

Saurophagy by Brazilian Anura: *Trachycephalus mesophaeus* (Hensel, 1867) and *Itapotihyla langsdorffii* (Duméril & Bibron, 1841) prey on *Hemidactylus mabouia* (Moreau de Jonnès, 1818)

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Resumo

Os anuros desempenham diferentes papéis nas cadeias alimentares terrestres e aquáticas, sendo geralmente descritos como predadores oportunistas de invertebrados. Entretanto, alguns grupos de anuros também incluem vertebrados na sua dieta. Neste trabalho, relatamos dois casos de predação de *Hemidactylus mabouia*, uma espécie de lagartixa invasora, por *Itapotihyla langsdorffii* e *Trachycephalus mesophaeus*, dois anuros presentes na Mata Atlântica. No dia 27 de Outubro de 2018, às 8:33 da noite, um indivíduo de *I. langsdorffii* foi observado predando um *H. mabouia* juvenil. Os dois animais estavam na parede externa de uma casa, em uma propriedade rural no estado do Rio de Janeiro. O segundo caso aconteceu em 26 de Fevereiro de 2025, às 9:51 da noite, no estado de Santa Catarina, quando um *T. mesophaeus* foi flagrado predando um *H. mabouia* em uma calçada. Observações ocasionais de eventos naturais são importantes ferramentas para aumentar os conhecimentos disponíveis a respeito de diferentes espécies, ampliando o que se sabe sobre a ecologia e biologia desses grupos.

Palavras-chave

Anfíbio, Ecologia, Lagarto, Predação.

ABSTRACT

Anurans play different roles in terrestrial and aquatic food chains and are generally described as opportunistic predators of invertebrates. However, some groups of anurans also include vertebrates in their diet. In this study, we report two cases of predation of *Hemidactylus mabouia*, an invasive species of gecko, by *Itapotihyla langsdorffii* and *Trachycephalus mesophaeus*, two anurans found in the Atlantic Forest. On October 27, 2018, at 8:33 p.m., an individual of *I. langsdorffii* was observed preying on a juvenile *H. mabouia*. Both animals were on an external wall of a house, in a rural property in the Rio de Janeiro state, Brazil. The second case occurred on February 26, 2025, at 9:51 p.m., in Santa Catarina state, Brazil, when a *T. mesophaeus* was spotted preying on a *H. mabouia* on a sidewalk. Occasional observations of natural events are important tools for increasing the knowledge available about different species, expanding what is known about the ecology and biology of these groups.

Keywords

Amphibian, Ecology, Lizard, Predation.

Anurans are part of various food chains, playing roles as both prey and predators in aquatic and terrestrial environments (Bernarde, 2012; Vitt & Caldwell, 2014). They are commonly described as generalist predators with opportunistic foraging behavior, usually feeding on invertebrates such as annelids, insects, and arachnids (Bernarde, 2012; Vitt & Caldwell, 2014). However, some large species (i.e. *Ceratophrys* Wied-Neuwied, 1824) may include vertebrates in their diets (Bernarde, 2012). Cases like these occur mostly because of generalism and opportunism rather than food selectivity (Wells, 2007).

The ocellated treefrog, *Itapotihyla langsdorffii* (Duméril & Bibron, 1841) is a hylid found in the Brazilian Atlantic Forest from Sergipe to northern Rio Grande do Sul, as well as in northeastern Argentina and eastern Paraguay (Forti et al., 2018; Vrcibradic et al., 2025). It has arboreal habits, and exhibits skin covered with small glands, a white membrane around the cloacal region and a lateral vocal sac (Maffei & Almeida, 2019). It is a large species, with males reaching 77 mm and females 99 mm in snout-vent length (SVL; Pimenta & Canedo, 2007). *Itapotihyla langsdorffii* feeds mainly on orthopterans (grasshoppers and crickets), although other anurans such as *Physalaemus crombiei* Heyer & Wolf, 1989 and *Ololygon argyreornata* (Miranda-Ribeiro, 1926) have also been recorded in its diet (Vrcibradic et al., 2009).

Trachycephalus mesophaeus (Hensel, 1867) is endemic to Brazil; its range extends across the Atlantic Forest, from the states of Alagoas to Rio Grande do Sul (Santana et al., 2016), associated with forested areas and often found at the top of trees, shrubs, and bromeliads (Iop et al., 2016). They are also considered a large species, reaching approximately 70 mm SVL and varying from dark brown to beige in color, with a yellow stripe on the sides extending from the postocular to the inguinal region. It secretes a characteristic toxic milky substance when disturbed (Borges-Martins et al., 2007; Duarte, 2025). Previous studies indicated that *T. mesophaeus* diet consists mainly of invertebrates, such as Coleoptera Linnaeus, 1758, Blattodea Brunner von Wattenwyl, 1882 and Oligochaeta

Grube, 1850 (Teixeira et al., 2016). Here, we report the first cases of *T. mesophaeus* and *I. langsdorffii* preying on *Hemidactylus mabouia* (Moreau de Jonnés, 1818), an exotic house gecko, with well established populations in Brazil. (Agarwal et al., 2021.)

