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Reptile predation by domestic cats in the Cassupá-Salamãï village, Porto Velho, Rondônia, Brazil

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ABSTRACT

In Brazil, records of predation on wild animals by domestic cats are concentrated in the Atlantic Forest of the Southeast region, and in other biomes these data are non-existent or scarce. In this sense, we report for the first time, through occasional records, the predation of native reptiles by domestic cats in the Amazon region. These records demonstrate that this type of impact may be underestimated in Brazil, and show that domestic cats represent a direct threat to wildlife.

Keywords: Amazon, Domestic Animals, Invasive Species, Forest Fragment

RESUMO - Predaç3o de répteis por gatos dom3sticos na aldeia Cassupá-Salamãï de Porto Velho, Rond3nia, Brazil

No Brasil, os registros de predaç3o de animais silvestres por gatos dom3sticos se concentram na Mata Atlântica da regi3o Sudeste e nos outros biomas esses dados s3o inexistentes ou escassos. Nesse sentido, reportamos pela primeira vez atrav3s de registros ocasionais, a predaç3o de répteis nativos por gatos dom3sticos na regi3o Amaz3nica. Esses registros demonstram que esse tipo de impacto pode ser subestimado no Brasil, e mostra que gatos dom3sticos representam uma ameaça direta à fauna silvestre.

Palavras-chave: Amaz3nia, animais dom3sticos, esp3cies invasoras, fragmento florestal

Several animal species have been domesticated to meet human needs, including as companion animals. Therefore, it is common for different domestic animal species to have free-range access to natural environments. Consequently, these animals end up leading to the extinction of different native species (Clavero & García-Berthou 2005).

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Among these species, the domestic cat (*Felis catus* Linnaeus, 1758) stands out. This feline has high colonization and dispersal ability, and the top 100 most invasive alien species in the world (Lowe et al. 2000; Turbelin et al. 2017; Trouwborst et al. 2020). Domestic cats also have the seventh-highest number of invasion records in the Neotropics (Rosa et al. 2020), putting conservationists on alert.

In the Neotropical region, domestic cats have become increasingly prevalent as pets, often living in close proximity to natural habitats. This region, known for its rich biodiversity, faces significant ecological challenges due to the presence of these non-native predators (Loos et al. 2022). Domestic cats, despite their domestication, retain strong hunting instincts, which poses a threat to local wildlife, particularly small mammals, birds, and reptiles (Kitts-Morgan et al. 2015). Their impact on the environment is exacerbated by their ability to thrive in various habitats, ranging from urban areas to remote forests, leading to a growing concern among conservationists about the long-term effects on native species and ecosystems (Bradley et al. 2019).

In Brazil, one of the most biodiverse countries in the Neotropics, domestic cats are already found in protected areas (Sampaio & Schmidt 2013). In this country, studies on the impacts of domestic cats on native fauna are rare and scattered (Assis et al. 2023). Furthermore, most records of predation by domestic cats in Brazil are concentrated in the Atlantic Forest, and in other biomes, this impact may be underestimated (Assis et al. 2023). This scenario shows the need for studies that report the impacts of this feline in other Brazilian biomes. Thus, we report unpublished records of native reptile predation by domestic cats in the Amazon region.

We conducted this study between June 2022 and January 2023 in the village of Cassupã-Salamã (latitude -8.797747; longitude -63.838501), an urban area of Porto Velho, in the state of Rondônia, northern Brazil (Fig. 1). The vegetation open ombrophilous forest, with a strip of secondary vegetation. The village is located in a forested area; however, three housing developments have been installed in the last five years, which have increased fragmentation and reduction of forested environments. The village has approximately 210 inhabitants and about 15 cats with unrestricted access to forest environments. We recorded predation data through casual observations and photographs provided by the feline guardians. All the cats involved in the interactions had guardians and were regularly fed.

Photographic records were made of predation of four reptile species: *Ameiva ameiva* (Linnaeus, 1758), *Oxyrhopus melanogenys* (Tschudi, 1845), *Bothrops atrox* (Linnaeus, 1758), and *Erythrolamprus poecilogyrus* (Wied-Neuwied, 1825) (Fig. 2). Unlike *Ameiva ameiva*, the snakes were not preyed upon, but all suffered multiple attacks and had lacerated or missing heads.

This study is the first record of reptile predation by domestic cats in Rondônia. Assis et al. (2023) mapped domestic cat predation records, showing that the current information on reptile predation in the northern region of Brazil is restricted to the state of Acre. Furthermore, the authors' list does not include the species recorded here, which are new records for Brazil.

