



NOTES ON THE DIET AND REPRODUCTION OF *Dryophylax phoenix* IN THE CATIMBAU NATIONAL PARK, PERNAMBUCO STATE, BRAZIL

Maria Eduarda de Araújo Almeida^{1,3*}, Patrícia Marques do Amaral Oliveira^{2,4}, Natallia Vívian Nascimento da Silva⁴, Pedro Murilo Sales Nunes^{2,4} & José Henrique de Andrade Lima^{2,3,4}

¹ Universidade Federal da Paraíba, Centro de Ciências Exatas e da Natureza, Programa de Pós-Graduação em Ciências Biológicas, Via Pau Brasil, s/n, CEP 58051-900, João Pessoa, PB, Brasil.

² Universidade Federal de Pernambuco, Centro de Biociências, Programa de Pós-Graduação em Biologia Animal, Rua Prof. Nelson Chaves, s/n, Cidade Universitária 50670-420, Recife, PE, Brasil.

³ Universidade Federal de Campina Grande, Centro de Saúde e Tecnologia Rural, Unidade Acadêmica de Ciências Biológicas, Laboratório de Herpetologia, Avenida Universitária, s/n, Bairro Santa Cecília, CEP 58708-110, Patos, PB, Brasil.

⁴ Universidade Federal de Pernambuco, Centro de Biociências, Departamento de Zoologia, Laboratório de Herpetologia, Avenida Professor Moraes Rego, s/n, CEP 50670-901, Recife, PE, Brasil.

E-mails: eduardaaraujo64@gmail.com (*corresponding author); pati.marques18@gmail.com; natalliavivian8@gmail.com; pedro.nunes@gmail.com; henriquebio19@gmail.com.

Abstract: *Dryophylax phoenix* is a snake with wide distribution in northeastern Brazil, with a diet composed mainly of anurans and lizards, presenting a viviparous reproduction. Here we report two cases of saurophagy and provide the first reproductive data for this snake from two dissected individuals collected in Catimbau National Park, a Caatinga area.

Keywords: *Ameivula ocellifera*; morphometry; offspring; saurophagy; *Tropidurus cocorobensis*.

Snakes of the *Dryophylax* genus Wagler (1830) are widely distributed throughout Southern and Central America, currently including 15 valid species (Trevine *et al.* 2022). In Brazil, at least nine species occur (Costa *et al.* 2021) throughout its different phytogeographies (Bailey 1967, Franco 1999). Among these species, *Dryophylax phoenix* (Franco, Trevine, Montingelli & Zaher, 2017) is widely distributed throughout the Northeastern and Midwestern regions of Brazil (Bailey *et al.* 2005), occurring in Cerrado formations and predominantly in the Caatinga domain, extending from the state of Ceará to the southern limit of its distribution in northern Minas Gerais (Franco *et al.* 2017, Trevine *et al.* 2022).

Dryophylax snakes are opisthoglyphous and nocturnal (Bailey 1967, Franco 1999), presenting

a diet mainly composed of anuran amphibians (Bernarde *et al.* 2000, Pergentino & Ribeiro 2017), but records of lizard, fish, and small mammal ingestion have also been documented (Bernarde *et al.* 2000, Ruffato *et al.* 2003). Specific diet data for this genus is only available for a few species (Morais *et al.* 2020), such as *D. hypoconia*, *D. chaquensis*, and *D. nattereri* (Bernarde *et al.* 2000, Bellini *et al.* 2014, Dorigo *et al.* 2014). For *D. phoenix*, the ingestion of the anurans *Physalaemus cicada*, *Rhinella granulosa* and *Leptodactylus cf. macrosternum* (Pergentino & Ribeiro 2017) has been reported, in addition to one record of cannibalism (Morais *et al.* 2020) and one of saurophagy on *Tropidurus semitaeniatus* (Silva *et al.* 2018).

Snakes of this genus are viviparous and data on the Tachymenini tribe reproduction appear to

be conserved, suggesting that females likely have seasonal reproductive cycles (Pizzatto *et al.* 2008, Bellini *et al.* 2014) involving the production of a relatively low number of embryos per year (Bellini *et al.* 2014). The literature for Tachymenini reports reproductive data only for *D. almae* (Faria *et al.* 2021) and *T. pallidus* (Santana *et al.* 2017, Silva *et al.* 2019).

