

SHORT COMMUNICATION

Predation of *Helicops angulatus* (Serpentes: Colubridae) by *Didelphis marsupialis* (Didelphimorphia: Didelphidae) in the Brazilian Amazon

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ABSTRACT. Several mammal species are known predators of snakes, both venomous and non-venomous, and such interactions are well documented in the literature. This study reports the first record of predation on *Helicops angulatus* (Linnaeus, 1758), a mildly venomous semiaquatic snake, by *Didelphis marsupialis* Linnaeus, 1758, an omnivorous marsupial known for its resistance to snake venom. The event, filmed in an anthropized area in southern Amazonas, Brazil, involved a female carrying a juvenile while consuming the snake. The predation of a venomous, semiaquatic prey by a nocturnal, terrestrial mammal expands the known trophic repertoire of the species.

KEYWORDS. Feeding behavior, Neotropical marsupial, ophiophagy, snake consumption, trophic interection.

Direct behavioral observations of trophic interactions are particularly valuable in megadiverse regions such as the Amazon, where ecological relationships are complex and often inferred indirectly (Polis and Strong 1996, Wootton and Emmerson 2005). Documenting predator-prey events in the field provides key insights into feeding behavior and ecological flexibility within tropical ecosystems (Curtsdotter et al. 2019).

Among Neotropical mammals, the genus *Didelphis* (Didelphidae) is well known for its opportunistic and omnivorous feeding habits, including occasional predation on small vertebrates such as mammals, birds, amphibians, and reptiles (Emmons and Feer 1997, Astúa 2015). The common opossum, *Didelphis marsupialis* Linnaeus, 1758, is widely distributed across South America and frequently exploits human-modified environments, displaying remarkable adaptability (Voss and Jansa 2012, Wang et al. 2021).

Species of *Didelphis* have been reported preying on snakes, including venomous taxa, but most records are based on stomach content analyses or anecdotal reports rather than direct observations (Almeida-Santos et al. 2000). The semi-

aquatic snake *Helicops angulatus* (Linnaeus, 1758) is common in riparian habitats throughout the Amazon Basin (Martins and Oliveira 1998, Murphy and Voris 2014) and possesses Duvernoy's glands that produce mild venom effective against small vertebrates (Villca-Corani et al. 2021, Luna et al. 2022).

The predation event described here, in which an adult *D. marsupialis* fed on *H. angulatus* in a human-modified landscape in southern Amazonas, represents a rare, directly documented case of this interaction in the wild. Such observations contribute valuable natural history data and expand knowledge on the feeding ecology of *D. marsupialis*.

On April 1st, 2025 at 7:56 p.m. (GMT-4), an adult female *D. marsupialis* carrying a juvenile was recorded feeding on an *H. angulatus* specimen. The event occurred along a secondary road in a human-modified landscape near Sítio Bueno (7° 27' 02" S, 63° 02' 03" W; Fig. 1), municipality of Humaitá, southern Amazonas, Brazil. The snake was identified based on external morphological characters visible in the video record, including a moderately robust body, strongly keeled dorsal scales, and a distinctive dorsal color pattern

