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Scientific note

Predation of *Ameivula ocellifera* (Squamata, Teiidae) by *Oxybelis aeneus* (Squamata, Colubridae), in the Caatinga, Northeastern Brazil, including a list of saurophagy by this snake

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The most common method of identifying the feeding habits of a species is the dissection of the digestive tracts of animals that have been deposited in collections and/or museums or through occasional encounters (e. g. Prudente *et al.* 1998, Bernarde *et al.* 2000, Bovo & Sueiro 2012, Dorigo *et al.* 2014). Encounters with snakes in their natural environments are rare, and the observation of feeding events is especially uncommon (Mushinsky 1987). However, the recording of this kind of ecological interaction in nature is essential for improving our understanding of predator-prey relationships (Sousa *et al.* 2020). Herein we present a predation event of *Oxybelis aeneus* (Wagler, 1824) on *Ameivula ocellifera* (Spix, 1825) in a Caatinga area in northeastern Brazil.

Oxybelis aeneus is a diurnal arboreal, midsize colubrid snake with opistoglyph dentition (Savage 2002) and demonstrates "sit-and-wait" foraging behavior, as well as oviparous reproduction (Henderson and Nickerson 1976; Franzini et al. 2018). This species is distributed throughout southern North America, Central America, and in most of the South American continent (Savage 2002, Uetz 2017), and is commonly found in the semi-arid Caatinga biome in northeastern Brazil (Vanzolini *et al.* 1980, Guedes *et al.* 2014, Costa *et al.* 2018). It is easily recognized by its slim body, elongated snout, and gray and brown dorsum, without lateral stripes (Keiser 1974). This combination of features allows individuals to camouflage themselves among dry branches (Mesquita *et al.* 2012). Its diet consists of small vertebrates such as lizards, amphibians, birds, small mammals, and fish (Vanzolini *et al.* 1980, Hetherington 2006, Grant & Lewis 2010, Santos *et al.* 2012, Oliveira *et al.* 2020).

Ameivula ocellifera is a small-medium diurnal lizard (Vitt & Caldwell 2009) with active ground foraging, characterized by constant movement and exploratory behavior (Pianka 1966), and is more active during the hottest hours of the day (Sales & Freire 2015). Its body color varies from green to light brown with longitudinal dotted lines (Lisboa *et al.* 2017). *A. ocellifera* is widely distributed throughout the Caatinga, Cerrado and Restinga habitats along the northeastern coast of Brazil (Mesquita & Colli 2003).

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The observation occurred on 12th November 2020, at 10:47 h, in the Parque Nacional do Catimbau (-8.575194 S, -37.246083 W; 756 m), a conservation unit in the Caatinga, located in the municipality of Buíque, State of Pernambuco, northeastern Brazil. An *O. aeneus* individual (SVL 90 cm) was sighted, with the posterior half of its body supported on the thorny branches of a shrub (~1.50 m above ground) and the anterior half suspended perpendicular to the ground, with an adult *A. ocellifera* female (SVL ~6.5 cm) immobilized in its mouth, approximately 1.30 m above ground. The lizard was held by its head, up to its jaw articulation (Figure 1A). After 12 min, the snake lifted its prey up to the height of the branches, approximately 1.40 m above ground (Figure 1B). After another 09 min, the snake moved the lizard 10 cm below the branch where it was situated and began to ingest its prey (Figure 1C). After 02 min, the snake took its prey to the branches again and ingested it completely.

Among the 14 lizard species recorded as *O. aeneus* prey, at least six are sit-and-wait foragers, four are active foragers and one is intermediate forager (Table 1). According to Sellmeijer & Van den Burg. (2020), the diversity of foraging classifications of *O. aeneus* prey reinforces its generalist feeding behavior. Additionally, nine species are terrestrial (Table 1), which demonstrates that although *O. aeneus* is an arboreal snake, it efficiently preys upon lizards on the ground.

Although saurophagy by colubrid snakes is well-reported in the literature (e.g., Vanzolini *et al.* 1980, Vitt & Vangilder 1983, Mikalauskas *et al.* 2017, Lissa *et al.* 2018), only a few studies describe the behavior of these snakes during predation events in detail (Almeida *et al.* 2009, Franzini *et al.* 2018, Santana & Teixeira 2020, Sousa *et al.* 2020), which



Figure 1. *Oxybelis aeneus* preying on an *Ameivula ocellifera* adult at the Parque Nacional do Catimbau, state of Pernambuco, northeastern Brazil, on 12th November 2020. Chronology of the field observation: (A) at the moment of the first sighting of the snake; (B) 12 minutes after encounter, and (C) 21 minutes after encounter.

can be exemplified by the available literature on *O. aeneus* diet (Table 1). Despite *A. ocellifera* has already been registered as a prey item of *O. aeneus* (Mesquita *et al.* 2012), no behavioral observation has been provided. In the present record, we observed behavioral steps common to other *O. aeneus* predation events on other lizards. The snake was positioned on top of branches, with its body partly positioned perpendicular to the ground, and it immobilized and ingested its prey starting at the head (Almeida *et al.* 2009, Santana & Teixeira 2020, Sousa *et al.* 2020). Thus, our report suggests a stereotyped predation strategy among different populations of this species.

Table 1. Lizard species that *Oxybelis aeneus* preys upon, with its respective foraging modes, habits, and references. *Papers with detailed predation behavior.

Family	Prey	Foraging	Habit	Reference
Corytophanidae	*Basiliscus vittatus*	Active	Arboreal	Henderson 1982
Dactyloidae	*Anolis* sp.	-	Arboreal	Henderson 1982
Gekkonidae	*Hemidactylus mabouia*	Sit-and-Wait	Arboreal	Mesquita *et al.* 2012; Franzini *et al.* 2018*
Phyllodactylidae	*Gymnodactylus geckoides*	Sit-and-Wait	Terrestrial	Oliveira *et al.* 2020
Polychrotidae	*Polychrus acutirostris*	Sit-and-Wait	Arboreal	Oliveira *et al.* 2020
Mabuyidae	*Brasilicincus heathi*	Intermediate	Terrestrial	Mesquita *et al.* 2012; Oliveira *et al.* 2020
	Copeoglossus arajara	-	Terrestrial	Oliveira *et al.* 2020
Sphaerodactylidae	*Coleodactylus meridionalis*	-	Terrestrial	Oliveira *et al.* 2020
Teiidae	*Ameivula ocellifera*	Active	Terrestrial	Mesquita *et al.* 2012; This paper*
	Ameivula pyrrhogularis	Active	Terrestrial	Oliveira *et al.* 2020
	Aspidoscelis angusticeps	Active	Terrestrial	Henderson 1982
Tropiduridae	*Tropidurus cocorobensis*	Sit-and-Wait	Terrestrial	Almeida *et al.* 2009*
	Tropidurus hygomi	Sit-and-wait	Terrestrial	Santos *et al.* 2012
	Tropidurus hispidus	Sit-and-Wait	Semi-arboreal	Mesquita *et al.* 2012; Sousa *et al.* 2020*; Santana & Teixeira 2020*; Oliveira *et al.* 2020

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