Here we provide additional information about the natural history of *D. phoenix*, reporting two more lizard species as prey and providing the first reproductive data for the species, such as clutch size, stage of fetal development in the oviduct, and fetuses morphometry.

The data presented here are from two dissected individuals that were collected in the Catimbau National Park, located in the Caatinga domain, in the municipalities of Buíque, Ibimirim, and Tupanatinga, Pernambuco state, Northeast Brazil. All individuals were collected under a license (Sisbio - 46368) and are deposited in the Herpetological Collection of the Federal University of Pernambuco (CHUFPE). Specimens were measured (snout-vent length and tail length) using an analog pachymeter (precision 0.1 mm) and weighed on a digital balance (precision 0.001 g). For the fetuses, we also measured the distance between the insertion point of the umbilical cord and the cloaca. The normality of the fetal morphometric data was tested, and a Pearson's correlation test was then applied using PAST 3.25 software (Hammer *et al.* 2001) to check for any association between body size and mass.

On 17th January 2022, a male *D. phoenix* individual (Total length = 480 mm, body mass = 28.154 g, CHUFPE-R 1009) was collected at 15:30h (33.2° C air temperature, 52.8% humidity) with signs of bodily injury to the head and belly, approximately 20 min after it was killed by local residents near their residence (08°34'52.5" S 37°14' 48.6" W, 755 m a.s.l.). According to the resident's report, the individual was in dry bushes measuring 1.50 meters, under tree shade. After dissection, a young individual of the lizard species *Tropidurus cocorobensis* (snout-vent length ~65 mm, 14% of the predator SVL) was found in the snake's stomach contents, with its head partially digested in the head-cloaca direction of the snake (Figure 1A).

The second individual was found on 19th January 2022 at 16:50h (37.4° C air temperature,

39.6% humidity). The adult *D. phoenix* female (Total length = 460 mm, body mass = 23.209 g, CHUFPE 1010) was found resting on tree branches, 1.30 meters from the ground (08°34'54.5" S 37°14' 29.3" W, 755 m a.s.l.) (Figure 1B), 624 meters away from where the first individual was found. After dissection, an adult male of the lizard species *Ameivula ocellifera* (snout-vent length ~96 mm, 21.33% of the predator SVL) was found in the snake's stomach contents (Figure 1C), occupying the first half of its body, with the head partially digested and, in the head-cloaca direction of the snake.

Among the prey items reported for *D. phoenix*, only one lizard species has been recorded (Table 1). The present records may be an indication that saurophagy has a greater contribution to the diet of this snake than previously thought. Additionally, although *D. phoenix* is a nocturnal species (Guedes *et al.* 2014), the lizard species recorded as its prey are diurnal (Rodrigues 1988, Vitt & Caldwell 2009), sheltering in burrows at night, which may suggest that the foraging of *D. phoenix* involves a search for prey in burrows.

This is the second record of predation by a snake on a *T. cocorobensis* lizard, the first having also been registered in the Parque Nacional do Catimbau (Almeida *et al.* 2009). On the other hand, *A. ocellifera* is widely known to comprise the diet of several animal groups, of which snakes are one of the most common predators (Vitt & Vangilder 1983, Bocchiglieri & Mendonça 2009, Mesquita *et al.* 2013, Oliveira *et al.* 2018, Coelho *et al.* 2019, Silva *et al.* 2021, Sousa *et al.* 2021).

According to the position in which both prey items were found in the snake stomachs and based on the state of almost complete digestion of their heads, it can be concluded that they were ingested first by the head, which is a well-documented strategy in records of predation events by snakes on lizards (Almeida *et al.* 2009, Menezes *et al.* 2013, Maia-Carneiro *et al.* 2016, Mikalauskas *et al.* 2017, Sousa *et al.* 2020, Santana & Teixeira 2020, Silva *et al.* 2021). In fact, according to Greene (1976), this facilitates swallowing by reducing the resistance caused by the surface of the prey.

