



First record of the endangered golden-headed lion tamarin (*Leontopithecus chrysomelas*) preying the lizard *Tropidurus torquatus* in the Atlantic Forest, Bahia, Brazil

Leonardo Marques de Abreu^{1, 2*} , Igor Inforzato³ , Maurivan Vaz Ribeiro⁴ ,
Ricardo Siqueira Bovendorp⁵ 

1 Programa de Pós-graduação em Zoologia, Departamento de Ciências Biológicas, Universidade Estadual de Santa Cruz, Ilhéus, Bahia, Brazil.

2 Tropical Herpetology Lab, Departamento de Ciências Biológicas, Universidade Estadual de Santa Cruz, Ilhéus, Bahia, Brazil.

3 DeOrigem Consultoria Ambiental Ltda., Rua Lot Mar de Ilheus I, Quadra 04. Ilhéus, Bahia, Brazil.

4 EcoBrasil Consultoria Ambiental Ltda., Rua João Chagas Ortis de Freitas, 577, Salas 1310 e 1311. Lauro de Freitas, Bahia, Brazil.

5 Applied Ecology and Conservation Lab, Departamento de Ciências Biológicas, Universidade Estadual de Santa Cruz, Ilhéus, Bahia, Brazil.

* Correspondence: leoomarques95@gmail.com

Resumen

Los casos de depredación que involucran a vertebrados rara vez se observan en primates silvestres, pero proporcionan información valiosa sobre las estrategias de alimentación. Los calitricidos son omnívoros y se alimentan principalmente de frutas e invertebrados, mientras que las presas vertebradas son poco documentadas. Presentamos el primer caso documentado de depredación de un lagarto (*Tropidurus torquatus*) por tití león dorado (*Leontopithecus chrysomelas*), endémico del bosque atlántico en peligro de extinción. El evento oportunista se observó en noviembre de 2025 en una zona rural de Ilhéus, al sur de Bahía (Brasil), dentro de un mosaico de restos forestales y elementos antropogénicos. Un tití adulto capturó, mató y consumió parcialmente al lagarto, iniciando la alimentación con el contenido visceral antes de que otro miembro del grupo se llevara la presa y la ingiriera por completo. El episodio de depredación tuvo lugar en un microhábitat modificado asociado a los cocoteros, lo que pone de manifiesto el uso de elementos antropogénicos durante la búsqueda de alimento. Este registro amplía el conocimiento actual sobre la dieta de *L. chrysomelas*, proporciona la identificación a nivel de especie de una presa vertebrada y refuerza el papel de la

depredación oportunista de vertebrados como estrategia complementaria de alimentación.

Palabras clave: Primates, dieta, búsqueda de alimento, ambiente modificado, depredación.

Abstract

Predation events involving vertebrates are rarely observed in wild primates, however they provide valuable insights into foraging strategies, dietary supplementation, and trophic interactions. Callitrichid primates are predominantly omnivorous, relying mainly on fruits and invertebrates, while vertebrate prey represents an important but poorly documented source. Here, we report the first documented case of predation on a lizard, *Tropidurus torquatus*, by the endangered golden-headed lion tamarin *Leontopithecus chrysomelas*, an endemic species of the Atlantic Forest. The opportunistic event was observed in November 2025 in a rural area of Ilhéus, southern Bahia, Brazil, within a mosaic of forest remnants and anthropogenic elements. An adult tamarin captured, killed, and partially consumed the lizard, initiating feeding with the visceral contents before the prey was taken by another group member and fully consumed. The predation event occurred in a modified microhabitat associated with coconut palms, highlighting the use of anthropogenic elements during foraging. This record expands current knowledge of the diet of *L. chrysomelas*, provides species-level identification of a vertebrate prey item, and reinforces the role of opportunistic vertebrate predation as a complementary foraging strategy in callitrichid primates.

Key words: Primates, diet, foraging, modified environment, predation.

