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Frog eats frog: report of three cases from the Atlantic rain forest, southeastern Brazil

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Many authors regard the predation risk as a high cost factor related to reproduction in anurans, whose breeding strategies frequently expose them to potential predators (POUGH et al. 1992, TOLEDO 2003, 2005). According to DUELLMAN & TRUEB (1994), amphibians represent an important food source for many vertebrates, invertebrates and carnivorous plants. POMBAL (2007) points out that predation upon amphibians by other amphibians has been frequently observed in the past few years. This paper relates three different observations of predation upon anurans by other anuran species, at two different localities in the state of Rio de Janeiro, southeastern Brazil.

The first instance refers to a frog from the Mendes municipality (22°31'36" S, 43°45'58" W; 440 m above sea level), on 24 February 2010. An adult male *Hypsiboas faber* (WIED-NEUWIED, 1821) (Universidade Federal do Rio de Janeiro, ZUF RJ 11880, SVL = 83.1 mm) was collected in a swamp during fieldwork at night, in a secondary forest ambience that holds high anuran species richness. After laboratory procedures, the stomach of this male was opened with a ventral incision to analyse its contents and an adult male *Dendropsophus meridianus* (LUTZ, 1954) (not included in a collection due to its advanced stage of digestion, SVL = 19.1 mm; Figure 1) was found. Ours is not the first record of anuran predation by *H. faber* though, and this species was previously reported as preying upon *Scinax granulatus* (PETERS, 1871) and *Aplastodiscus perviridis* LUTZ, 1950 (SOLÉ et al. 2004), *Haddadus binotatus* (SPIX, 1824) (LEITE et al. 2008) and *Scinax aff. perereca* (Anura: Hylidae) (MOURA & FEIO 2010). Nevertheless, it is the first record of *H. faber* preying upon *D. meridianus*.

The other two instances of anuran-anuran predation refer to the Seropédica Municipality, in the Floresta Nacional Mário Xavier (22°43'30" S, 43°43'10" W; 40 m above

sea level), an environmentally protected area. The first of those events took place on 17 March 2010, when an adult male *Hypsiboas albomarginatus* (SPIX, 1824) (Universidade Federal do Rio de Janeiro, ZUF RJ 11967, SVL = 42.4 mm) was observed preying upon an adult male *Dendropsophus decipiens* (LUTZ, 1925) (Universidade Federal do Rio de Janeiro, ZUF RJ 11971, SVL = 20.3 mm) (Figure 2).

The second instance occurred on 01 October 2010, when an adult female *Leptodactylus latrans* (STEFFEN, 1815) (Universidade Federal do Rio de Janeiro, ZUF RJ 12454, SVL =



Figure 1. Adult male *Dendropsophus meridianus* (SVL = 19.1 mm), found in the stomach of an adult male *Hypsiboas faber* (ZUF RJ 11880).



Figure 2. Adult male *Hypsiboas albomarginatus* (ZUFJR 11967, SVL = 42.4 mm) preying upon an adult male *Dendropsophus decipiens* (ZUFJR 11971, SVL = 20.3 mm).



Figure 3. Adult female *Leptodactylus latrans* (ZUFJR 12454, SVL = 81.2 mm) preying upon an adult male *Stereocyclops parkeri* (ZUFJR 12455, SVL = 36.7 mm).

81.2 mm) was found preying upon an adult male *Stereocyclops parkeri* (WETTSTEIN, 1934) (Universidade Federal do Rio de Janeiro, ZUFJR 12455, SVL = 36.7 mm) (Figure 3). During the night, this same specimen of *L. latrans* naturally regurgitated a partially digested, adult male *Leptodactylus spixi* HEYER, 1983 (Universidade Federal do Rio de Janeiro, ZUFJR 12489, SVL = 38.6 mm).

The first record of predation upon anurans by *H. albomarginatus* was published by CENTENO et al. (2010). These authors recorded the predation of *Scinax littoralis* (POMBAL & GORDO, 1991) by *H. albomarginatus*, in the Atlantic forest on southeastern Brazil. Our observation is therefore the second record of predation upon anurans by *H. albomarginatus*, and the first record of *H. albomarginatus* preying upon *D. decipiens*.

Literature contains many reports of amphibian predation by members of the genus *Leptodactylus* (e.g., CARDOSO & SAZIMA 1977, GUIMARÃES et al. 2004, RODRIGUES & OLIVEIRA-FILHO 2004, POMBAL 2007, ROLIM et al. 2009). TEIXEIRA & VRCIBRADIC (2003), SANABRIA et al. (2005) and SILVA et al. (2010) published studies related to the diet of *L. latrans*, but none of these reported *S. parkeri* and *L. spixi* as prey of this species, as is recorded in the present work.

Vocalisation activity by male anurans appears to us as a likely reason for the instances of predation reported in this paper, because all the prey specimens involved were adult males. This hypothesis supports the idea that breeding strategies adopted by anurans potentially expose them to predators, as has been pointed out by various authors previously (e.g., POUGH et al. 1992, TOLEDO 2003, 2005).

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