In addition to prey in the female's stomach, there were eight newly formed embryos in her oviduct (Figure 1C), which were linearly positioned, occupying the second half of the

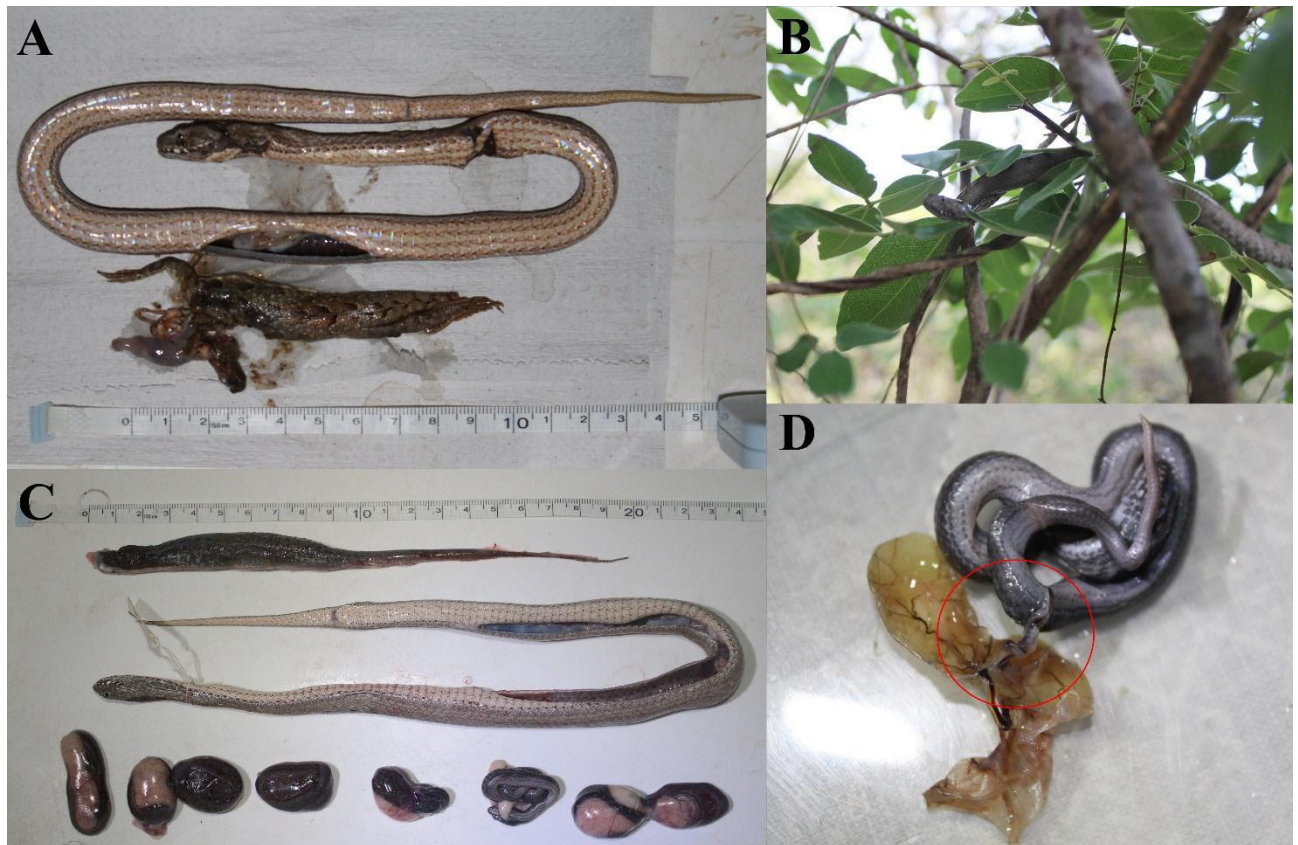


Figure 1. *Dryophylax phoenix* specimens, prey, and fetuses from the Parque Nacional do Catimbau, in Pernambuco State, Northeastern Brazil. A) Adult male (specimen code) and its prey (Juvenile *Tropidurus cocorobensis*); B) Adult female resting on tree branches; C) Adult female (specimen code), prey (male *Ameivula ocellifera*), and eight fetuses; D) Fetus with emphasis (red circle) on the umbilical cord-vitellus connection.

female's body. Santana *et al.* (2017), accompanied a *T. pallidus* female in the laboratory, which gave birth to four live hatchlings and one stillborn. For this same species, Silva *et al.* (2019) found two partially formed hatchlings in the oviduct of one female and five fetuses in another female.

In *D. almae*, the largest recorded number of hatchlings to date for the genus was observed in one female harboring 10 newly formed hatchlings in her oviduct (Faria *et al.* 2021). Following Faria *et al.* (2021), *T. strigilis* by Vitt & Vangilder (1983) is believed to refer to the species now known as *D.*

Table 1. List of preys reported for *Dryophylax phoenix* Franco, Trevine, Montingelli & Zaher, 2017 (Squamata: Serpentes: Colubridae) in the literature.

