Leptodactylus chaquensis - the voracious generalist frog as a predator of two different anuran species

Murilo S. Queiroz¹*, Rodney M. P. Couto², and Maiara C. Miguel³

Most species of anurans are generalist and opportunistic foragers, feeding on the availability of prey in the environment (Eterovick and Sazima, 2004; Wells, 2007; Santos and Vaz silva, 2012). The type of behaviour in the search for food combined with the type of habitat has influence on determining which preys are ingested (Van Sluys and Rocha, 1998). They can consume a wide variety of prey including other species of amphibians and are even known to be cannibalistic (Wells, 2007; Santos and Vaz Silva, 2012; De Sá et al., 2014). Among the anurans to have opportunistic feeding are the Leptodactylidae (Toledo et al., 2007).

Leptodactylus chaquensis (Cei, 1950) is a medium-sized species associated with flooded environments and water bodies, active during the nocturnal period (Heyer et al., 2004; Weiler et al., 2013). It is widely distributed, occurring in Argentina, Bolivia, Brazil, Paraguay and Uruguay (Heyer et al., 2004; Weiler et al., 2013). In Brazil, it is found in the states of Acre, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Paraná, Rio Grande do Sul, Rondônia and São Paulo (Oda et al., 2014). It is considered a generalist species that feeds on arthropods and smaller anurans and has an explosive mode of reproduction, building foam nests (Schaefer et al., 2006; Weiler et al., 2013).

During a nocturnal collection of anurans on October 09, 2018 that took place in a temporary lagoon located in the riparian forest of the Véstia stream (-20.395400-51.394400), in the municipality of Selvíria-MS, under the SISBIO 58746-4 license at 11:20 p.m. (Brasília, DF time, Brazil) we observed a L. chaquensis female adult trying to prey on a Physalaemus cuvieri (Fitzinger, 1826) female adult (Fig.1 A–B). The L. chaquensis specimen had bitten P. cuvieri, which remained inflated in anti-predatory behaviour (Noble, 1931; Toledo et al., 2011), since the beginning of the recording. On some occasions, P. cuvieri performed movements with the hind limbs. The scene was observed for 40 minutes. We tried to capture both anurans but L. chaquensis released the prey and both escaped.

On the same day, another individual L. chaquensis female (SLV 80mm) was observed and collected, in which two specimens of female anurans were identified in its stomach content: Scinax nasicus (Cope, 1862) (SLV 35mm) (Fig. 1-C) and Physalaemus cuvieri (SLV 30mm) (Fig. 1-D), one belonging to the Hylidae family and the other to the Leptodactylidae respectively. The specimens were deposited in the Zoological Collection of the Federal University of Mato Grosso do Sul (ZUFMS).

The predation of anurans by L. chaquensis is common (Duré, 1999; Piatti and Souza, 2011; Pereira et al., 2015, Oda et al., 2016; Camurugi et al., 2017), however, this is the first record of a specimen with two different species in their stomach. Anurans have great diversity in life history patterns, and most species reproduce in rainy seasons (Stebbins and Cohen, 1995). Scinax nasicus and P. cuvieri reproduce in temporary or permanent water bodies in rural areas, depositing the eggs directly in the water or in foam nests near the bordering vegetation (Kwet et al., 2004; Condez et al., 2009). There are few records on the predation of S. nasicus and P. cuvieri by other anurans, however, there are records of arthropods, snakes, birds and other organisms feeding on these
species (Table 1), which emphasizes the importance of these animals in trophic networks in different ecosystems.

Records on batrachophagy are important and provide information on trophic dynamics in these systems. Pombal Jr. (2007) points out that these events may be frequent, however, there is some difficulty in conducting field studies that measure the frequency of these occurrences. Therefore, this work contributes to disseminating knowledge about how diverse is food webs involving anurans.

Figure 1. Predation of *Leptodactylus chaquensis* on two other species of anurans. A: record of an attempted predation on *Physalaemus cuvieri* observed on the day of collection; B: Detail of *L. chaquensis* biting *P. cuvieri* by the head; C: Detail of *Scinax nasicus* collected from the stomach and partially digested; D: Detail of the anurans in the position that they were found in, in the stomach of *L. chaquensis* (*P. cuvieri* is on the left and *S. nasicus* is on the right). Photos by: A and B: Rodney, M.P. Couto; C and D: Murilo S. Queiroz.
**Table 1.** Records of the predation relationship among the species of *L. chaquensis*, *P. cuvieri* and *S. nasicus*.

<table>
<thead>
<tr>
<th>Class</th>
<th>Family</th>
<th>Species</th>
<th>Class</th>
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<td>Dipsadidae</td>
<td><em>Helicops modestus</em></td>
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<td><em>Syrisma sibilatrix</em></td>
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**References**


