

Predation of *Hypsiboas pardalis* (Anura, Hylidae) by the butter frog *Leptodactylus* cf. *latrans* (Anura, Leptodactylidae), in municipality of Espera Feliz, State of Minas Gerais, southeastern Brazil

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Leptodactylidae Werner, 1896 comprises 100 species of frogs distributed from southern Texas (USA), through Central and South America (Frost, 2011). *Leptodactylus* (Steffen, 1815) is a large anuran widely distributed along the South America (Achaval and Olmos, 2007; Brusquetti and Lavilla, 2006; Kwet and Di-Bernardo, 1999) commonly observed in association with all varieties of aquatic bodies and often found in anthropogenized areas (Loebmann, 2005; Solé et al., 2009). This frog is commonly referred in the literature as *Leptodactylus ocellatus*; see Lavilla et al. (2010) for details about this species nomenclature. *Leptodactylus latrans* has a varied diet and some vertebrates as fish or other anurans can also be part of it, although small arthropods represents the major part of its feeding items (Solé et al., 2009; Teixeira and Vrcibradic, 2003).

Herein we report an opportune observation of an adult *Leptodactylus* cf. *latrans* preying upon an adult of the hylid *Hypsiboas pardalis*, witnessed during a field expedition on 21 October 2010, at 21:00 h at Córrego do Paiol (20°38'16.88"S, and 41°57'26.29"O), 815 m above sea level, municipality of Espera Feliz, Minas Gerais State, southeastern Brazil. The predation occurred on a grassland open area close to a pond and as also reported by Silva et al. (2009), it could be located by the distress calls emitted by the prey. The ingestion occurred headfirst (Fig. 1).

The specimens were not collected but there are no other species in the region similar in size and dorsal pattern to *L. latrans*. The identification of *H. pardalis*

was possible due to the presence of a developed dermal fold on the posterior surface of the tarsus and metatarsus (evident in Fig. 1). Besides, specimens of both species are very common in the study area and some voucher specimens had already been collected during three others field surveys in the same area, and deposited at the Collection of Amphibians of Museu de Zoologia João Moojen, Universidade Federal de Viçosa, Viçosa, Minas Gerais (MZUFV 11415–17 *Leptodactylus* cf. *latrans*; MZUFV 11418–19 *H. pardalis*).

In Brazil, several studies and notes reported on the predatory activity of *L. latrans* upon other anurans. Besides a case of cannibalism, Teixeira and Vrcibradic (2003) also reported an ingestion of *Hypsiboas albomarginatus*, *Physalaemus crombiei* and unidentified tadpoles by *Leptodactylus* cf. *latrans*. Solé et al. (2009) also registered tadpoles as *L. latrans* prey. Silva et al. (2009) reported a female *L. latrans* swallowing a juvenile of the invasive frog *Lithobates catesbeianus*. Silva et al. (2010 a) presented a photograph of the exact moment of a predation of *Leptodactylus* aff. *mystaceus* by an adult female *L. latrans*, and Silva et al. (2010 b) registered a couple of reproductive *Physalaemus cuvieri* inside a female *L. latrans* stomach.

The present study brings the first record of *Hypsiboas pardalis* as *Leptodactylus* cf. *latrans* prey. Hylid frogs have already been reported as prey of *L. latrans* in Argentina (Gallardo, 1958; 1964), and Gallardo (1964) stated that amphibians gathering for reproduction can be preyed upon by *L. latrans*. Males of *H. pardalis* call from shallow waters of streams or marshes, habitats attended by *L. latrans*. Thus, males of *H. pardalis* can be easily preyed by adults of that frog. However, since the specimens were not collected it is not possible to affirm that the treefrog ingested was a male. Teixeira and Vrcibradic (2003), in reporting a case of *L. latrans* preying upon a hylid frog (*H. albomarginatus*), suggested that since *L. latrans* is a strictly ground-dwelling frog,

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Figure 1. Individual of *Leptodactylus* cf. *latrans* ingesting a specimen of *Hypsiboas pardalis*, on 21 October 2010, at 21:00 h at Córrego do Paiol (20°38'16.88"S, 41°57'26.29"O), 815 m above sea level, municipality of Espera Feliz, Minas Gerais State, southeastern Brazil. Photo by R.C. Heitor.

the ingestion of arboreal frogs by this species may occur when they descend to the ground to mate and lay eggs. This situation could also apply to the case here reported, as *H. pardalis* usually lay eggs in natural or built small pools, close to lentic or lotic water bodies (reproductive mode 4, *sensu* Pombal and Haddad, 2007), although this species is not strictly arboreal.