On October 27, 2018, at 8:33 p.m., an individual of *Itapotihyla langsdorffii* was observed preying upon a juvenile of *Hemidactylus mabouia* (Fig. 1A). Both animals were on an external wall of a house, in a rural property in the municipality of Saquarema, Rio de Janeiro state, Brazil (-22.849°, -42.461°). When first observed, the treefrog had the gecko in its mouth, and only the head was still visible. After nine minutes, the prey was completely swallowed.

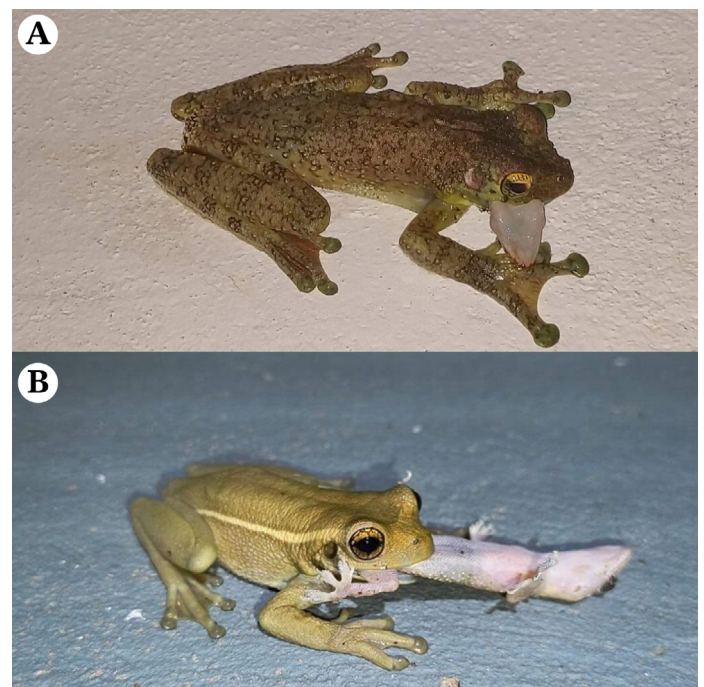


Figure 1. Records of anurans preying on lizard. Fig. 1A: *Itapotihyla langsdorffii* preying upon *Hemidactylus mabouia*. Photo by Maria Mariana Machado Marques. Fig. 1B: *Trachycephalus mesophaeus* preying upon *Hemidactylus mabouia*. Photo by Ivo R. Ghizoni-Jr

The second observation occurred on February 26, 2025, at 9:51 p.m., in Balneário Barra do Sul, northeast of Santa Catarina, Brazil (-26.436°, -48.640°), when an individual of *T. mesophaeus* was seen preying on another *Hemidactylus mabouia* (Fig. 1B). Both were on a sidewalk, and the treefrog had swallowed the rear part of the gecko up to the pelvic girdle. As it noticed the flashlight and human

presence, the treefrog jumped onto a wall, then onto a glass window, where it remained until it finished swallowing the gecko, approximately 10:10 p.m. After that, it climbed up the wall and disappeared onto the roof.

Hemidactylus mabouia is a nocturnal exotic gecko that primarily feeds on arthropods (Bonfiglio et al., 2006; Rocha & Bergallo, 2011), commonly found in anthropized environments (Fierro-Cabo & Rentfro, 2014), it measures approximately 70 mm SVL, it has dorsal surface covered by granules and small trihedral tubercles (Powell et al., 1998). This gecko is currently widespread across all South American countries, and present in all Brazilian ecoregions (Ribeiro-Junior, 2015). It was introduced in Brazil as they were accidentally transported by merchant ships that transported enslaved african people during the period of the transatlantic slave trade (Soares et al., 2025). As a successful invader, this species appears to have outcompeted and marginalized previous colonizers of the sites where it was introduced, such other alien species of geckos: *Hemidactylus turcicus* (Linnaeus, 1758), *Hemidactylus frenatus* Duméril & Bibron, 1836, and *Hemidactylus garnotii* Duméril & Bibron, 1836 (Agarwal et al., 2021).

Although these are the first reported cases of *T. mesophaeus* and *I. langsdorffii* preying upon *H. mabouia*, records of saurophagy in amphibians are rarely reported — e.g. *Scinax signatus* (Spix, 1824) (Rosa, 2024) and *Osteopilus septentrionalis* (Duméril and Bibron, 1841) (Borroto-Páez & Perez, 2020), but given the opportunistic nature of amphibian feeding, these events are likely to occur.

Predation is an ecological factor of great importance for understanding the structures and interactions between species (Curio, 2012). Occasional observations like ours increase the available information on the biology of different species. Additionally, our records not only reinforce the role of anurans as generalist and opportunistic predators, but also the role of the house gecko as prey for native species.

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