Atlântica do Sul da Bahia. In P.I. Prado, E.C. Landau, R.T. Moura, L.P.S. Pinto, G.A.B. Fonseca and K. Alger (org.). *Corredor de Biodiversidade na Mata Atlântica do Sul da Bahia*. CD-ROM, Ilhéus: IESB/CI/CABS/UFMG/UNICAMP.
- Silvano, D.L., G.R. Colli, M. Dixo, B.V.S. Pimenta and H.C. Wiederhecker. 2003. Efeitos da fragmentação sobre a biodiversidade de Anfíbios e Répteis; p. 183-200. In D.M. Rambaldi and D.A.S. Oliveira (org.). *Fragmentação de Ecossistemas: causas, efeitos e recomendações de políticas públicas*. Brasília: MMA/SBF.
- Silva-Soares, T., F. Hepp, P.N. Costa, C. Luna-Dias, M.R. Gomes, A.M.P.T. Carvalho-e-Silva and S.P. Carvalho-e-Silva. 2010. Anfíbios anuros da RPPN Campo Escoteiro Geraldo Hugo Nunes, Município de Guapimirim, Rio de Janeiro, Sudeste do Brasil. *Biota Neotropica* 10(2): 225-233.
- Woehl, G. and E.N. Woehl. 2003. Geographic distribution: *Aparasphenodon bokermanni*. *Herpetological Review* 34: 379.
- Wogel, H., L.N. Weber and P.A. Abrunhosa. 2006. The tadpole of the casque-headed frog *Aparasphenodon brunoi* Miranda-Ribeiro (Anura: Hylidae). *South American Journal of Herpetology* 1(1): 54-60.

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