



Predation event by *Philodryas nattereri* (Serpentes: Colubridae) on *Forpus xanthopterygius* (Psittaciformes: Psittacidae) in semiarid region of Brazil

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Evento de predação por *Philodryas nattereri* (Serpentes: Colubridae) sobre *Forpus xanthopterygius* (Psittaciformes: Psittacidae) na região semiárida do Brasil

Resumo: O estudo apresenta o evento de predação da serpente *Philodryas nattereri* Steindachner, 1870 tentando se alimentar da ave *Forpus xanthopterygius* (Spix, 1824) em uma área rural do município de São João do Rio do Peixe, região semiárida do estado da Paraíba. A serpente foi observada sobre uma cerca de arame farpado com um indivíduo de *F. xanthopterygius* abocanhado pelos pés. A serpente movimentava a região anterior do corpo e as mandíbulas para ajustar a mordida sobre a ave. A presa não apresentou sinais de movimento/resistência, indicando que já estava morta. O predador não apresentou uma reação de fuga durante a aproximação do observador. A falta de conhecimento sobre a atividade predatória de *P. nattereri* em ambientes naturais e a composição de sua dieta ressalta a necessidade de mais estudos ecológicos e comportamentais desta espécie.

Palavras chave: Relação ecológica inter-específica, cobra-verde, tuim, Caatinga, nordeste do Brasil.

Abstract: The present study reports a predation event by *Philodryas nattereri* Steindachner, 1870 on the cobalt-rumped parrotlet *Forpus xanthopterygius* (Spix, 1824) in a rural area of the municipality of São João do Rio do Peixe, semiarid region of the state of Paraíba. The snake was observed on a barbed wire fence with an individual of *F. xanthopterygius* bitten by the feet. The snake moved the anterior region of its body and jaws slowly to adjust its bite on the bird. The prey exhibited no signs of movement/resistance, indicating that it was already dead. The predator did not have an escape reaction during the approach of the observer. The lack of knowledge about the predatory activity of *P. nattereri* in natural environments and the composition of its diet highlights the need for further studies on the ecology and behavior of this species.

Key words: Inter-specific ecological relationships, green snake, tuim, Caatinga, northeastern Brazil.

Introduction

Philodryas nattereri Steindachner, 1870 is a typically diurnal (active forager), terrestrial to arboreal, neotropical, colubrid snake (Vitt 1980; Mesquita *et al.* 2011, 2013; Araujo *et al.* 2014; Guedes *et al.* 2018; Amaral *et al.* 2022) that reaches up to 160-180 cm in total length (Vitt 1980; Mesquita *et al.* 2011). This generalist-opportunistic preys upon a considerable diversity of small vertebrates (Vanzolini *et al.* 1980; Vitt 1980; França *et al.* 2008; Mesquita *et al.* 2010, 2011, 2013; Guedes *et al.* 2014).

Predation events involving *Philodryas nattereri* were observed on the bufonid *Rhinella diptycha* (*R. jimi*) (Stevaux, 2002) (Amphibia) in the municipalities of Parnamirim (state of Pernambuco) (Guedes *et al.* 2018) and João Câmara (state of Rio Grande do Norte) (Sales *et al.* 2020); *R. granulosa* (Spix, 1824) (Amphibia), the iguanid *Iguana iguana* (Linnaeus, 1758) (Reptilia), caviid *Galea spixii* (Wagler, 1831) (Mammalia), coerebid *Coereba flaveola* (Linnaeus, 1758), columbid *Columbina picui* (Temminck, 1813), thraupid *Tangara sayaca* (Linnaeus, 1766), and troglodytid *Troglodytes musculus* Naumann, 1823 (Aves) in the municipality of Brejinho (state of Pernambuco) (Sales *et al.* 2020); the colubrid *Lygophis dilepis* Cope, 1862 in the municipality of Angicos (state of Rio Grande do Norte) (Sales *et al.* 2020); the tropidurid *Tropidurus hispidus* (Spix, 1825) in the municipality of Sento-Sé (state of Bahia) (Reptilia) (Porto *et al.* 2022); and *G. spixii* (Mammalia) in the municipality of Itapetim (state of Pernambuco) (Silva *et al.* 2024), all in environments of the Caatinga (semiarid) phytogeographic domain.