Animal group	Species	Source
Anfibians	<i>Physalaemus cicada</i> Bokermann 1966	Pergentino & Ribeiro 2017
	<i>Rhinella granulosa</i> (Spix 1824)	
	<i>Leptodactylus</i> cf. <i>macrosternum</i> Miranda-Ribeiro 1926	
Lizards	<i>Tropidurus semitaeniatus</i> (Spix 1825)	Silva <i>et al.</i> 2018
	<i>Tropidurus cocorobensis</i> Rodrigues 1987	This study
	<i>Ameivula ocellifera</i> (Spix 1825)	
Snakes	<i>Thamnodynastes phoenix</i> Franco, Trevine, Montingelli and Zaher 2017	Morais <i>et al.</i> 2020

phoenix, which had litters ranging from three to eight hatchlings (Vitt & Vangilder 1983, Franco *et al.* 2017), corroborating the observations recorded in the present study.

Garcia *et al.* (2015) proposed three stages of fetal development within snake oviducts, based on four viviparous species of the Boidae family. In accordance with this proposal, we infer that the fetuses of *D. phoenix* in the present study were between the intermediate and final stage, since, although the fetuses were fully formed there was still yolk near each fetus (Figure 1C) connected to the umbilical cord (Figure 1D). More specifically, we estimate the fetuses to be at stage 37, proposed by Zehr (1962), for *Thamnophis sirtalis sirtalis*, in which the fetuses resemble a newborn, whose brain cannot be seen through the cranial scales due to dense pigmentation, the pattern of body pigmentation is fully developed, and the hemipenis is inverted in male specimens.

The following table shows the morphometric data of the fetuses and their respective means and standard deviations (Table 2). The Pearson's test showed an association between total length and body mass in the fetuses ($r = 0.983$, $p = 0.009$).

In *T. pallidus*, the smallest and largest fetus specimens had total lengths of 175 mm and 192 mm, respectively, equivalent to 31% and 35% of the mother's body length (548 mm) (Silva *et al.* 2019). In *D. almae*, the total length of the smallest fetus specimen was 179 mm and the largest was 195 mm, corresponding respectively to 33.30% and 36.20% of the mother's body length (539 mm)

(Faria *et al.* 2019). In the present study, the total length of the smallest fetus was 145 mm and 161.10 mm for the largest, corresponding respectively to 31.63% and 35.02% of the mother's body length (460 mm).

Despite the low number of individuals obtained and analyzed, the data presented here contribute to the still incipient knowledge of the trophic and reproductive ecology of the genus *Dryophylax* and tribe Tachymenini, allowing comparisons between its species and, in the future, the inference of ecological and phylogenetic patterns.

ACKNOWLEDGEMENTS

The author thanks to ICMBio (Chico Mendes Institute) for permission 73617. We are also grateful for PELD Catimbau-CNPq (Long Term Ecological Project - Catimbau), Fundação de Amparo à Ciência e Tecnologia do Estado de Pernambuco (FACEPE, IBPG - 1566 - 2.04/19 and APQ - 0825 - 2.04/15), Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes, 88887.511079/2020-00), and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq Fellowship #313622/2018-3).

REFERENCES

- Almeida, G. V. L., Silva, G. L., Campos, T. F., Muniz, S. L. S., & Santos, E. M. 2009. Predação do lagarto *Tropidurus cocorobensis* pela serpente *Oxybelis aeneus*. Boletim do Museu de Biologia Mello Leitão, 25, 83–86.

Table 2. Morphometric measurements of *Dryophylax phoenix* fetuses from the Parque Nacional do Catimbau, Pernambuco State, Brazil. Abbreviations: CHUFPE – Coleção Herpetológica da Universidade Federal de Pernambuco, SVL – snout-vent length, TL – Tail length, TOL – total length, DCC – umbilical cord-cloaca distance, BM – body mass.

