

# PREDACIÓN SOBRE *PRISTIMANTIS PLUVIAN* (ANURA: STRABOMANTIDAE) POR *PALEOSUCHUS TRIGONATUS* (CROCODYLIA: ALLIGATORIDAE) EN LA AMAZONÍA BRASILEÑA

PREDATION ON *PRISTIMANTIS PLUVIAN* (ANURA: STRABOMANTIDAE) BY *PALEOSUCHUS TRIGONATUS* (CROCODYLIA: ALLIGATORIDAE) IN THE BRAZILIAN AMAZON

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**Abstract.**— Crocodylians are apex predators with a generalist diet, consuming a wide variety of invertebrates and vertebrates. In this study, we describe a predation event of the frog *Pristimantis pluvian* by a juvenile *Paleosuchus trigonatus* in the municipality of Paranaíta, Mato Grosso, Brazil, in August 2020. This observation represents the first record of a crocodylian preying on a species of the genus *Pristimantis*, and the fifth amphibian species confirmed as prey of *P. trigonatus*. During the dry season, *P. pluvian* becomes more terrestrial, while in rainy season it presents more arboreal behavior (vocalization sites). This seasonal shift in microhabitat use likely facilitates predations such as this one described herein, which occurred during the dry season. Additionally, this scenario suggests that the consumption of small sized amphibians, including other *Pristimantis* species, by *P. trigonatus* may be more common than previously documented, especially among juvenile caimans.

**Keywords.**— Crocodylian diet; predator-prey relationship; Schneider's Smooth-fronted Caiman; trophic interactions.

**Resumen.**— Los cocodrilos son depredadores ápice con una dieta generalista amplia, consumiendo una gran variedad de invertebrados y vertebrados. En este estudio, presentamos un evento de depredación de la rana *Pristimantis pluvian* por un juvenil de *Paleosuchus trigonatus* en el municipio de Paranaíta, estado de Mato Grosso, Brasil, en agosto de 2020. Esta observación representa el primer registro de un cocodrilo depredando una especie del género *Pristimantis* y la quinta especie de anfibio confirmada como presa de *P. trigonatus*. Durante la estación seca, *P. pluvian* se vuelve más terrestre, mientras que en la temporada de lluvias presenta un comportamiento más arbóreo (sitios de vocalización). Este cambio estacional en el uso del microhábitat probablemente facilita depredaciones como la descrita aquí, ocurrida en la estación seca. Además, este escenario sugiere que el consumo de anfibios de pequeño tamaño, incluidas otras especies de *Pristimantis*, por *P. trigonatus* puede ser más común de lo que se ha documentado previamente, especialmente entre los caimanes juveniles.

**Palabras clave.**— Caimán de frente lisa de Schneider; dieta de los cocodrilos; interacciones tróficas; relación depredador-presa.

Crocodylians are apex predators with a generalist diet, including a wide range of invertebrate and vertebrate organisms (Magnusson et al., 1987; Platt et al., 2006). They are generally reported as carnivorous with opportunistic feeding habits, and their diet can vary based on factors such as ontogeny, habitat,

seasonality, and prey availability (Magnusson & Lima, 1991; Da Silveira & Magnusson, 1999; Villamarín et al., 2018). The main methods used to analyze the feeding habits of crocodylians include direct observation, dissection of the animal to extract stomach and intestinal contents, fecal analysis, stomach

flushing, isotopic analysis and DNA barcoding (Yves et al., 2021). Considering the discreet habits of crocodilians and the complexity of most of the methods above mentioned, report predation events observed in the field is crucial to increase knowledge about the diet of these animals, in addition to being minimally invasive (e.g., Magnusson & Lima, 1991; De Assis & Dos Santos, 2007; Mangioni et al., 2020; Rivas et al., 2023).

