

Amphibia, Anura, Centrolenidae, *Hyalinobatrachium crurifasciatum* Myers and Donnelly, 1997: First record from Brazil and geographic distribution map

Domingos de Jesus Rodrigues^{1,5*}, Marcelo de Moraes Lima², Drausio H. Moraes³ and Ricardo A. Kawashita-Ribeiro⁴

- 1 Universidade Federal de Mato Grosso, Instituto de Ciências Naturais Humanas e Sociais, Núcleo de Estudo da Biodiversidade da Amazônia Matogrossense. Avenida Alexandre Ferronato, 1200, Setor Industrial. CEP: 78557-267. Sinop, MT, Brazil.
 - 2 INPA, Instituto Nacional de Pesquisas da Amazônia, CPEc. Avenida André Araújo 2936, CEP 69011-970. Manaus, AM, Brazil.
 - 3 Universidade Estadual Paulista, Instituto de Biociências, Departamento de Parasitologia. Programa de Pós-Graduação em Ciências Biológicas. Distrito de Rubião Júnior s/n. CEP 18618-000. Botucatu, SP, Brazil.
 - 4 Universidade Federal de Mato Grosso, Instituto de Biociências, Coleção Zoológica de Vertebrados. Avenida Fernando Corrêa da Costa, s/n, Coxipó. CEP 78060-900. Cuiabá, MT, Brazil.
 - 5 Instituto Nacional de Ciência e Tecnologia de Estudos Integrados da Biodiversidade Amazônica – INCT-CENBAM/CNPq/MCT.
- * Corresponding author e-mail: djmingo23@gmail.com

ABSTRACT: The current note reports the presence of *Hyalinobatrachium crurifasciatum* at municipality of Cotriguaçu, state of Mato Grosso, Central Brazil. This is the first occurrence of this species in Brazil.

The family Centrolenidae Taylor, 1951 is a clade of anurans commonly known as Glassfrogs, endemic to the Neotropical region, occurring from southern Mexico through Central America and into South America mainly through the Cordillera de Los Andes from Venezuela to Bolivia, with species in the Amazonas and Orinoco River basins, the Guyana Shield region, southeastern Brazil, and northern Argentina (Frost 2010). This family currently contains 12 genera (Guayasamin *et al.* 2009), but only four occurs in Brazil: *Cochranella* Taylor, 1951; *Hyalinobatrachium* Ruiz-Carranza and Lynch, 1991; *Teratohyla* Taylor, 1951; *Vitreorana* Guayasamin, Castroviejo-Fisher, Trueb, Ayarzagüena, Rada and Vilà, 2009 (SBH 2010).

Considerable advances in our knowledge of the Centrolenidae have been achieved, but its taxonomy is still problematic, and the natural history, ecology, and conservation status of most species are virtually unknown (Cisneros-Heredia and McDiarmid 2006). The genus *Hyalinobatrachium* currently contains 27 species (Frost 2010), although the taxonomic status of several of its members needs clarification (Kok and Kalamandeen 2008). In Brazil, only two species of the genus *Hyalinobatrachium* are found (SBH 2010; Yáñez-Muñoz *et al.* 2009) and, in this study, we record the third species reported for Brazil and present comments about its natural history.

Hyalinobatrachium crurifasciatum was described by Myers and Donnelly (1997). According to the original description and Kok and Kalamandeen (2008), individuals present: head and dorsum of body with a pattern of pale yellow spots set in a light green reticulum dotted with melanophores (Figure 1A); flanks unpigmented; limbs banded above in dark and paler green; parietal peritoneum clear; heart mostly visible (Figure 1B), only part of pericardium being silvery white; intestinal tract and liver silvery white; bones white; iris golden, with sparse dark dots; humeral spine absent in adult males; ventral skin transparent, internal organs visible (Figure 1B).