Primates are among the main arboreal frugivores and seed dispersers in tropical forests (Hawes et al. 2013), with diets strongly dominated by fruits and, to a lesser extent, leaves, eggs, invertebrates and vertebrates (Chapman & Onderdonk 1998; Bufalo et al. 2016). Fruits are generally rich in carbohydrates and lipids but are typically low in protein and may also contain chemical defenses that influence palatability and intake (Rose 1997; Chaves et al. 2023; Vasquez et al. 2025). Consequently, supplementation of primate diets with animal protein, obtained through the consumption of invertebrates and vertebrates (Guilherme et al. 2016; Garbino et al. 2022) plays an important role in meeting nutritional demands and maximizing energetic returns, despite the ecological, mechanical and behavioral challenges associated with prey capture (Butynski 1982; Janson & Chapman 1999; Lambert & Rothman 2015).

The golden-headed lion tamarin (*Leontopithecus chrysomelas*, Kuhl 1820) is a small (~620 g) endangered (EN) callitrichid endemic to the Atlantic Forest of southern Bahia, Brazil, with estimated populations ranging from 13,743 to 24,401 individuals distributed across approximately 13,215 km² (Oliveira et al. 2021; Teixeira et al. 2025). The species inhabits forest fragments and shaded cacao agroforests (*cabruças*) (Raboy et al. 2004), are considered generalist and opportunistic in their feeding habits, where fruit consumption represents the main dietary component. However, individuals also spend considerable time foraging for animal prey, particularly invertebrates (92%) and, less frequently (6,2%),

small vertebrates such as amphibians and lizards (Coimbra-Filho & Mittermeier 1973; Raboy & Dietz 2004; Catenacci et al. 2016).

Tropidurus torquatus (Wied-Neuwied 1820) is an abundant diurnal lizard widely distributed throughout South America, occurring in various types of landscapes and vegetation, ranging from open areas and human-modified areas to forested areas and feeding predominantly on arthropods such as ants, termites, beetles, and spiders, although it may also exhibit opportunistic feeding behavior, occasionally consuming plant material and other small food items depending on resource availability (Carvalho; Britto; Fernandes, 2013; Rodrigues 1987).

Here, we report the first documented case of the golden-headed lion tamarin (*Leontopithecus chrysomelas*) preying on the lizard *Tropidurus torquatus*, contributing new information to the feeding ecology of this endangered primate.

On November 6, 2025, we observed a successful predation event on a *T. torquatus* lizard by *L. chrysomelas*, recorded opportunistically at a private residence located in a rural area of the village of Olivença, within a restinga environment (22 m.a.n.m), municipality of Ilhéus, state of Bahia, Brazil (-14,9386, -39,0153) (Figure 1). At 15hr41, a group of *L. chrysomelas* consisting of six adult individuals and two infants of undetermined sex approached a residence through a forest fragment (Figure 2A). The group followed the same route and foraged in surrounding trees and on the roof. A single bunch of bananas (*Musa sp.*) was available on the property, and four adults fed on the fruits for approximately five minutes (Figure 2B). At 15hr54, after feeding, all individuals remained on the roof for approximately ten minutes, during which social behaviors were observed, including affiliative interactions between adults and juveniles (possible grooming) (Figure 2C).

