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Biology-Zoology

Predation of *Tropidurus hispidus* (Spix, 1825) by *Philodryas natteri* (Steindachner, 1870) in the Caatinga

Predação de *Tropidurus hispidus* (Spix, 1825) por *Philodryas nattereri* (Steindachner, 1870) na Caatinga

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ABSTRACT

Here, we describe the sighting of *Philodryas nattereri* preying on a *Tropidurus. hispidus* lizard in Sento-Sé – Bahia, Brazil, located in the central portion of the Caatinga, in a high priority conservation area of the biome. The event was observed in April 2021. This study provides information on the diet of this animal in the Caatinga biome. It thus provides another account of the natural history of snakes, which in itself is a valuable contribution to scientific knowledge since little is known about these animals due to their rarity in nature.

Keywords: Semi-arid; Diet; Sento-Sé (Bahia); Corre-campo; Colubridae

RESUMO

Nesse trabalho, descrevemos o avistamento de *Philodryas nattereri* predando um lagarto da espécie *Tropidurus hispidus* em Sento-Sé – Bahia, Brasil, situada na porção central da Caatinga, em uma área de alta prioridade de conservação do bioma. O evento foi observado em abril de 2021. Este estudo fornece informações sobre a dieta *Philodryas nattereri* no bioma Caatinga e com isso acrescenta mais um relato a história natural das serpentes, fato que por si só se mostra valioso para o conhecimento científico, visto que há pouco conhecimento sobre esses animais devido à sua raridade na natureza.

Palavras-Chaves: Semi-árido; Dieta; Sento-Sé (Bahia); Corre-campo; Colubridae

1 INTRODUCTION

The Caatinga is the only biome exclusive to Brazil, comprising an area of approximately 912,529km^2, which corresponds to 11% of the national territory and 54% of the North-eastern region (Silva *et al*., 2017). This biome is extremely important from a biological standpoint, as it is the main type of vegetation in the semi-arid region covering the North-eastern region and Northern Minas Gerais (Loiola *et al*., 2012; Franca-Rocha *et al.*, 2007).

In terms of biodiversity, the Caatinga biome is one of the lesser understood ecosystems in Brazil (Guedes, 2012). Information provided in studies on reptiles and amphibians has been important for developing our understanding of the history of the Caatinga ecosystem. However, the current level of knowledge on herpetofauna in this biome remains unsatisfactory, especially compared to other South American environments (Leal *et al*., 2003; Rocha, 2017). Brazilian herpetofauna is one of the richest in the world, with the most recent list indicating 795 reptile species, of which 405 are snakes (Costa; Bérnils, 2018). In a recent study, 112 snake species were registered, of which 22 were endemic to the Caatinga biome (Guedes *et al*., 2014a; Navega-Gonçalves, 2016).

Philodryas nattereri occurs predominantly in open and arid habitats in Brazil, Paraguay, and Bolivia (Navarro-Cornejo; Gonzales, 2020). This species, known as “corre-campo” or “tabuleiro” and belongs to the family Dipsadidae. It is one of the most common species in the Caatinga and Brazilian semi-arid areas, with an ample distribution across Brazil (Leite *et al*., 2009). *Philodryas nattereri* individuals can reach up to 1.6m in length, with brown or grey coloration, and are very fast oviparous snakes with terrestrial habits. However, recent studies have shown that they are capable of efficiently using arboreal environments (MESQUITA *et al*., 2011). In terms of dentition, this snake is opisthoglyphous, secreting toxic substances through the Duvernoy gland. These toxins aid in oral hygiene and prey immobilization and facilitate the lubrification

and anti-putrefaction of food (Kardong, 1982). *Philodryas nattereri* is a diurnal species that hunts several types of prey such as birds, mammals, lizards, amphibians, lizard eggs, and other snakes. At night, they curl up to rest (Mesquita *et al*., 2011).