During field work on August, September and December 2009, we observed and collected several individuals of *H. crurifasciatum* (Figure 1A) at São Nicolau Farm (09°51'16.9" S, 58°14'57.7" W), a protected area in municipality of Cotriguaçu (Figure 2), northwest state of Mato Grosso (permits # 10174-1, Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis – IBAMA). The area of São Nicolau Farm contains 10,000 ha, being 7,500 ha of the Amazon Rainforest and approximately 2,500 of reforestation. Other nine individuals were collected from 19-22 November 2006 at the Juína municipality (11°20' S, 59°07' W) during a study of environmental impacts of a mining area. All individuals were collected along small stream in tropical rainforest with predominance of palm tree and *Heliconia* sp. bushes.

The species is a nocturnal glassfrog associated with vegetation along small streams in tropical rainforest. Males of *H. crurifasciatum* were observed at night calling perched on palm and bushes from the undersides of leaves (Figure 1C), 2-4 m above a forest stream or streamside ponds. The males were observed vocalizing after sunset, approximately at 19:00 h. The mean SVL in males was 21.6 ± 1.3 mm (N=3). Five clutches were found from underside of a leaf. Each clutch contained, on average, 22 eggs (Figure 1D).

Vouchers were housed in the herpetological collection of Federal University of Mato Grosso Campus of Cuiabá: Cotriguaçu (Fazenda São Nicolau – 09°51' S, 58°14' W) UFMT 10728; Juína (11°20' S, 59°07' W) UFMT 6997, UFMT 7970, UFMT 7977, UFMT 10729-10734. Species identification was confirmed by Dr. Santiago Castroviejo Fisher and through comparison with the works of Kok and Kalamandeen (2008) and Guayasamin *et al.* (2009). The present record extends the known distribution of *H. crurifasciatum* approximately 1,530 km in straight line from type locality, and it's the first record of this species for Brazil. *Hyalinobatrachium crurifasciatum* is currently defined as Least Concern by the IUCN redlist (IUCN 2010).

