

RECORD OF *Hemidactylus agrius* (GEKKONIDAE) IN THE DIET OF *Thamnodynastes phoenix* (DIPSADIDAE) IN NORTHEASTERN BRAZIL

Registro de *Hemidactylus agrius* (Gekkonidae) en la dieta de *Thamnodynastes phoenix* (Dipsadidae) en el noreste de Brasil

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ABSTRACT

Information on snake diet is scarce, being obtained from specimens deposited in scientific collections or through occasional records. *Thamnodynastes* species have a generalist diet, although predominantly batracophagus. *Thamnodynastes phoenix* is an endemic snake in Brazil, which was described recently, and little is known about its ecology. Herein, we report the first record of *Hemidactylus agrius* in the diet of *T. phoenix* in northeastern Brazil. Although there is a record of another lizard in its diet, this is the first record of a Gekkonidae as prey for this species. Studies on snake diet provide important information about natural history, contributing to the evolutionary biology and conservation of the species, which are still limited.

Keywords: Lizard, natural history, predation, snake.

RESUMEN

La información sobre la dieta de las serpientes es escasa, ya que se obtiene a partir de especímenes depositados en colecciones científicas o mediante registros ocasionales. Las especies de *Thamnodynastes* tienen una dieta generalista, aunque predominantemente batracófaga. *Thamnodynastes phoenix* es una serpiente endémica de Brasil, que fue descrita recientemente y se sabe poco sobre su ecología. Aquí, reportamos el primer registro de *Hemidactylus agrius* en la dieta de *T. phoenix* en el noreste de Brasil. Aunque hay un registro de otro lagarto en su dieta, este es el primer registro de un Gekkonidae como presa de la especie. Los estudios sobre la dieta de las serpientes brindan información importante sobre la historia natural, lo que contribuye a la biología evolutiva y la conservación de la especie, que aún son limitadas.

Palabras clave: Historia natural, lagartija, depredación, serpientes.

Information on diet is of great importance to understand the interaction of species with their environment and with other coexisting species, besides to understand how the eating habits are related to ecological and phylogenetic factors (França *et al.*, 2008; Bellini *et al.*, 2015). Ecological studies with snakes are scarce due to their cryptic habits, which means that information about diet and trophic ecology is, in most cases, obtained from specimens deposited in scientific collections (Bernarde, 2012; Dias-Silva *et al.*, 2021) or through occasional records (Santana and Teixeira, 2020).

The genus *Thamnodynastes* Wagler, 1830 currently comprises 21 species of snakes widely distributed throughout South America, occurring in gallery forests, shrubs, and flooded savannas (Trevine *et al.*, 2021; Uetz *et al.*, 2022). Of these species, five occur exclusively in Brazil [*T. almae* Franco and Ferreira, 2003, *T. longicaudus* Franco, Ferreira, Marques and Sazima, 2003, *T. phoenix* Franco, Trevine, Montingelli and Zaher, 2017, *T. rutilus* (Prado, 1942), and *T. sertanejo* Bailey, Thomas and Da Silva, 2005] (Nogueira *et al.*, 2019; Trevine *et al.*, 2021). The genus has a complex taxonomy, still presenting one species with identification and distribution not yet well resolved (e.g., *Thamnodynastes* cf. *nattereri*) (Barbosa *et al.*, 2020). Due to the overlapping characters, the diagnosis is often confusing, reflecting a large information gap on most of these species' taxonomic and ecological issues (Franco *et al.*, 2017; Trevine *et al.*, 2021). However, *Thamnodynastes* species present in general medium size, vertical pupils, single nasal scale, odd number dorsal scale, apical pits, and anal plate divided, in addition to nocturnal habits, viviparity and opisthognathic dentition (Franco *et al.*, 2017; Barbosa *et al.*, 2020).