*Paleosuchus trigonatus* (Schneider, 1801) is a forest dwelling Alligatorid widely distributed along the Amazonia, found in Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, and Venezuela. In Brazil, *P. trigonatus* occurs in the rivers and streams of heavily forested habitats (Magnusson, 1992; Villamarín et al., 2017), in igapó forest in the Central Amazon (Mazurek-Souza, 2001), and in open water bodies or near waterfalls of large rivers (Vasconcelos & Campos, 2007; Campos et al., 2017, 2019). Its diet consists of invertebrates (arachnids, gastropods, mollusks, crustaceans, millipedes, and insects) and vertebrates (fishes, amphibians, reptiles, birds, and small mammals), with prey size generally positively correlated to the size of the predator (Magnusson et al., 1987; Morato et al., 2011;

Moldowan et al., 2016). Among this broad diet, the consumption of amphibians by *P. trigonatus* remains poorly documented. Initially, Magnusson et al. (1987) mentioned three records of unidentified anurans as prey for juveniles and one for adult *P. trigonatus*. Subsequently, *Rhinella marina* (De Assis & Dos Santos, 2007), *Caecilia marcusii* (Sampaio et al., 2013), *Dendropsophus* sp. (Moldowan et al., 2016), and *R. major* (Rivas et al., 2023) were added to the known prey items of *P. trigonatus*.

*Pristimantis pluvian* De Oliveira et al. (2020) is a Strabomantid registered in the municipalities of Cotriguaçu, Ipiranga do Norte, and Paranaíta, in Mato Grosso state, Brazil. It can be found in both conserved areas of forests and areas with some environmental disturbances, such as forest fragments surrounded by pastures (De Oliveira et al., 2020). During the reproductive season, males climb vegetation to vocalize, while in the dry season they predominantly remain on the ground (De Oliveira et al., 2020). Records of predation on species of the genus *Pristimantis* are predominantly reported involving arachnids and snakes. Specifically, these include Ctenid spiders (Jablonski, 2015; Moura Filho et al., 2021), amblypygids (Wizen



**Figura 1.** Un juvenil de *Paleosuchus trigonatus* depredando un adulto de *Pristimantis pluvian* en un arroyo cerca del río Teles Pires, municipio de Paranaíta, estado de Mato Grosso, Brasil. Foto: Henrique Folly.

**Figure 1.** A juvenile *Paleosuchus trigonatus* preying on an adult *Pristimantis pluvian* in a stream near the Teles Pires River, Paranaíta municipality, Mato Grosso state, Brazil. Photo: Henrique Folly.

& De Rueda, 2016), and snakes of the genera *Chironius* (Roberto & Souza, 2020; Arruda et al., 2024), *Leptodeira* (Dos Santos et al., 2018), and *Pliocercus* (Griesbaum et al., 2023). However, no study to this date has reported such events involving crocodylians.

At 21:00 h on 05 August 2020, during herpetofauna nocturnal visual survey inside the forest located on the left bank of the Teles Pires river, Paranaíta municipality, Mato Grosso state, Brazil (9° 20' 59.36" S, 56° 47' 32.28" W; WGS 84; 245 m a.s.l.), we recorded a predation event by a juvenile of the Schneider's smooth-fronted caiman *Paleosuchus trigonatus* on an adult frog *Pristimantis pluvian*. The caiman was in a puddle with its body submerged and its head above the water surface. It captured the frog by the anterior region, kept it in its mouth for approximately eight minutes, and then swallowed it (Fig. 1). The individual of *P. pluvian* did not emit any vocalizations or display defensive behavior when it was caught.

Amphibians are consumed by several crocodylians species. For example, *Rhinella granulosa*, *Pleurodema brachyops*, *Elachistocleis ovalis*, and *Leptodactylus macrosternum* preyed upon by *Caiman crocodilus* (Gorzula, 1978; Toledo et al., 2007), *Pseudis paradoxa* by *C. yacare* (Santos et al., 1996), *R. diptycha* and *Siphonops* sp. by *Paleosuchus palpebrosus* (Oliveira et al., 2019), and *R. diptycha* by *C. latirostris* (Peixoto-Couto et al., 2020). Despite that, this is the first record involving a species of crocodylian feeding on a species of the genus *Pristimantis*. The seasonal change in the use of the microhabitat by *P. pluvian* may have facilitated the encounter between species, allowing an opportunistic feeding.

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