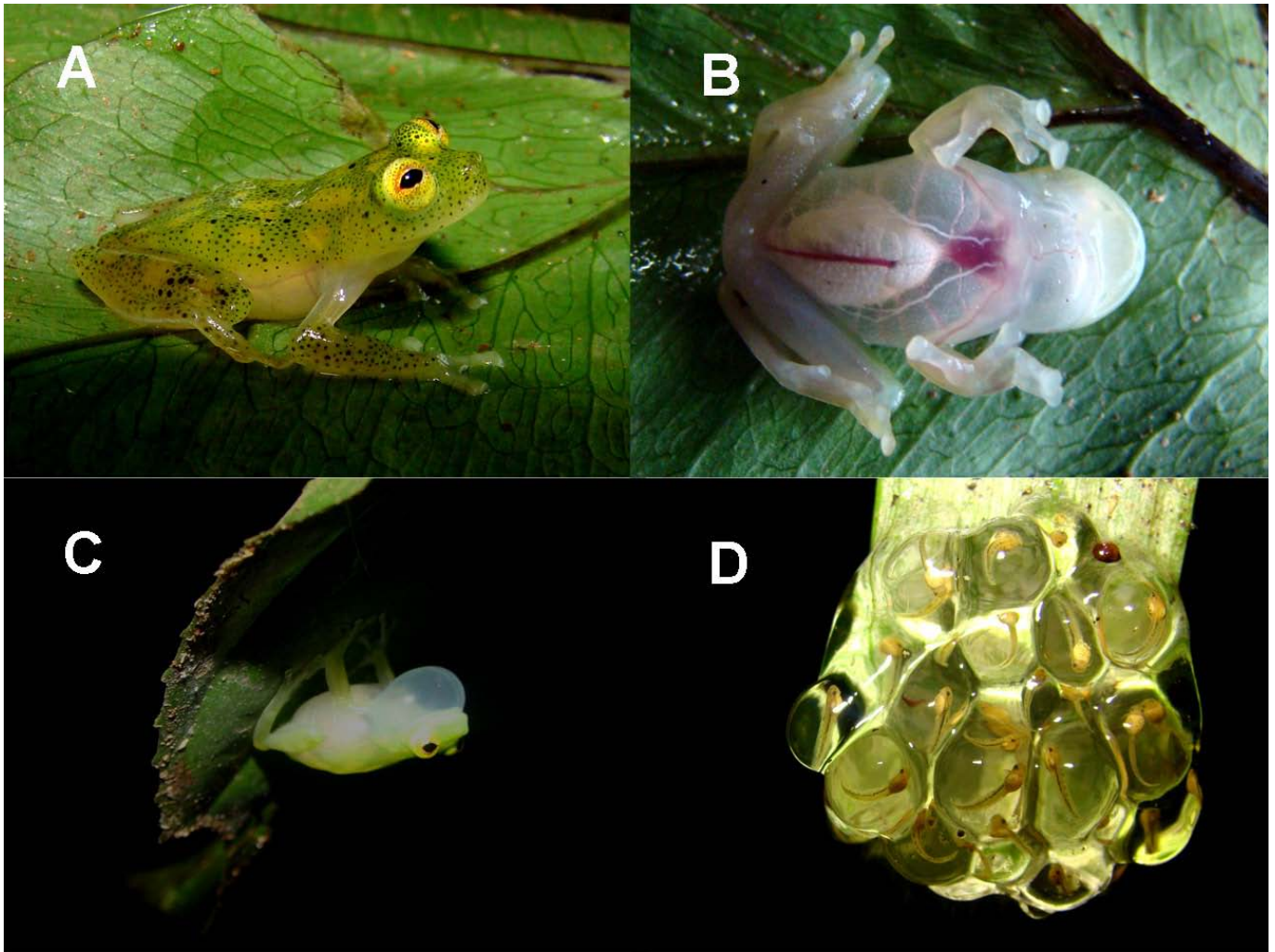


FIGURE 1. Individual of *Hyalinobatrachium crurifasciatum* collected in São Nicolau Farm, in the municipality of Cotriguaçu, state of Mato Grosso, Brazil. A) head and dorsum of body with a pattern of pale yellow spots set in a light green reticulum dotted with melanophores, B) Parietal peritoneum clear; heart mostly visible, C) Male calling from the undersides of leaves, and D) Clutch and tadpoles in development.

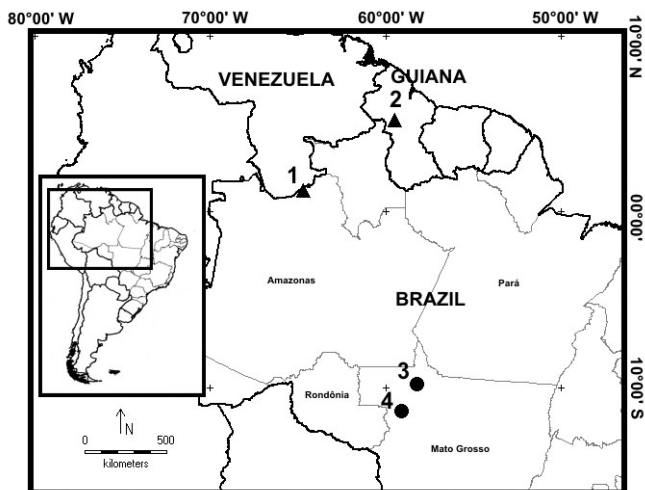


FIGURE 2. Known distribution of *Hyalinobatrachium crurifasciatum* in South America (Brazil, Venezuela and Guyana). Triangles represent bibliographic records and circles represent specimens examined. 1) Granitic mountain (Tamacuari, Venezuela), Type locality (Myers and Donnelly 1997), 2) Kaieteur National Park, west-central Guyana (Kok and Kalamandeen 2008), 3) São Nicolau Farm, Municipality of Cotriguaçu, Mato Grosso state, Brazil (this study), and 4) Juína, Mato Grosso state, Brazil (this study).

However, in the proximities where the species was found, in the Mato Grosso state, there are great environmental impacts with the transformation of native forests in pasture. The presence of *H. crurifasciatum* and *Cochranella adenocheira* Harvey and Noonan, 2005 (Caldwell 2009; Toledo *et al.* 2009) from north of Mato Grosso state (south of Amazon Basin) suggests that new records and species are expected in Brazilian Amazon. The disjunct distribution of *H. crurifasciatum* is similar to that showed for another Centrolenid species (Yáñez-Muñoz *et al.* 2009): *Hyalinobatrachium iaspidiense* Ayarzagüena, 1992.

