

## Opportunistic predation on bats trapped in mist nets by *Leptodactylus vastus* (Anura: Leptodactylidae)

Edinaldo Leite Filho \*

Anderson Feijó

Patrício A. Rocha

PPG em Ciências Biológicas (Zoologia), Universidade Federal da Paraíba  
Cidade Universitária s/n, CEP 58059-900, João Pessoa – PB, Brasil

\* Autor para correspondência  
edinaldo.lf@hotmail.com

Submetido em 12/11/2013  
Aceito para publicação em 16/05/2014

### Resumo

**Predação oportunista de morcegos capturados em redes de neblina por *Leptodactylus vastus* (Anura: Leptodactylidae).** Este estudo relata a predação oportunista de morcegos em redes de neblina por *Leptodactylus vastus* (Anura: Leptodactylidae).

**Palavras-chave:** *Leptodactylus vastus*; Morcegos; Predação oportunista

### Abstract

This study reports the opportunistic predation on bats in mist nets by *Leptodactylus vastus* (Anura: Leptodactylidae).

**Key words:** Bats; *Leptodactylus vastus*; Opportunistic predation

Frogs prey primarily on arthropods and other invertebrates (WELLS, 2007; VITT; CALDWELL, 2009), and they may be characterized as dietary generalists and opportunistic foragers. Some species, such as *Xenohyla truncata* and *Rhinella icterica*, may feed on plant material, for instance, while large species, such as *Ceratophrys ornata*, *Discodeles guppyi*, *Pyxicephalus adspersus*, and *Rana catesbeiana*, may include small vertebrates in their diets, such as small mammals, birds, snakes, and other frogs (DUELLMAN; TRUEB, 1986; BENÍCIO et al., 2011). In these cases, a

positive relationship is observed between prey size and frog mouth (TOFT, 1980; PARMELEE, 1999).

*Leptodactylus vastus* is a large frog species of the *Leptodactylus pentadactylus* group, with a snout-vent length sometimes exceeding 180 mm and widely distributed in northeastern Brazil, occurring in Atlantic Forest areas and also in rather open caatinga and cerrado habitats (VIEIRA et al., 2007; LOEBMANN; MAI, 2008; SANTANA et al., 2008). Few data are available about feeding behavior within this group. Studies on *Leptodactylus labyrinthicus* have emphasized the

importance of coleopterans and insect larvae in the diet of this species (FRANÇA et al., 2004), as well as occasional ingestion of vertebrates (ESBÉRARD et al., 2006; GOUVEIA et al., 2009; CASTRO et al., 2011; FONSECA et al., 2012).

Additional records of predation on bats by *L. vastus* were obtained through this study; they were collected during a survey of bats at São Pedro do Lago ( $9^{\circ}52'S$ ,  $41^{\circ}4'W$ ), in the town of Sento Sé, Bahia, Brazil. This site is located within “Boqueirão da Onça”, a complex of hills and valleys in the semi-arid caatinga scrublands. Bats were trapped in mist nets in two of these valleys.

In 3 months (*May, June, and August*), *L. vastus* was observed preying on bats trapped in the nets at both sites; 6 bats representing 4 different species were attacked: 2 *Glossophaga soricina* (Pallas 1766), 2 *Tonatia bidens* (Spix 1823), and 1 individual of *Lonchophylla mordax* (Thomas 1903) and *Myotis nigricans* (Schinz 1821). In all cases, the mist nets were placed over small, permanent bodies of water, which were checked at 30 minute intervals, and bats were trapped in the lower

compartment of the net. In 4 cases, bats were found dead in the mist net completely covered with a mucous-like substance and damaged patagium, while *L. vastus* individuals were waiting nearby (Figure 1). The injuries seemed to result from the frogs efforts to forcibly remove bats from the nets (Figure 2).

In the 2 remaining cases, predation was observed directly. On these occasions, some frogs got close to the bat a few minutes after capture and, then, moved towards it, snapped at it, and tried to swallow it. As the frogs were unable to rip the net open, they released the prey when observers got closer. On other occasions, frogs were observed jumping towards the net, in an attempt to catch bats from the upper compartments, and in 1 case a lower compartment was found ripped open, suggesting that a frog had been able to retrieve its prey.

This seems to be the first record of this kind of foraging behavior for *L. vastus*. Silva et al. (2010) observed *Rhinella jimi* (Stevaux 2002) preying on a bat of the species *Molossus molossus* (Pallas 1766), which had fallen injured to the ground after colliding with a

FIGURE 1: *Leptodactylus vastus* after trying to prey on *Tonatia bidens*.