Much of the information on the diet of the genus *Philodryas* is contained in short ecological notes, and few include detailed lists of species diets. Information originating from studies on snake and lizard fauna in the Caatinga is fundamental for understanding the history of the current ecosystem and collecting data that are still scarce for this biome (Rodrigues, 2003). Cabral (2019) reviewed studies that described snake diets, including *Philodryas nattereri*. In one of the studies, 93 dissections were performed on this species, and several groups, such as mammals, birds, amphibians, and reptiles belonging to the order Squamata, were found. Additionally, Menezes *et al*. (2013) found a *Tropidurus hispidus* body through dissections. Mesquita *et al*. (2013) described the natural history of some snakes, including *P. nattereri*, based on information about patterns of activity, diet, and use of the environment, among others. In their research Mesquita *et al*. (2013) also included reptiles from the lizards group in *P. Nattereri's* diet.

Much of what we know about *Philodryas nattereri* is through snake dissection studies. However, research on habitat use and its relationship with diet is scarce. Thus, sighting descriptions of these snakes corroborate and provide new information on their use of substrates and their diet (Machado Filho, 2015).

The present note describes a predation event of *T. hispidus* by *P. nattereti* in Sento-Sé (Bahia), in an area of Caatinga in North-eastern Brazil. Providing another account of the natural history of snakes, since there are no detailed studies on this species and its relationship between habitat and diet.