ACKNOWLEDGMENTS: Carla Lopes Velasquez and Ricardo Machiner helped during field expeditions. Santiago Castroviejo Fisher for the identification of specimens; and a anonymous reviewer for valuable comments and suggestions on manuscript; São Nicolau Farm for logistic support and Ofício Nacional das Florestas – ONF - Brazil for permission of access to the study area and Ministério da Ciência e Tecnologia / Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) CNPq nº 558225/2009-8 and 501408/2009-6 for financial support. Fellowships from CNPq to DJR. Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA) for collection permits. This is publication 01 in the NEBAM technical series.

LITERATURE CITED

- Caldwell, J.A. 2009. *Amphibians and Reptiles of the Lower Cristalino River Region of the Southern Amazon*. Electronic database accessible at: <http://www.omnh.ou.edu/personnel/herpetology/vitt/Cerrado/Cristalino/>. Captured on 08 March 2010.
- Cisneros-Heredia, D.F. and R.W. McDiarmid. 2006. A new species of the genus *Centrolene* (Amphibia: Anura:Centrolenidae) from Ecuador with comments on the taxonomy and biogeography of Glassfrogs. *Zootaxa* 1244: 1-32.
- Frost, D.R. 2010. *Amphibian Species of the World: An online reference. Version 5.3*. Electronic database accessible at: <http://research.amnh.org/herpetology/amphibia/index.html>. American Museum of Natural History, New York. Captured on 10 March 2010.
- Guayasamin, J.M., S. Castroviejo-Fisher, L. Trueb, J. Ayarzagüena, M. Rada and C. Vilà. 2009. Phylogenetic systematics of Glassfrogs (Amphibia: Centrolenidae) and their sister taxon *Allophryne ruthveni*. *Zootaxa* 2100: 1-97.
- Guayasamin, J.M., M.R. Bustamante, D. Almeida-Reinoso, and W.C. Funk. 2006. Glass frogs (Centrolenidae) of Yanayacu Biological Station, Ecuador, with the description of a new species and comments on centrolenid systematic. *Zoological Journal of the Linnean Society* 147: 489-513.
- IUCN 2010. *IUCN Red List of Threatened Species. Version 2009.2*. Electronic database accessible at www.iucnredlist.org. Captured on 10 February of 2010.
- Kok, P.J.R. and M. Kalamandeen. 2008; Introduction to the taxonomy of the amphibians of Kaieteur National Park, Guyana. *Bulletin van het Koninklijk Belgisch Instituut voor Natuurwetenschappen* 5: 1-1278.
- Myers, C.W. and M.A. Donnelly. 1997. A tepui herpetofauna on a granitic mountain (Tamacuari) in the borderland between Venezuela and Brazil: report from the Phipps Tapirapecó Expedition. *American Museum Novitates* 3213: 1-71.
- SBH. 2010. *Brazilian amphibians – List of species*. Electronic database accessible at <http://www.sbherpetologia.org.br>. Sociedade Brasileira de Herpetologia. Captured on 10 July of 2010)
- Toledo, L.F., O.G.S. Araújo, R.W. Ávila, R.A. Kawashita-Ribeiro, D.H. Morais, and D.F. Cisneros-Heredia. 2009. Amphibia, Anura, Centrolenidae, *Cochranella adenocheira*: distribution and range extension, Brazil. *Check List* 5(3): 380-382.
- Yáñez-Muñoz, M., P. Pérez-Peña, and D. Cisneros-Heredia. 2009. New country records of *Hyalinobatrachium iaspidiense* (Amphibia, Anura, Centrolenidae) from the Amazonian lowlands of Ecuador and Peru. *Herpetology Notes* 2: 49-52.

RECEIVED: May 2010

REVISED: July 2010

ACCEPTED: July 2010

PUBLISHED ONLINE: August 2010

EDITORIAL RESPONSIBILITY: Raúl Maneyro