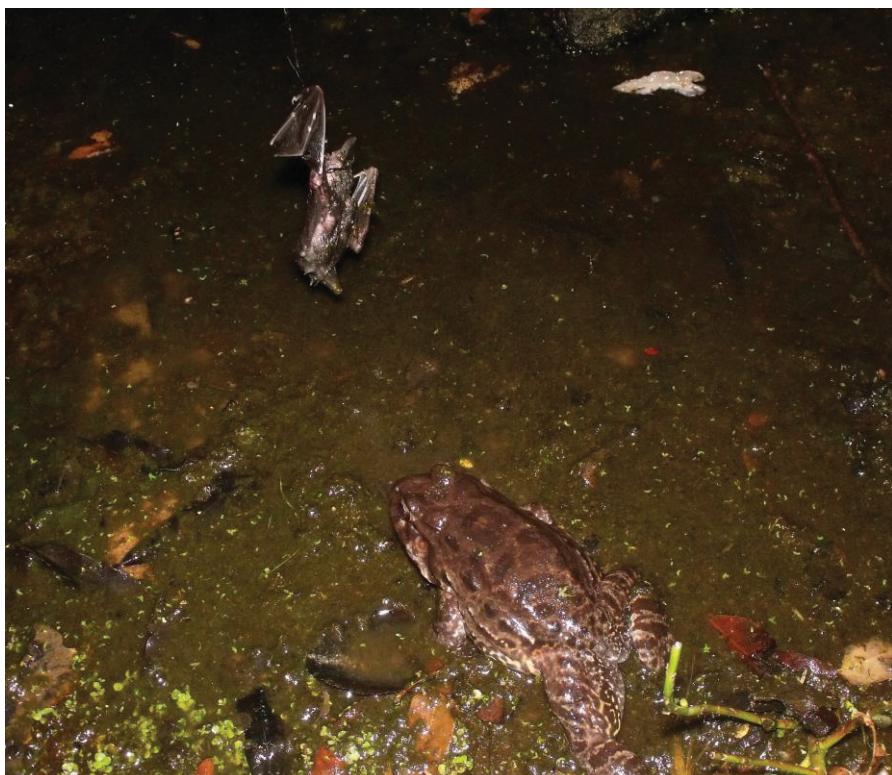
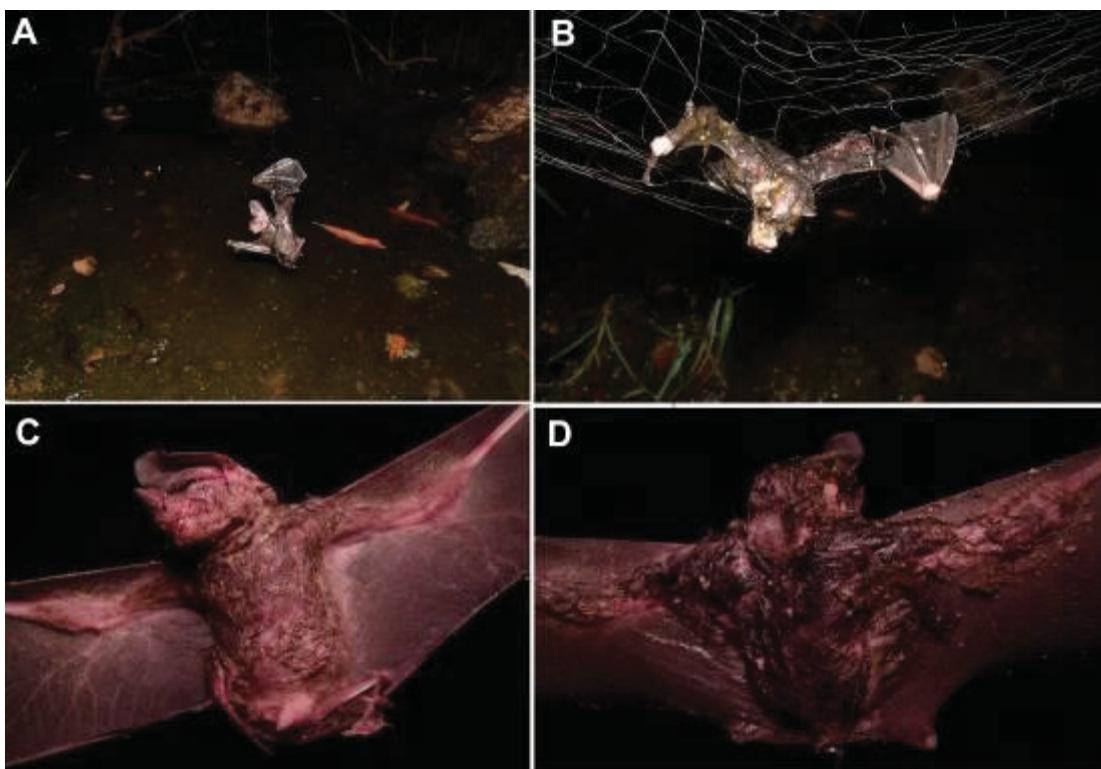


FIGURE 2: *Tonatia bidens* individuals in mist nets following attacks by *Leptodactylus vastus* (A and B). Ventral (C) and dorsal view (D) of *T. bidens* after being swallowed by *L. vastus*.



mist net. In this study, however, frogs actively attacked bats when the latter were trapped in the nets.