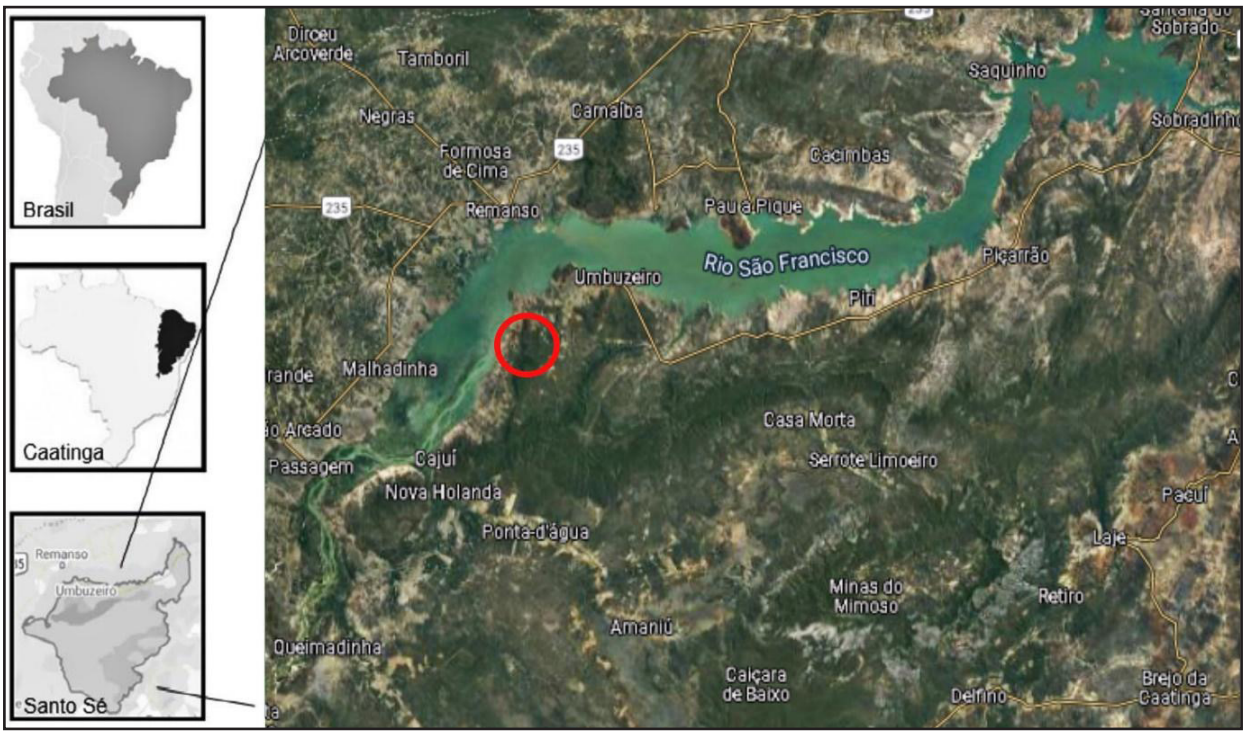
2 METHODOLOGY

The sighting took place during fieldwork that was carried out in the region of the municipality of Sento-Sé, State of Bahia, located in the central portion of the Caatinga, 09º 44' 45" S, 41º 53' 07" W, on 8th April 2021. This is a high priority Caatinga

conservation area and is inserted in the polygon of the APA Lagoa de Sobradinho (Silva *et al*., 2017) and recently, the mosaic of the Unidades de Conservação do Boqueirão da Onça was created, comprised of the Parque Nacional (~347,557 ha) and a Protected Environmental Area (APA) (~505,692 ha) (Campos *et al*., 2019). The area where the predation event was observed is located approximately 10 kilometers from the PARNA do Boqueirão da Onça (Figure 1).

The predominant vegetation in the area is homogenous shrub-tree Caatinga, with the presence of common botanical species, such as caroá (*Neoglaziovia variegata*) and the blue columnar cactus (*Pilosocereus pachycladus*). There are also anthropized areas. Additionally, there is a mosaic of thorny shrubs where the arboreal vegetation is restricted to patches of nutrient-rich soil. The physiognomy is marked by the presence of cacti and bromeliads, thorny (Macambira - *Bromelia laciniosa*), and deciduous plants, which are strongly influenced by the presence/absence of precipitation.

Figure 1 – Location of the study area, Sento- Sé – BA, 10 km from the study area



Source: Porto, M. F. (2021)

3 RESULTS AND DISCUSSION

The event occurred during field work performed in the region of the municipality of Sento-Sé (BA), 09º 44' 45" S, 41º 53' 07" W, on the 8th April 2021 between 11:30h and 12:30h, where a *P. nattereri* individual was observed to use a terrestrial foraging strategy and possibly used stalking behavior to capture its prey. According to Sazima and Haddad (1992), this snake uses venom and constriction as methods of subduing its prey. These authors also affirm that *P. nattereri* diet is related to the availability of food resources in the environment. Thus, since *T. hispidus* is abundant in the region, we can infer that it is also an important food item for this snake.

The event occurred when the snake quickly struck, snapping at the lizard's right leg on the ground (Figure 2). It then began to constrict (Figure 3) until it noticed the presence of the researchers. The snake then retreated to more dense vegetation near a bromeliad while holding its prey. The snake was not captured, but through videos and photographs, it was possible to identify the species.

This study corroborates information provided by Machado Filho (2015) on lizards that are part of the *P. nattereri* diet. In their research, Guedes *et al*. (2014b), described several predation events by snakes, including *P. nattereri*. Among the reports, there was a sighting of a *P. nattereri* individual on the ground in an open area in the Caatinga, constricting an anuran of the species *Hypsiboas raniceps*. Another snake was sighted in the same biome during the day, preying on an *Ameivula ocellifera* individual in Sento-Sé/BA, in the same city where the present report was observed. A third *P. nattereri* individual was found constricting a lizard of the species *Tropidurus semitaeniatus* (later ingested), in an area of rocky soil, also in the Caatinga, during the day, in Pila, District of Jaguarari/BA (Machado, 2015).

However, descriptions of predation events for this species are scarce. Although we know that these snakes attack lizards, this record provides further

insight into the natural history of snakes, which is valuable for scientific knowledge since little is known about these animals due to their rarity in nature. We emphasize that Sazima and Marques (2007) indicated the importance of the scientific record of this type of event.

Figure 2 – The lizard *Tropidurus hispidus* being attacked by *Philophryas nattereri* in the municipality of Sento-Sé (BA)

Source: Porto, M. F. (2021)

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