Heringeriana
Jardim Botânico de Brasília
https://revistas.jardimbotanicodf.org/index.php/heringeriana
ISSN 2359-165X

Scientific Note

Leech consumption by *Leptodactylus fuscus* (Schneider, 1799) (Anura: Leptodactylidae) in Pernambuco, Brazil

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Received 17 March 2026 | **Accepted** 08 May 2026 | **Published** 13 May 2026

How to cite: Maia, N. V. N. da S., Santos, M. J. da S., Correia, M. C. A. S., Salgado, A. B. C., Oliveira, J. V. A. de & Velasco, I. G. (2026). Leech consumption by *Leptodactylus fuscus* (Schneider, 1799) (Anura: Leptodactylidae) in Pernambuco, Brazil. Heringeriana, 20(1), e918099. doi.org/10.70782/heringeriana.v20i1.918099

Abstract: The trophic interaction between amphibians and leeches is predominantly parasitic, with leeches acting as parasites on various anuran life stages, predation of leeches by anurans is rarely documented. This note reports the first recorded instance of the Neotropical frog *Leptodactylus fuscus* preying on a leech. The observation took place in an urban forest fragment on the campus of the Federal University of Pernambuco, Recife, Brazil. *Leptodactylus fuscus* is a generalist and opportunistic predator whose diet is typically dominated by arthropods like orthopterans, ants, and spiders. This unusual predation event is interpreted as opportunistic foraging, potentially driven by the high energy demands of the reproductive season and the local abundance of leeches. The record highlights the importance of detailed dietary and behavioral studies to fully understand the trophic ecology and natural history of generalist species, emphasizing the role of prey availability and opportunistic behavior in shaping dietary patterns.

Keywords: Trophic interactions; opportunistic feeding; host–parasite dynamics; natural history record; invertebrate predation.

Resumo: (Consumo de sanguessugas por *Leptodactylus fuscus* (Schneider, 1799) (Anura: Leptodactylidae) em Pernambuco, Brasil.) A interação trófica entre anfíbios e sanguessugas é predominantemente parasitária, com as sanguessugas atuando como parasitas em vários estágios de vida dos anuros, a predação de sanguessugas por anuros raramente é documentada. Esta nota relata o primeiro caso registrado da rã neotropical *Leptodactylus fuscus* predando uma sanguessuga. A observação ocorreu em um fragmento de floresta urbana no campus da Universidade Federal de Pernambuco, em Recife, Brasil. *Leptodactylus fuscus* é um predador generalista e oportunista cuja dieta é tipicamente dominada por artrópodes como ortópteros, formigas e aranhas. Esse evento incomum de predação é interpretado como forrageamento oportunista, potencialmente impulsionado pelas altas demandas energéticas da época reprodutiva e pela abundância local de sanguessugas. O registro destaca a importância de estudos detalhados sobre dieta e comportamento para compreender plenamente a ecologia trófica e a história natural de espécies generalistas, enfatizando o papel da disponibilidade de presas e do comportamento oportunista na definição dos padrões alimentares

Palavras-chave: Interações tróficas; alimentação oportunista; dinâmica hospedeiro-parasita; registro de história natural; predação de invertebrados.

Trophic relationships between amphibians and leeches commonly include parasitism (Elliott & Kutschera, 2011). These are considered complex relationships as leeches can parasitize eggs, larvae, and adult amphibians (Ayres & Comesana, 2010; Canazas-Teran et al., 2024). Many amphibians are generalist predators primarily employing active foraging or "sit-and-wait" tactics for prey capture (Solé & Rödder, 2009). Their diet mainly

