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A record of *Thrichomys pachyurus* (Rodentia: Echimyidae) as prey of *Bothrops mattogrossensis* (Serpentes: Viperidae)

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Food is a crucial resource for all animals, and quantifying diets is one of the first steps in the study of species ecology (Sih and Christensen, 2001). What species eat and how and where this resource is obtained can help understand the use of resources and inter and intra-specific interactions (Granzinolli and Motta-Junior, 2007). However, the observation of predation records in nature is a fortuitous event (Huntingford, 1984). That is especially true for snakes, which are casually found during field works by active search (Fitch, 1987). Here, we present a record of predation event on a spiny rat *Thrichomys pachyurus* (Wagner, 1845) by the pitviper *Bothrops mattogrossensis* Amaral, 1925.

Bothrops mattogrossensis belongs to the *B. neuwiedi* complex, which is currently composed of eight species (Machado et al., 2014). *Bothrops mattogrossensis* occurs in Brazil, Peru, Bolivia, and Argentina (Silva and Rodrigues, 2008). In Brazil, the species occurs in the states of Amazonas, Rondônia, Mato Grosso do Sul, Tocantins, Goiás, and São Paulo (Silva and Rodrigues, 2008). Although considered as a terrestrial species (Martins et al., 2002), *B. mattogrossensis* is relatively slender and has the longest tail among other terrestrial congeners, possibly an adaptation for climbing vegetation during seasonal floods of the open humid habitats in the Pantanal of western Brazil (Monteiro et al., 2006).

On 27 September 2017, in the dry season, at 13:45h, we found an adult female of *B. mattogrossensis* (Figure 1; Table 1) near the Base de Estudos do Pantanal (BEP), of the Universidade Federal de Mato Grosso do Sul (19.576297°S, 57.018474°W), municipality of Corumbá, state of Mato Grosso do Sul, Brazil. The individual was on the ground between the roots of a tree, on the border of a gallery forest, in a typical viper posture (Oliveira and Martins, 2001), and with part of the body expanded, indicating presence of undigested (or partially digested) stomach content (Figure 1A). We collected the individual and, after necropsy, the stomach content was removed, which was identified as being a subadult male (body mass = 120 g; see Andreazzi et al., 2011) of *Thrichomys pachyurus* (Wagner, 1845) (Figure 1B). The fact that the anterior and posterior limbs were pointed backwards indicates that the rat was eaten by the head first (see Cabral et al., 2017). *Thrichomys pachyurus* is a large rodent species belonging to the Echimyidae family (Braggio and Bonvicino, 2004). This species has a wide distribution (Lacher, 2016) and occurs in Paraguay, Bolivia and central and western Brazil in the states of Tocantins, Goiás, and Mato Grosso (Pessôa et al., 2015). The rodent represents 22% of the total length of the snake, and 61% of its weight (Table 1). We used the same measurements presented in Cabral et al. (2017). Both specimens were housed in Coleção Zoológica da Universidade Federal de Mato Grosso do Sul (*B. mattogrossesnsis* = ZUFMS-REP 02628, and *T. pachyurus* = ZUFMS-MNV 00059).

Bothrops mattogrossensis does not show an ontogenetic shift in diet from ectothermic to endothermic prey and, compared to the other species of the *B. neuwiedi* complex (e.g., Martins et al., 2002; Valdujo et al., 2002;

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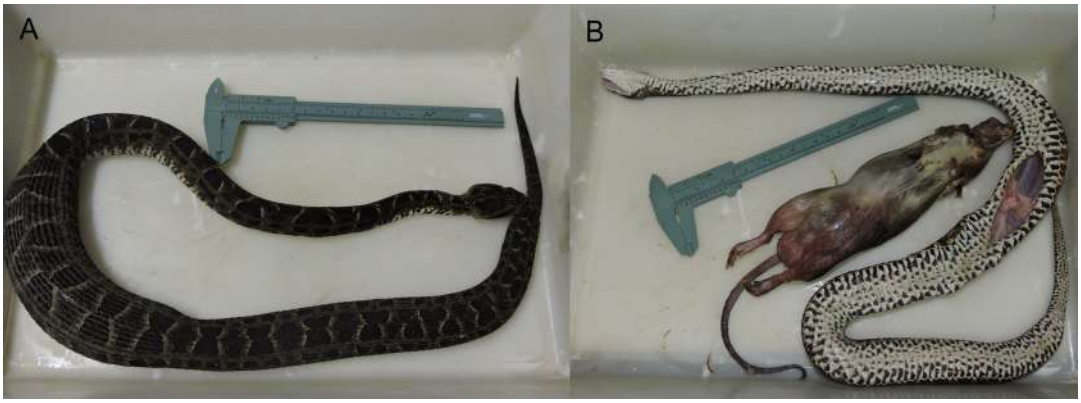

Figure 1. An adult female of *Bothrops mattogrossensis* with part of the body expanded, indicating presence of undigested (or partially digested) stomach content (A), from municipality of Corumbá, state of Mato Grosso do Sul, Brazil. The same specimen dissected with its prey, a subadult male of *Thrichomys pachyurus* (B). The position pointed backwards of anterior and posterior limbs indicates that the rat was eaten by the head first (see Cabral et al., 2017). A calliper with 15 cm long was used as a scale to the photos.

Hartmann et al., 2004), has a generalized diet, preying small mammals, anurans, lizards, snakes, and centipedes (Monteiro et al., 2006). Both traits are considered plesiomorphic for the genus *Bothrops* (Martins et al., 2002). This is the first record of predation of *Thrichomys pachyurus* – a large species of rodent (individuals can reach 700 g of body mass; Pessôa et al., 2015).

Predation events with relatively large-sized prey have been recorded for some species of the genus *Bothrops* (e.g., Cabral et al., 2017; Cadena-Ortiz et al., 2017). Some authors have suggested that the relation between prey size and snake size follows the efficient foraging theory, which assumes that bigger preys would be preferred because they maximize net energy or nutrient gain and minimize the time and energy spent acquiring a quantity of resources (Sih and Moore, 1990). Furthermore, it has been demonstrated that females of the *B. neuwiedi* complex have larger body sizes and proportionally larger heads than males, which may reflect sexual differences in diet (Martins et al., 2002; Valdujo et al., 2002; Hartmann et al., 2004). Larger head and body size of females are a possible adaptation

Table 1. Measurements in centimetres of the individuals of *Thrichomys pachyurus* (ZUFMS-MNV 00059) and *Bothrops mattogrossensis* (ZUFMS-REP 02628) from municipality of Corumbá, state of Mato Grosso do Sul, Brazil.

Body measurements	***T. pachyurus***	***B. mattogrossensis***
Snout-vent length	14.3	87.3
Tail length	6.7	5.2
Total length	21	92.5
Head width	2.8	24.4
Head height	2.9	16.1
Body width	7.1	25.9
Body height	2.65	23.4
Weight (in grams)	238	390

for ingesting larger prey items (Pough and Groves, 1983; Shetty and Shine, 2002). However, there is no evidence supporting sexual differences in the diet of *B. mattogrossensis* (Monteiro et al., 2006).

For Downes (2002), patterns of size-selective predation by snakes are determined by differential prey vulnerability rather than by active predator choice. Regarding *B. mattogrossensis*, further studies on prey availability and vulnerability associated to dietary analyses may help understand the prey composition of this species.

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