Measurements	SVL (mm)	TL (mm)	TOL (mm)	DCC (mm)	BM (g)
F1 (CHUFPE 1011)	116.34	29.14	145.48	15.98	1.955
F2 (CHUFPE 1012)	122.56	31.04	153.60	15.00	1.794
F3 (CHUFPE 1013)	128.38	31.74	160.12	14.38	1.977
F4 (CHUFPE 1014)	127.64	32.5	160.14	16.00	1.920
F5 (CHUFPE 1015)	121.00	26.96	147.96	13.12	2.004
F6 (CHUFPE 1016)	124.52	28.48	153.00	14.58	1.863
F7 (CHUFPE 1017)	129.00	32.10	161.10	16.68	1.955
F8 (CHUFPE 1018)	126.10	32.82	158.92	16.74	1.960
Mean ± standard deviation	124.44 ± 4.31	30.60 ± 2.14	155.04 ± 5.99	15.31 ± 1.26	1.928 ± 0.07

- Bailey, J. R. 1967. The synthetic approach to colubrid classification. *Herpetologica*, 23, 155–161.
- Bailey, J. R., Thomas, R. A., & Silva-Jr, N. J. 2005. A revision of the South American snake genus *Thamnodynastes* Wagler, 1830 (Serpentes, Colubridae, Tachymenini). I. Two new species of *Thamnodynastes* from Central Brazil and adjacent areas, with a redefinition of and neotype designation for *Thamnodynastes pallidus* (Linnaeus, 1758). *Phyllomedusa*, 4, 83–101. DOI: 10.11606/issn.2316-9079.v4i2p83-101
- Bailey, J. R., & Thomas, R. A. 2007. A revision of the South American snake genus *Thamnodynastes* Wagler, 1830 (Serpentes: Colubridae, Tachymenini). II. Three new species from northern South America, with further descriptions of *Thamnodynastes gambotensis* Pérez-Santos and Moreno and *Thamnodynastes ramonriveroi* Manzanilla and Sánchez. *Memoria de la Fundación La Salle de Ciencias Naturales*, 166, 7–27.
- Bellini, G. P., Giraudo, A. R., & Arzamendia, V. 2014. Comparative ecology of three species of *Thamnodynastes* (Serpentes, Dipsadidae) in subtropical-temperate South America. *Herpetological Journal*, 24, 87–96.
- Bernarde, P. S., Moura-Leite, J. C., Machado, R. A., & Kokubum, M. N. C. 2000. Diet of colubrid snake, *Thamnodynastes strigatus* (Gunther, 1858) from Paraná State Brazil, with field notes on anuran predation. *Revista Brasileira de Zoologia*, 60, 695–699. DOI: 10.1590/S0034-71082000000400022
- Bocchiglieri, A., & Mendonça, A. F. 2009. *Cnemidophorus ocellifer* (Whiptail Lizard). Predation. *Herpetological Review*, 40, 438.
- Coelho, R. D. F., Sales, R. F. D., & Ribeiro, L. B. 2019. Sexual dimorphism, diet, and notes on reproduction in *Oxyrhopus trigeminus* (Serpentes: Colubridae) in the semiarid Caatinga of northeastern Brazil. *Phyllomedusa*, 18, 89–96. DOI: 10.11606/issn.2316-9079.v18i1p89-96
- Costa, H. C., Guedes, T. B., & Bérnils, R.S. 2021. Répteis do Brasil e suas Unidades Federativas: Lista de espécies. *Herpetologia Brasileira*, 10, 110–279. DOI: 10.35172/rvz.2020.v27.175
- Dorigo, T. A., Vrcibradic, D., Borges-Junior, V. N. T., & Rocha, C. F. D. 2014. New records of anuran predation by snakes of the genus *Thamnodynastes* Wagler, 1830 (Colubridae: Dipsadinae) in the Atlantic rainforest of southeastern Brazil. *Herpetology Notes*, 7, 261–264.
- Faria, S. P., Camurugi, F., Moura-Leite, J. C., & Marques, R. 2021. Preliminary data on the reproductive biology for *Thamnodynastes almae* Franco and Ferreira, 2002, (Dipsadidae: Xenodontinae: Tachymenini) in a Caatinga-Atlantic Forest transitional area of Bahia, Brazil. *Herpetological notes*, 14, 15–20.
- Franco, F. L. 1999. Relações filogenéticas entre os gêneros da tribo *Tachymenini* Bailey, 1967 (Serpentes, Colubridae). Doctoral Thesis. Universidade de São Paulo. p. 252.
- Franco, F. L., & Ferreira, T. G. 2002. Descrição de uma nova espécie de *Thamnodynastes* Wagler, 1830 (Serpentes, Colubridae) do nordeste brasileiro, com comentários sobre o gênero. *Phyllomedusa*, 1, 57–74. DOI: 10.11606/issn.2316-9079.v1i2p57-74
- Franco, F. L., Ferreira, T. G., Marques, O. V. A., & Sazima, I. 2003. A new species of hood-displaying *Thamnodynastes* (Serpentes: Colubridae) from the Atlantic forest in southeastern Brazil. *Zootaxa*, 334, 1–7. DOI: 10.11646/zootaxa.334.1.1
- Franco, F. L., Trevine, V. C., Montingelli, G. G., & Zaher, H. 2017. A new species of *Thamnodynastes* from the open areas of central and northeastern Brazil (Serpentes: Dipsadidae: Tachymenini). *Salamandra*, 53, 339–350.
- Garcia, V. C., Vac, M. H., Badiglian, L., & Almeida-Santos, S. M. 2015. Avaliação ultrassonográfica do aparelho reprodutor em serpentes vivíparas da família Boidae. *Pesquisa Veterinária Brasileira*, 35, 311–318. DOI: 10.35172/rvz.2020.v27.175
- Greene, H. W. 1976. Scale overlap, a directional sign stimulus for prey ingestion by ophiophagous snakes. *Zeitschrift Tierpsychologie*, 41, 113–120. DOI: 10.1111/j.1439-0310.1976.tb00473.x
- Guedes, T. B., Nogueira, C., & Marques, O. V. A. 2014. Diversity, natural history, and geographic distribution of snakes in the Caatinga, Northeastern Brazil. *Zootaxa*, 3863, 1–93. DOI: 10.11646/zootaxa.3863.1.1
- Hammer, O., Harper, D. A. T., & Ryan, P. D. 2001. PAST: Paleontological statistics software