The predation of *Erythrolamprus poecilogyrus* was filmed by a resident who highlighted during their recording the importance of breeding cats for the control of



different wild animals and the security of their home. The guardian of the cat that preyed on *A. ameiva* reported that it was common for her cat to capture different animals, including lizards, snakes, arachnids, and insects. She pointed out that, whenever possible, she rescues wild animals from predation, except for snakes, out of fear. Snakes are a group naturally harassed by humans and are considered dangerous and a risk to life, and are thus often killed (Lima et al. 2020; Pommer-Barbosa et al. 2022). This view towards snake predation, considered pest control, ignores the adverse effects on fauna, such as disease transmission and local extinction (Loss et al. 2013; Tryjanowski et al. 2015; Loss & Marra 2017).

Sedano-Cruz (2022) estimated that 3–12 million birds are killed annually in urban and suburban areas, and 8–29 million vertebrates are killed in the Andes of Colombia by domestic cats. In Brazil, there are no projections on the impact of domestic cats on fauna, but existing estimates in neighboring countries offer insight into the potential scenario. Records from urban areas demonstrate that domestic cats have a broad diet, including birds and mammals (Gaiotto et al. 2020; Mella-Méndez et al. 2022). The species in the present study may only represent a portion of the prey fauna due to the vegetation in the village and the free access of domestic cats to these environments. The estimated average daily predation rate from successful cats was 6.15 kills per 24-h period, with an average of 44% hunting effectiveness (Hernandez et al. 2018).

The adopted breeding model, with free access to the forest environment associated with the expanding city of Porto Velho, favors interaction between wild animals and domestic cats. Although the data collection method has limitations, such as limited registration by tutors, using guardian records may aid in better understanding the negative interactions between wildlife and domestic cats.

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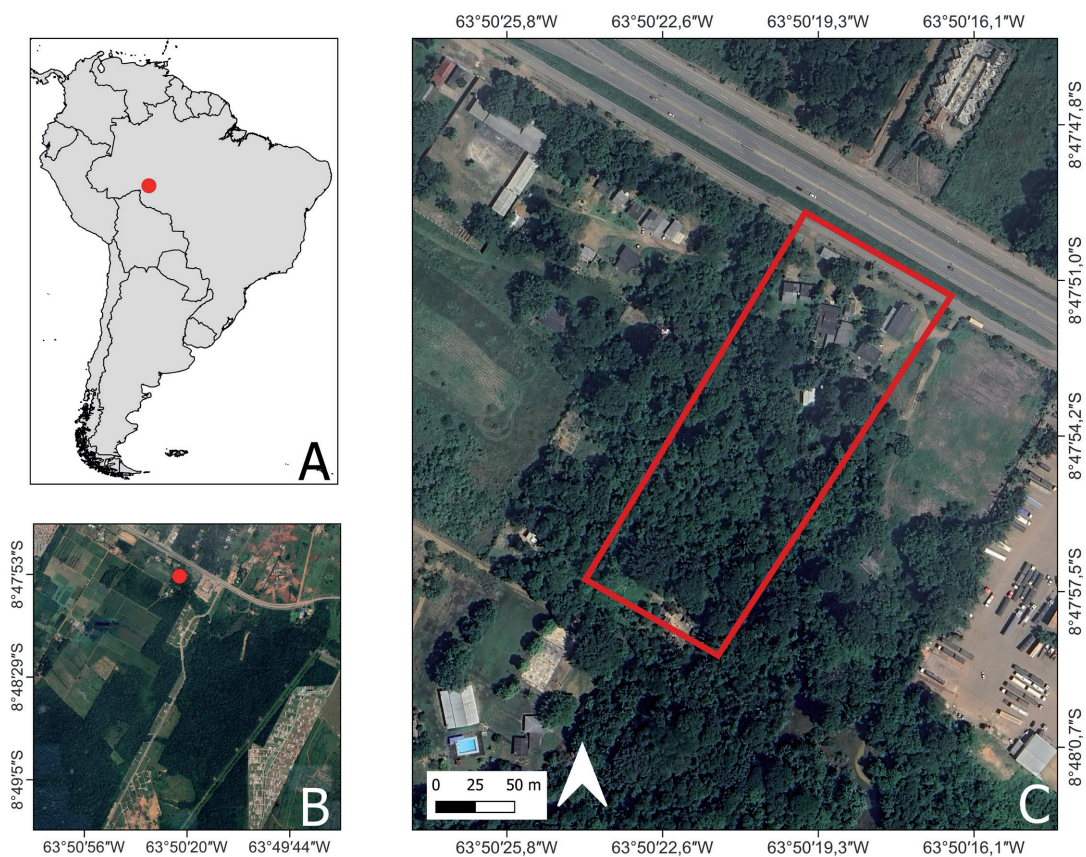


Figure 1. Location of the Cassupá-Salamã village in the urban area of Porto Velho, Rondônia, Brazil. In (A) the location of the study area in relation to Brazil; in (B) the location of the study area, highlighted in (C).



Figure 2. Reptile species preyed upon by domestic cats in the Cassupá-Salamã Village of Porto Velho, Rondônia. (a) *Oxyrhopus melanogenys*, (b) *Ameiva ameiva*, (c) *Bothrops atrox*, and (d) *Erythrolamprus poecilogyrus*.

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