Predation events by *Philodryas nattereri* on psittacids are not usually recorded in the phytogeographic domains of South America. *Forpus xanthopterygius* (Spix, 1824) is a psittacid widely distributed among the varied phytogeographical domains of South America from northeastern Brazil southward and westward through Paraguay and northeastern Argentina to southeastern Peru and eastern Bolivia as well as sites in the Amazon (Bocalini & Silveira 2015; Collar *et al.* 2021; IUCN 2024). This bird exhibits plasticity in its foraging behavior due to the seasonal availability of food items (Oliveira 2023), which mainly include flowers, flower buds, fruits, and seeds (Pereira *et al.* 2020).

The present study reports a predation event by *Philodryas nattereri* on the cobalt-rumped parrotlet *Forpus xanthopterygius* in the semiarid region of the state of Paraíba, northeastern Brazil.

Material and Methods

The predation event was observed and photographed on January 18, 2021 (at 10:12 AM) in a rural environment characterized by livestock farming and agriculture in the municipality of São João do Rio do Peixe (06°49'26" S, 38°24'09" W) in the westernmost portion of the semiarid region of the state of Paraíba. The region has a predominantly warm, dry, tropical climate. The dry season typically spans from July to November, whereas the rainy season spans from December to June, with an average annual rainfall of 982.4 mm and an average annual temperature of 26.8°C. The vegetation is xerophilic and deciduous, with herbaceous, shrubby, and arboreal strata (Leal *et al.* 2005; Gariglio *et al.* 2010).

Results

The predation event was observed and photographed with the snake on a barbed wire fence (approximately 1.60 m from the ground) close to the trunk of a tree of the species *Chloroleucon dumosum* (Benth.) (Magnoliopsida: Fabaceae) (**Figure 1**). An individual of *Philodryas nattereri* (sex not determined - about 130 cm in total length) was hanging on the wire biting and holding an individual of *Forpus xanthopterygius* (about 14 cm in total length) by the feet. The heads of both the snake and bird were hanging downwards. For about six minutes, Heloisa M. Maciel observed the snake moving the anterior region of its body and jaws slowly to adjust its bite on the bird. The prey exhibited no signs of movement/resistance, indicating that it

was already dead. The predator did not have an escape reaction during the approach of the observer.



Figure 1. Predation event by *Philodryas nattereri* on *Forpus xanthopterygius* in rural area of municipality of São João do Rio do Peixe, Paraíba, Brazil.

Discussion

The present study is one of the few records of *Philodryas nattereri* in a predation event involving a small bird and a unique finding of the snake attempting to feed on the psittacid *Forpus xanthopterygius*. Such a disharmonious ecological relationship reaffirms and expands knowledge on the generalist diet of the snake in natural environments. França *et al.* (2008) recognized the bird *Volatinia jacarina* (Linnaeus, 1766) as part of the diet of *P. nattereri* based on an analysis of stomach contents sampled in the Cerrado (savanna) region (Federal District). On different occasions, Sales *et al.* (2020) documented the snake preying upon an adult of the coerebid *C. flaveola* between cacti; an adult and chicks in a nest of the columbid *C. picui* on the bare soil and in a tree, respectively; and bird chicks inside a nest of the troglodytid *T. musculus* from tree in the Caatinga region. Other individuals of *Philodryas nattereri* as well as congeners

also did not demonstrate an escape reaction during the approach for observation and photographic recording of predation events involving small birds, mammals, amphibians, and reptiles (Guedes *et al.* 2018; Sales *et al.* 2020; Porto *et al.* 2022; Lima *et al.* 2024).

We do not know whether *Philodryas nattereri* captured *Forpus xanthopterygius* on the wire fence or if the predator fell from a branch of the tree *C. dumosum* onto the wire after capturing the prey. The fact that the colubrid was not positioned on the ground during the ingestion process of the psittacid confirms its semi-arboreal or arboreal habits (Mesquita *et al.* 2011, 2013; Da Silva *et al.* 2019; Sales *et al.* 2020). *Forpus xanthopterygius* generally forages on fruit and seeds of plants in secondary vegetation, but occasionally forages on the ground in open areas (Collar *et al.* 2021).

This was an unprecedented capture of *Forpus xanthopterygius* by *Philodryas nattereri* by the feet. Sales *et al.* (2020) recorded the colubrid handling an adult *C. flaveola* by the head region. The lack of knowledge on the predatory activity of *P. nattereri* in natural environments and the composition of its diet underscores the need for further studies on the ecology and behavior of this species.

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