Herein, we reported the first record of *Hemidactylus agrius* Vanzolini, 1978 in the diet of *T. phoenix* in northeastern Brazil. On 17 July 2021, at 9:30 h, during fieldwork, in the locality Serra dos Matões, municipality of Pedro II, state of Piauí, northeastern Brazil (4°19' S and 41°27' W, datum WGS84, 620 a. l. s.; Fig. 1a), we registered a young individual of *T. phoenix* (snout-vent length – SVL = 187.68 mm; weight = 5.18 g; Fig. 1b) on an access trail to the Urubu Rei waterfall, near the Mirante do Gritador. The snake was collected and properly transported in a plastic container and after a few minutes of capture, the individual regurgitated a lizard of the species *H. agrius* (SVL = 33.34 mm; weight = 1.18 g; Fig. 1c). The specimens were fixed and deposited in the Biological Collection of the Instituto Federal de Educação, Ciência e Tecnologia do Piauí – IFPI Campus Pedro II (*T. phoenix* CBPII 255, *H. agrius* CBPII 257).

Thamnodynastes phoenix is a typical snake of the northeastern Brazilian, widely distributed in the Caatinga biome, with records bordering the Cerrado biome, living in sympatry with at least two species: *T. almae* and *T. sertanejo* (Pergentino and Ribeiro, 2017; Nogueira *et al.*, 2019). It is morphologically distinguished from its congeners by the

presence of 19-19-15 dorsal scales, 133-159 ventral scales, and 40 to 66 subcaudals, with the ventral portion of the head extremely stained with dark brown spots and two pairs of noncontinuous longitudinal dark ventral stripes (Franco *et al.*, 2017).

Hemidactylus agrius was initially described as endemic to the Caatinga (Vanzolini, 1978), having its geographic distribution extended to the Cerrado (Andrade *et al.*, 2004). It has nocturnal and terrestrial habits (Mesquita *et al.*, 2017), is generalist in the use of its microhabitat, and is generally found inactive under tree bark during the day (Passos *et al.*, 2015). *Hemidactylus agrius* is morphologically like its congener *H. mabouia* (Moreau De Jonnés, 1818), an introduced species widely distributed in northeastern Brazil, but it is distinguished by the presence of ventral lamellae in the fourth toe that reach the base of the foot and by the presence of a greater number of tubercles on the dorsum and in the limbs, especially in the forearm (Vanzolini, 1978).

In general, *T. phoenix* is a poorly studied species and what is known about its diet is provided by sporadic records of predation, consisting mainly of anurans: *Physalaemus cicada* Bokermann, 1966, *Rhinella granulosa* (Spix, 1824), and *Leptodactylus* cf. *macrosternum* Miranda-Ribeiro, 1926 (Pergentino and Ribeiro, 2017); lizards: *Tropidurus semitaeniatus* (Spix, 1825) and *H. agrius* (Silva *et al.*, 2018, present study); and one report of cannibalism (Morais *et al.*, 2020). For *T. phoenix* there is only one record of a *T. semitaeniatus* found in the stomach of the snake after fixed (Silva *et al.*, 2018). Thus, this is the second record of lizard in the diet of this species. Species of the *Thamnodynastes* genus have a generalist diet consisting of fish, frogs, lizards, lizard eggs, and rodents (Bernarde *et al.*, 2000; Bellini *et al.*, 2015; Bortolanza-Filho *et al.*, 2019), although data on lizard predations are still scarce, representing less than 4% of the diet of the species (Bernarde *et al.*, 2000; Bellini *et al.*, 2015). However, most species of the genus occurring in Brazil still do not have data on their diet.

Studies on snake diet provide important information about natural history, contributing inclusive to the evolutionary biology and conservation of the species, that although it has increased, it is still quite fragmented and/or limited (Sawaya *et al.*, 2008; Barbo *et al.*, 2011). Our work reports the first record of a Gekkonidae predated by *T. phoenix* and only the fourth study on the food items of this species, thus expanding the knowledge about its food ecology.

