

PREDATION ON *DENDROPSOPHUS MINUTUS* (HYLIDAE) BY *OXYOPSIS* SP. (MANTIDAE) IN THE STATE OF MINAS GERAIS, SOUTHEAST BRAZIL

PREDÇÃO DE *DENDROPSOPHUS MINUTUS* (HYLIDAE) POR *OXYOPSIS* SP. (MANTIDAE) NO ESTADO DE MINAS GERAIS, SUDESTE DO BRASIL

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Resumo.— Anfíbios são componentes importantes na dieta de muitos predadores, incluindo invertebrados. Além disso, sabe-se que espécies de louva-a-deus (Ordem Mantodea) têm sido documentadas predando vários táxons de vertebrados; no entanto, a complexidade de sua dieta e outras interações tróficas ainda são pouco compreendidas. Aqui relatamos o primeiro registro de predação de um adulto de *Dendropsophus minutus* (Anura: Hylidae) por uma fêmea adulta de *Oxyopsis* sp. (Mantodea: Mantidae) no sudeste do Brasil.

Palavras chave.— Perereca, louva-a-deus, Neotrópico, presa.

Abstract.— Amphibians are important components of the diet of many predators, including invertebrates. Additionally, praying mantises (Order Mantodea) have been documented preying on various vertebrate taxa; however, the complexity of their diet and other trophic interactions remains poorly understood. Here, we report the first record of predation on *Dendropsophus minutus* (Anura: Hylidae) by an adult female *Oxyopsis* sp. (Mantodea: Mantidae) in southeastern Brazil.

Keywords.— Neotropic, praying mantis, prey, tree frog.

Amphibians are important in maintaining environmental balance as they are both prey and predators of several other organisms, participating in a large number of food chains (Toledo, 2003; Toledo et al., 2007). In the Neotropics, several studies have investigated and reported that the diet of some amphibian taxa consists largely of small invertebrates (Araujo et al., 2007; Mahan & Johnson, 2007; Santana & Juncá, 2007). Additionally, trophic interactions in which insects prey on anurans, including members of the order Mantodea, have also been documented (Costa-Pereira et al., 2010). In this context, some examples illustrate these interactions, such as the predation of *Scinax fuscovarius* by *Stagmatoptera precariat*, *Litoria*

raniformis by *Archimantis latistyla*, and *Osteocephalus taurinus* by *Eumusonia* sp. (Hathaway, 1946; Ridpath, 1977; Costa-Pereira et al., 2010).

Praying mantises are insects renowned for their highly adapted morphology for their predatory skills, even being able to prey on small vertebrates such as lizards (Jehle et al., 1996), hummingbirds (Nyffeler et al., 2017) and small anurans (Hathaway, 1946; Costa-Pereira et al., 2010), both in the wild and in captivity. Recently, Lanna et al. (2021), described a field observation of *Stagmatoptera precaria* Linnaeus 1758 individual eating exudates from a plant. This non-carnivorous feeding

behavior has never been documented for the order Mantodea, highlighting the urge for studies on praying mantis natural history, and their feeding behavior in nature.

Among anurans, the family Hylidae has one of the highest numbers of predation records by invertebrates (Valdez, 2020). The species *Dendropsophus minutus* (Peters, 1872) is a small nocturnal and arboreal hylid found mainly at forest edges and in clearings, occurring in a very wide distribution that is distributed throughout South America, except west of the Andes (Lima et al., 2006). *Dendropsophus minutus* has already been reported as prey items of invertebrates such as spiders of the family Pisauridae (fishing spiders) (Bernarde et al., 1999) and water bugs of the family Belostomatidae (Bastos et al., 1994; Toledo, 2003; Rocha et al., 2014). In this publication, we report the first record of the

predation of a *D. minutus* by an insect of the Order Mantodea, an adult female of the genus *Oxyopsis* Caudell, 1904 (Mantodea: Mantidae).

The record was made on December 16, 2018 at approximately 19:00 h, in the shrub vegetation of a partially dry pond at the Municipality of Santa Luzia, State of Minas Gerais (19.8092° S, 43.7842° W, 886 m a.s.l., WGS 84). An adult female of *Oxyopsis* sp. was observed perching upside down on a stem within the vegetation and grasping on an adult *D. minutus* with its raptorial forelegs. At the time of the observation, the praying mantis had already consumed the amphibian's left hind leg and was beginning to ingest the side of the body (Fig. 1A). After opening a cavity, the praying mantis proceeded to consume the amphibian's viscera (Fig. 1B).



Figura 1. Predação de *Dendropsophus minutus* por *Oxyopsis* sp. (A), Louva-a-deus abrindo uma cavidade na lateral do corpo do anfíbio. (B), Close-up do louva-a-deus consumindo as vísceras do anfíbio. Fotos: Saulo Antonini Juppen.

Figure 1. Predation on *Dendropsophus minutus* by *Oxyopsis* sp. (A), Praying mantis opening a cavity in the side of the amphibian's body. (B), Close-up of praying mantis consuming the amphibian's viscera. Photos: Saulo Antonini Juppen.

The identification of the amphibian was carried out in the field by two herpetofauna specialists, based on diagnostic characteristics observed at the time of data collection. The individual was recognized by its brown dorsal coloration, featuring a pattern of two darker parallel stripes (Lima et al., 2006). The ventral region was whitish coloration, while the gular region was bright yellow, a characteristic present in males of the species (Lima et al., 2006) (Fig. 1A).

The female mantis was identified based on distinctive morphological characteristics. The specimen exhibits a green coloration, a triangular head with prominent, pointed eyes, and a straight vertex. The ocelli were narrow and triangular, a trait observed in females of this species. The pronotum was slender, with a moderately developed supracoxal dilation and laterally denticulated or spined margins. Females have reduced wings, with flight organs barely extending beyond the abdomen. The tegmina were broad and opaque, narrowing in the costal vein region, maintaining a proportion close to the width of the forewings (Escobar, 2017). No individuals of either species were collected.

The relationship between predator-prey size is crucial in determining predation pressure (Costa-Pereira et al., 2010; Toledo et al., 2007). Consequently, small anuran species, such as those of the genus *Dendropsophus*, are potential prey for medium to large predatory invertebrates. This short communication contributes to the understanding of trophic interactions between arthropods and anurans in Brazil, reporting for the first time a *Dendropsophus* species as prey of a praying mantis, specifically an adult female of the genus *Oxyopsis*. Our record supports previous observations that small and abundant anuran species, like *D. minutus*, are vulnerable to opportunistic predation by invertebrates (Costa-Pereira et al., 2010; Rocha et al., 2014). Although such interactions are rarely documented, they may have a significant impact on the population dynamics of both invertebrates and vertebrates.

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