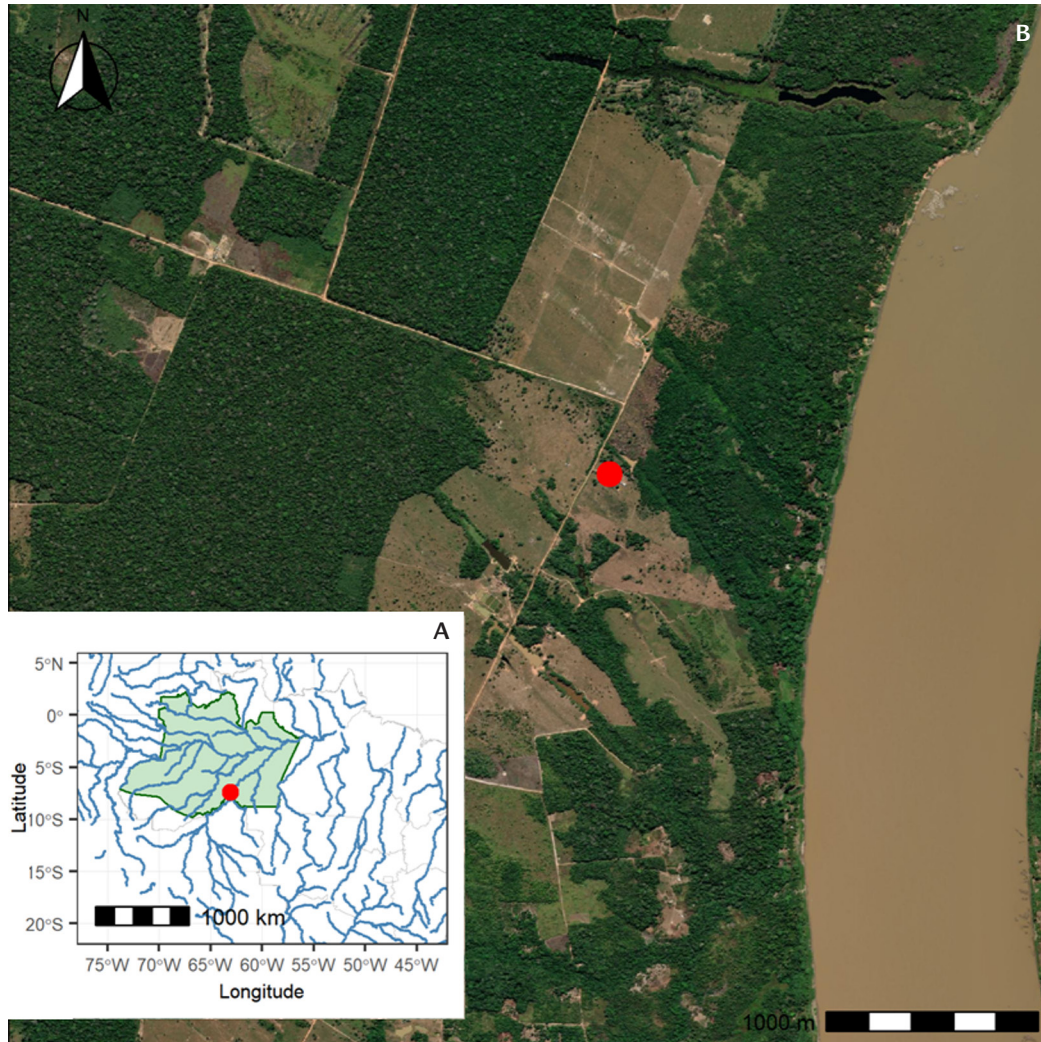


Figure 1. (A) Geographic location of the predation record in northern Brazil, highlighting the state of Amazonas and the Rio Madeira basin. (B) High-resolution satellite image of the observation site in Humaitá, Amazonas, Brazil, showing an anthropogenically modified landscape with adjacent water bodies. Satellite imagery: Esri World Imagery (Maxar).

composed of dark, angular blotches along the body. The head was slightly distinct from the neck, with dorsally positioned eyes—a typical feature of semiaquatic species of *Helicops*. The ventral surface appeared pale with darker lateral margins. This combination of characters allows distinction from other congeneric and sympatric species occurring in southern Amazonas, such as *Helicops leopardinus* (Schlegel, 1837) and *H. hagmanni* Roux, 1910, which differ mainly in dorsal pattern configuration and overall body proportions (Cunha and Nascimento 1993, Martins and Oliveira 1998).

The opossum showed no signs of disturbance from vehicle headlights and manipulated the snake using her

forelimbs while tearing and ingesting tissue primarily from the head region. The juvenile remained on her back without interacting. The entire event lasted approximately 1 minute and 40 seconds and was recorded on video (VideoS1). Upon departure of the observer, the adult retreated into nearby vegetation, still consuming the prey. The event occurred in an area characterized by disturbed habitats such as pastures, small farms, and poultry holdings—conditions that often attract generalist species like *D. marsupialis*.

Seasonal flooding of roadside ditches likely increases encounters between terrestrial omnivores and semiaquatic reptiles such as *H. angulatus* (Martins and Oliveira 1998,

Laurance et al. 2009; Da Cunha and Nascimento 2020). The opossum consumed the snake despite its mild venom, a behavior occasionally reported in other *Didelphis* species (Oliveira and Santori 1999, Silva 2004). Predation of snakes by mammals has also been documented in the Neotropics, including *Eira barbara* (Linnaeus, 1758) preying on *Bothrops* and *Crotalus* species (Beisiegel 2001).

Our observation adds *H. angulatus* to the list of snakes preyed upon by didelphids and represents one of the few direct records of this interaction in the wild. Given that *H. angulatus* possesses Duvernoy's glands and is considered mildly venomous (Villca-Corani et al. 2021, Luna et al. 2022), such events highlight the trophic versatility of *D. marsupialis* in human-modified environments. Continued field documentation of similar interactions will contribute to a broader understanding of predator-prey dynamics involving Neotropical marsupials and reptiles.

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ALFS: Conceptualization, Data curation, Investigation, Writing – original draft, Writing – review & editing, Supervision. FCP: Data curation, Formal analysis, Validation, Writing – review & editing, Supervision. MG: Formal analysis, Validation, Taxonomy, Writing – review & editing, Supervision.

Competing Interests

The authors have declared that no competing interests exist.

Data Availability Statement

All data generated and/or analyzed are included in this article.

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Ethical Statement

This study did not involve live vertebrate animals and therefore did not require approval by an ethics committee.

AI Statement

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Supplementary material 1

Video S1. Predation of *Helicops angulatus* by *Didelphis marsupialis* in Humaitá, Amazonas, Brazil. The footage shows an adult female opossum feeding on the snake while carrying a juvenile on her back (duration: 01:40 min).

Author: André Luiz Ferreira da Silva.

Data type: Species interaction data.

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