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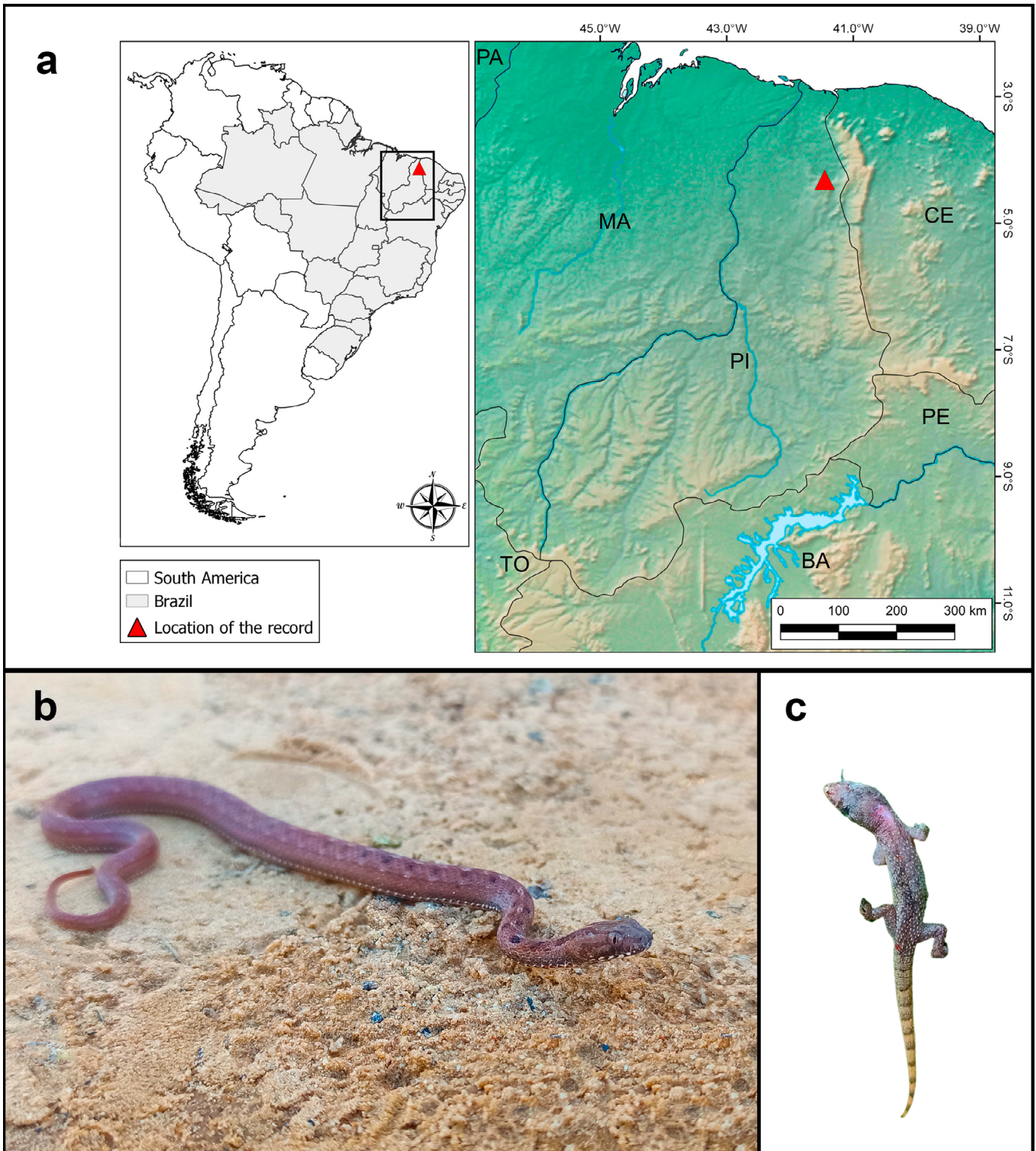


Figure 1. a - Location map of the municipality of Pedro II, state of Piauí, northeastern Brazil. b - Young individual of *Thamnodynastes phoenix* (CBPII 255). c - *Hemidactylus agrius* (CBPII 257) predated and regurgitated by *T. phoenix*.

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DISCLOSURE OF INTEREST

The authors declare that there is no conflict of interest.

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