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, Bernardes 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.

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

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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: 01–06. https://doi.org/10.29215/pecen.v4i0.1327