As frogs did not attempt to capture bats in mist nets installed in other areas, away from water, the behavior observed seems to represent an opportunistic adaptation to availability of a new resource, instead of the intentional foraging strategy observed for *L. vastus* by Gouveia et al. (2009). The opportunistic nature of the behavior observed in this study is reinforced by the considerable weight (g) variation between bat species, ranging from 4 g in *M. nigricans* to 33 g in *Tonatia bidens*.

## References

- BENÍCIO, T.; RODRIGUES, R. A.; SALLES, R. O. L. Herbivoria em *Rhinella icterica* (Amphibia: Anura: Bufonidae). **Saúde e Ambiente em Revista**, Rio de Janeiro, v. 6, p. 1-3, 2011.
- CASTRO, I. J.; SILVA, C. R.; DA COSTA, A. J. S.; MARTINS, A. C. M. Predação oportunista de *Artibeus planirostris* (Spix, 1823) e *Carollia perspicillata* (Linnaeus, 1758) (Chiroptera, Phyllostomidae) por marsupiais e anuro na APA do Rio Curiaú, Amapá, Brasil. **Acta Amazonica**, Manaus, v. 41, p. 171-174, 2011.
- DUELLMAN, W. E.; TRUEB L. **Biology of amphibians**. New York: McGraw-Hill, 1986. 642 p.
- ESBÉRARD, C. E. L.; JORDÃO, T.; COSTA, L. M.; BERGALLO, H. G. *Leptodactylus labyrinthicus* (labyrinthicus frog) Prey. **Herpetological Review**, St. Louis, v. 37, p. 204, 2006.
- FONSECA, E.; LANNA, F.; CARVALHO, R.; GEHARA, M. Predation on *Sibynomorphus neuwiedi* (Serpentes: Dipsadidae) by *Leptodactylus labyrinthicus* (Anura: Leptodactylidae) in southeastern Brazil. **Herpetology Notes**, Pisa, v. 5, p. 167-168, 2012.
- FRANÇA, L. F.; FACURE, K. G.; GIARETTA, A. A. Trophic and spatial niches of two large-sized species of *Leptodactylus* (Anura) in southeastern Brazil. **Studies on Neotropical Fauna and Environment**, Tübingen, v. 39, p. 243-248, 2004.
- GOUVEIA, S. F.; ROCHA, P. A.; MILKALAUSKAS, J. S.; SILVEIRA, V. V. *Rhinella jimi* (Cururu toad) and *Leptodactylus vastus* (Northeastern pepper frog). Predation on bats. **Herpetological Review**, St. Louis, v. 40, p. 210, 2009.
- LOEBMANN, D.; MAI, A. C. G. Amphibia, Anura, Coastal Zone, Piauí state, Northeastern Brazil. **Check List**, Rio Claro, v. 4, p. 161-170, 2008.
- PARMELEE, J. R. Trophic ecology of a tropical anuran assemblage. **Scientific Papers: Natural History Museum the University of Kansas**, Lawrence, v. 11, p. 1-59, 1999.

SANTANA G. G.; VIEIRA, W. L. S.; PEREIRA-FILHO, G. A.; DELFIM, F. R.; LIMA, Y. C. C.; VIEIRA, K. S. Herpetofauna em um fragmento de Floresta Atlântica no estado da Paraíba, Região Nordeste do Brasil. **Biotemas**, Florianópolis, v. 21, p. 75-84, 2008.

SILVA, L. A. M.; SANTOS, E. M.; AMORIM, F. O. Predação oportunística de *Molossus molossus* (Pallas, 1766) (Chiroptera: Molossidae) por *Rhinella jimi* (Stevaux, 2002) (Anura: Bufonidae) na Caatinga, Pernambuco, Brasil. **Biotemas**, Florianópolis, v. 23, p. 215-218, 2010.

TOFT, C. A. Feeding ecology of thirteen syntopic species of anurans in a seasonal tropical environment. **Oecologia**, Heidelberg, v. 45, p. 131-141, 1980.

VIEIRA W. L. S.; ARZABE, C; SANTANA, G. G. Composição e distribuição espaço-temporal de anuros no cariri paraibano, nordeste do Brasil. **Oecologia Brasiliensis**, Rio de Janeiro, v. 11, p. 383-396, 2007.

VITT, L. J.; CALDWELL, J. P. **Herpetology: an introductory biology of amphibians and reptiles**. San Diego: Academic Press, 2009. 700 p.

WELLS, K. D. **The ecology and behavior of amphibians**. Chicago: The University of Chicago Press, 2007. 1160 p.