As the profound knowledge about trophic relationships in tropical communities is essential for the development of successful conservation strategies (Solé *et al.*, 2009), the present study improves the knowledge on the trophic relation involving both species, *Leptodactylus* cf. *latrans* as predator and the hyloid frog *Hypsiboas pardalis* as prey.

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References

- Achaval, F., Olmos, A. (2007): Anfibios e Reptiles del Uruguay. 3th edition, corregida y aumentada. Montevideo. Zonalibro industria gráfica. 1: 160.
- Brusquetti, F., Lavilla, E.D. (2006): Lista comentada de los anfibios de Paraguay. Cuadernos de Herpetología. **20**(2): 3-79.
- Frost, D. (2011): Amphibian Species of the World: an Online Reference. Version 5.5 (10 June, 2011). Electronic Database accessible at <http://research.amnh.org/herpetology/amphibian>. Accessed on 15 Jun. 2011.
- Gallardo, J.M. (1958): Observaciones sobre el comportamiento de algunos anfibios argentinos. Ciencia e investigación. **14**: 291-302.
- Gallardo, J.M. (1964): Consideraciones sobre *Leptodactylus ocellatus* (Amphibia: Anura) y especies aliadas. Physis. **24**(68): 373-384.
- Kwet, A., Di-Bernardo, M. (1999): Pró-matas-anfibios. Amphibien. Amphibians. Porto Alegre, Editora PUCRS. 107.
- Lavilla, E.O., Langone, J.A., Caramaschi, U., Heyer, W.R., de Sá, R.O. (2010): The identification of *Rana ocellata* Linnaeus, 1758. Nomenclatural impact on the species currently known

- as *Leptodactylus ocellatus* (Leptodactylidae) and *Osteopilus brunneus* (Gosse, 1851) (Hylidae). Zootaxa. **2346**: 1–16.
- Loebmann, D. (2005): Guia ilustrado – Os anfíbios da região costeira do extremo sul do Brasil. Pelotas, USEB. 80pp.
- Pombal Jr, J.P., Haddad, C.F.B. (2005): Estratégias e modos reprodutivos de anuros (Amphibia) em uma poça permanente na Serra de Paranapiacaba, Sudeste do Brasil. Papéis Avulsos de Zoologia, **45**(15): 201-213.
- Silva, E.T., Ribeiro-Filho, O.P. (2009): Predation on juveniles of the invasive american bullfrog *Lithobates catesbeianus* (Anura: Ranidae) by native frog and snake species in south-eastern Brazil. Herpetol. Not. **2**: 215-218.
- Silva, E.T., Fernandes, V.D., Heitor, R.C., Viana, V.R. (2010 a): *Leptodactylus ocellatus* (Butter frog): diet. Herpetol. Bul. **112**: 41-42.
- Silva, E.T., Santos, P.S., Ribeiro-Filho, O.P. (2010 b): *Leptodactylus ocellatus* (Butter frog): diet. Herpetol. Bull. **113**: 36-38.
- Solé, M., Dias, I.R., Rodrigues, E.A.S., Marciano Jr. E., Branco, S.M.J., Cavalcante, K.P., Rodder, D. (2009): Diet of *Leptodactylus ocellatus* (Anuro: *Leptodactylidae*) from a cacao plantation in southern Bahia, Brazil. Herpetol. Not. **2**: 9-15.
- Teixeira, R.L., Vrcibradic, D. (2003): Diet of *Leptodactylus ocellatus* (Anura: *Leptodactylidae*) from coastal lagoons of south-eastern Brazil. Cuadernos de Herpetologia. **17**(1-2): 113-120.