- package for education and data analysis. *Palaeontologia eletrônica*, 4, 1–9.
- Maia-Carneiro, T., Goyannes-Araújo, P., & Rocha, C. F. D. 2016. Predation of *Tropidurus hispidus* (Squamata, Tropiduridae) by *Siphlophis leucocephalus* (Squamata, Dipsadidae). *Neotropical Biology and Conservation*, 11, 47–50. DOI: 10.4013/nbc.2016.111.06
- Menezes, L. M. N., Reis, P. M. A. G., Souza, K., Urias, I. C., Walker, F. M., & Ribeiro, L. B. 2013. Death of a snake *Philodryas nattereri* (Squamata: Dipsadidae) after predation on a large-sized lizard *Tropidurus hispidus* (Squamata: Tropiduridae). *Herpetology Notes*, 6, 55–57.
- Mesquita, P. C. M. D., Passos, D. C., Borges-Nojosa, D. M., & Cechin, S. Z. 2013. Ecologia e história natural das serpentes de uma área de Caatinga no nordeste brasileiro. *Papéis Avulsos de Zoologia*, 53, 99–113.
- Mikalauskas, J. S., Santana, D. O., & Ferrari, S. F. 2017. Lizard predation *Tropidurus hispidus* (Squamata, Tropiduridae) by false coral snake *Oxyrhopus trigeminus* (Squamata, Dipsadidae) in the Caatinga, in northeastern Brazil. *Pesquisa e Ensino em Ciências Exatas e da Natureza*, 1, 60–67. DOI: 10.29215/pecen.v1i1.174
- Morais, M. S. R., Araújo, P. F., Costa, P. M. T., & França, F. G. R. 2020. First record of cannibalism in *Thamnodynastes phoenix* Franco, Trevine, Montingelli & Zaher, 2017 (Serpentes, Colubridae). *Herpetozoa*, 33, 17–19. DOI: 10.3897/herpetozoa.33.e47317
- Oliveira, M. C., Silva, E. G., Lima, V. F., Teixeira, A. A. M., Teles, D. A., Filho, J. A. A., & Almeida, W. O. 2018. *Bothrops erythromelas* (Jararaca). Diet. *Herpetological Review*, 49, 335.
- Pergentino, H. E., & Ribeiro, L. B. 2017. Anurophagy by the snake *Thamnodynastes phoenix* (Squamata: Dipsadidae: Tachymenini) in dry forested areas of northeastern Brazil. *Herpetology Notes*, 10, 597–600.
- Pizzatto, L., Jordao, R. S., & Marques, O. A. V. 2008. Overview of reproductive strategies in Xenodontini (Serpentes: Colubridae: Xenodontinae) with new data for *Xenodon newwiedii* and *Waglerophis merremii*. *Journal of Herpetology*, 42, 153–162. DOI: 10.1670/06-150R2.1
- Rodrigues, M. T. 1988. Distribution of lizards of the genus *Tropidurus* in Brazil (Sauria: Iguanidae). In: P. E. Vanzolini & W. R. Heyer (Eds.), *Proceedings of a workshop on neotropical distribution patterns*. pp. 305–315. Rio de Janeiro: Academia Brasileira de Ciências.
- Ruffato, R., Di-Bernardo, M., & Fabiano, G. 2003. Dieta de *Thamnodynastes strigatus* (Serpentes, Colubridae) no sul do Brasil. *Phyllomedusa*, 2, 27–34.
- Santana, D. O., Caldas, F. L. S., Matos, D. S., Machado, C. M. S., Vilanova-Junior, J. L., & Faria, R. G. 2017. Morphometry of hatchlings of *Thamnodynastes pallidus* (Linnaeus, 1758) (Serpentes: Dipsadidae: Xenodontinae: Tachymenini). *Herpetology notes*, 10, 589–591.
- Santana D. O., & Teixeira, A. A. M. 2020. Predation of the lizard *Tropidurus hispidus* (Squamata, Tropiduridae) by the vine snake *Oxybelis aeneus* (Serpentes: Colubridae) in the Caatinga, northeastern Brazil. *Pesquisa e Ensino em Ciências Exatas e da Natureza*, 4, 1–6. DOI: 10.29215/pecen.v4i0.1327
- Silva, E. C., Pinto, C. L. M., Teles, D. A., Filho, J. A. A., Teixeira, A. A. M., & Almeida, W. O. 2018. *Thamnodynastes phoenix*. Diet. *Herpetological review*, 49, 355–356.
- Silva, N. V. N., Albano de Mello, A. V., Oliveira, P. M. A., Andrade Lima, J. H., Ribeiro, L. R. C., & Simões, P. I. 2021. Predation of *Ameivula ocellifera* (Squamata, Teiidae) by *Oxybelis aeneus* (Squamata, Colubridae), in the Caatinga, Northeastern Brazil, including a list of saurophagy by this snake. *Heringeriana*, 15, 96–100. DOI: 10.17648/heringeriana.v15i1.917960
- Silva, W. M., Araújo, P. F., França, R. C., Pedrosa, I. M. M. C., & França, F. G. R. 2019. Offspring morphology and early growth of *Thamnodynastes pallidus* (Linnaeus, 1758) in the Brazilian Atlantic Forest (Serpentes; Tachymenini). *Herpetology Notes*, 12, 205–209.
- Sousa, J. D., Andrade Lima, J. H., & Kokubum, M. N. C. 2020. Predation of *Tropidurus hispidus* (Squamata, Tropiduridae) by *Oxybelis aeneus* (Squamata, Colubridae) in two biomes in the state of Pernambuco, Northeast of Brazil. *Herpetology Notes*, 13, 171–173.
- Sousa, J. D., Mariano, E. F., Barbosa, C. J. S., Medeiros, J. V. A., & Kokubum, M. N. C. 2021.