consists of invertebrates predominantly well-known prey such as insects and arachnids (López et al., 2009; Sugai et al., 2012; Costa-Campos et al., 2024; Silva et al., 2025). *Leptodactylus fuscus* (Schneider, 1799) is a medium-sized anuran (42.8 ± 4.0 mm in males and 43.6 ± 4.4 mm in females) with a broad distribution in the Neotropical region (De-Sá et al., 2014). It is associated with grasslands, savannas, and swampy areas known as a typical species of open formations and considered adaptable to degraded and urban forests (Sugai et al., 2012; Frost, 2026). They are considered generalist and opportunistic feeders, often not selective based on prey availability (Santana et al., 2019; Montes et al., 2020). The reproductive season requires substantial energy leading to rapid consumption of lipid reserves and demanding foraging activity before and during the vocalization period to sustain reproductive effort (Wells & Schwartz, 2007). Leeches are a cosmopolitan group of annelids, which can be aquatic or terrestrial, and are generally hematophagous. In the literature they are considered ectoparasites or endoparasites of anurans documented as hematophagous parasites of anuran larvae in about 20 species (Duellman & Trueb, 1986; McCallum et al., 2011). They are considered, along with mosquitoes, the primary vectors of parasites for anurans (Bardsley & Harmsen, 1973; Desser, 2001). Anurans and leeches have been the subject of numerous studies on host-parasite interactions (e.g., Beukema et al., 2010; Gentilli & Tibert 2010). However, predation of parasites by hosts as observed in this study had not been documented until now. The observation occurred on July 21, 2025, at 8:14 PM, near the lake known as "Lago do Cavouco" at the Federal University of Pernambuco (UFPE), Recife, Brazil (08°02'51.98" S, 34°57'09.70" W) (Figure 1). An individual of *L. fuscus* (SVL = 22 mm) was found feeding on a leech (36 mm) in an area with herbaceous vegetation, approximately three meters from the water's edge (Figure 2). The prey was already immobile and dark in color, differing from the greenish hue of live leeches. Both specimens were collected and deposited in the Herpetological Collection of the Federal University of Pernambuco (CHUFPE-2493).

The diet of *L. fuscus* is already well-documented across various prey categories with the invertebrate orders: Orthoptera, Formicidae and Araneae the most frequent among its consumption (Montes et al., 2020). Opportunistic consumption includes Hymenoptera and Acariformes (Montes et al., 2020; Silva et al., 2025). A recent study (Silva et al., 2025) investigated the diet of *L. fuscus* over three years and concluded that individuals of this species do not typically vary their diet across years. They may consume more than one prey category but tend to be conservative, focusing on the most abundant orders in their diet (Michelin et al., 2020; Silva et al., 2025). Furthermore, it was observed that *L. fuscus* usually consumes prey within its home range and selects prey rich in energy, in addition, the soft body and low mobility of leeches can facilitate ingestion (Blanco-Torres et al., 2020). This may explain our findings of an individual *L. fuscus* preying on a leech, although leeches are abundant invertebrates in the environment. This event may be related to ecological factors that limit prey availability (Costa-Pereira et al., 2018). It is important to note that prey availability is a fundamental aspect for understanding the feeding behavior of anurans although it is not extensively investigated in amphibian diet studies (Oliveira et al., 2019; Montes et al., 2020).

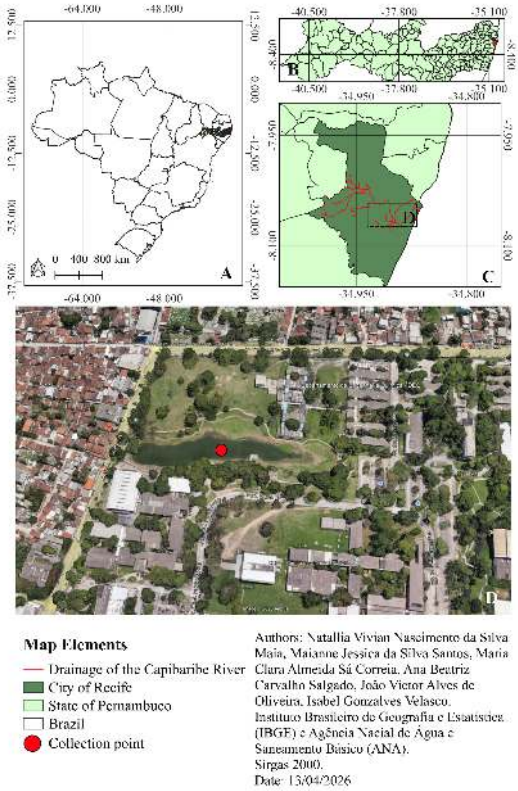


Figure 1: Record locality of *Leptodactylus fuscus* preying on a leech. Area of high abundance for both species.



Figure 2: An individual of *Leptodactylus fuscus* preying on a leech.

This is the first record of *L. fuscus* feeding on a leech likely an opportunistic event. This record reinforces the importance of predation studies as they are essential for understanding species ecology, ethology, and natural history especially when considering prey availability (Curio, 2012; Retana & Sanchéz, 2024; Retana & Montano, 2025).

Acknowledgments

This study was partly financed with resources from Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) process # 88887.702879/2022–00. NVNSM, MJSS, MCASC and IGV are supported by PhD scholarships by the ProEx Program of CAPES and FACEPE.

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Handling Editor = Caroline Oswald
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