- New records of predators of *Ameivula ocellifera* (Squamata: Teiidae), with an emphasis on predation by birds. *Phyllomedusa*, 20, 197–202. DOI: 10.11606/issn.2316-9079.v20i2p197-202
- Trevine, V. C., Grazziotin, F. G., Giraudo, A., Sallaberry-Pincheira, N., Vianna, J. A., & Zaher, H. 2022. The systematics of Tachymenini (Serpentes, Dipsadidae): An updated classification based on molecular and morphological evidence. *Zoologica Scripta*, 51, 643–663. DOI: 10.1111/zsc.12565
- Vitt, L. J., & Vangilder, L. D. 1983. Ecology of a snake community in northeastern Brazil. *Amphibia-Reptilia*, 4, 273–296. DOI: 10.1163/156853883X00148
- Vitt L. J., & Caldwell, J. P. 2009. *Herpetology: an introductory biology of amphibians and reptiles*. New York: Academic Press: p. 720.
- Zehr, D. R. 1962. Stages in the Normal Development of the Common Garter Snake, *Thamnophis sirtalis sirtalis*. *Copeia*, 2, 322–329. DOI: 10.2307/1440898

Submitted: 21 March 2022

Accepted: 6 March 2023

Published online: 20 April 2023

Associate Editors: Leandro Hohl and Murilo Guimarães