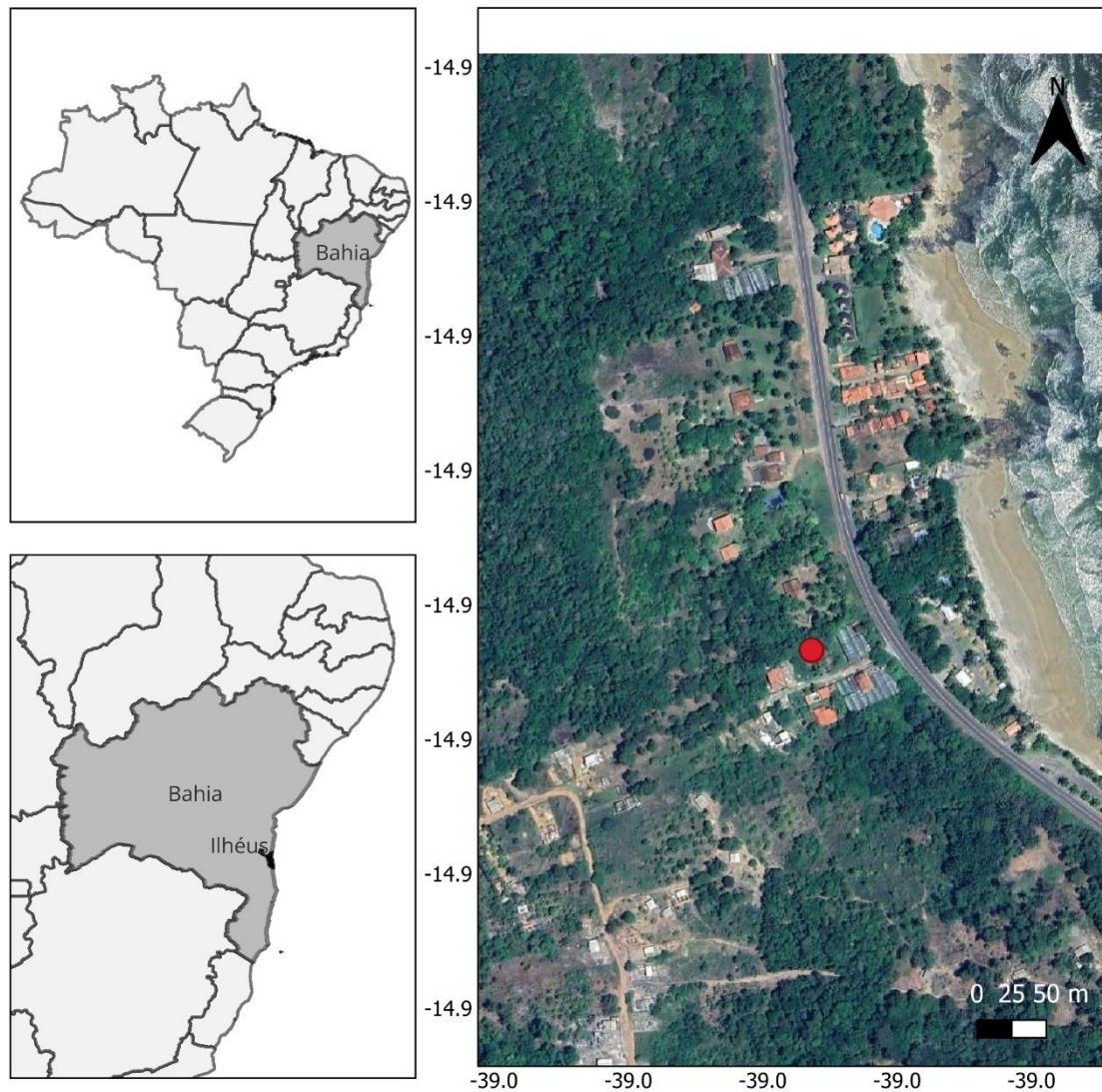


Figure 1. Map showing the area where predation of *Leontopithecus chrysomelas* was recorded in the municipality of Ilhéus, state of Bahia, Brazil. The red dot indicates the location of the record.



Figure 2. Behavioral records of *Leontopithecus chrysomelas* in an anthropized area before the observation period of the predation event. A) An adult individual uses branches as a natural bridge to move around in the modified environment. B) A group of four adults eating ripe banana fruit (*Musa* sp.), showing the use of anthropogenic resources. C) Possible affiliative contact between two adults and one infant.

At 16hr01, an individual adult of *L. chrysomelas* was observed climbing a coconut tree (*Cocos nucifera*), about eight meters high, next to the residence. The animal accessed the highest point where leaves and fruits were present, probably because it was more humid and potential shelters for other organisms that could serve as prey (Mariau 2001). This individual remained out of sight for approximately three minutes. At 16hr04, the same individual descended rapidly carrying a captured and killed lizard *T. torquatus* and positioned itself on a wooden wall 1,5 m above the ground (Figure 3A). The individual began manipulating and consuming the prey by repeatedly biting the tail region (Figure 3B). The

lizard was initially eviscerated, and the digestive tract was consumed first. Approximately half of the prey, including both hind limbs, was ingested (Figure 3C).

After about three minutes of manipulation and partial ingestion, the individual moved to the roof with the prey still in its mouth, approaching other group members. A second adult approached and took possession of the prey, continuing its consumption. A juvenile attempted to access the resource, but no food sharing was observed, although the juvenile consumed small remaining portions, possibly from the forelimbs (Figure 3D). The lizard was completely consumed, and approximately four minutes later the group returned to the forest fragment behind the residence and was lost from view.

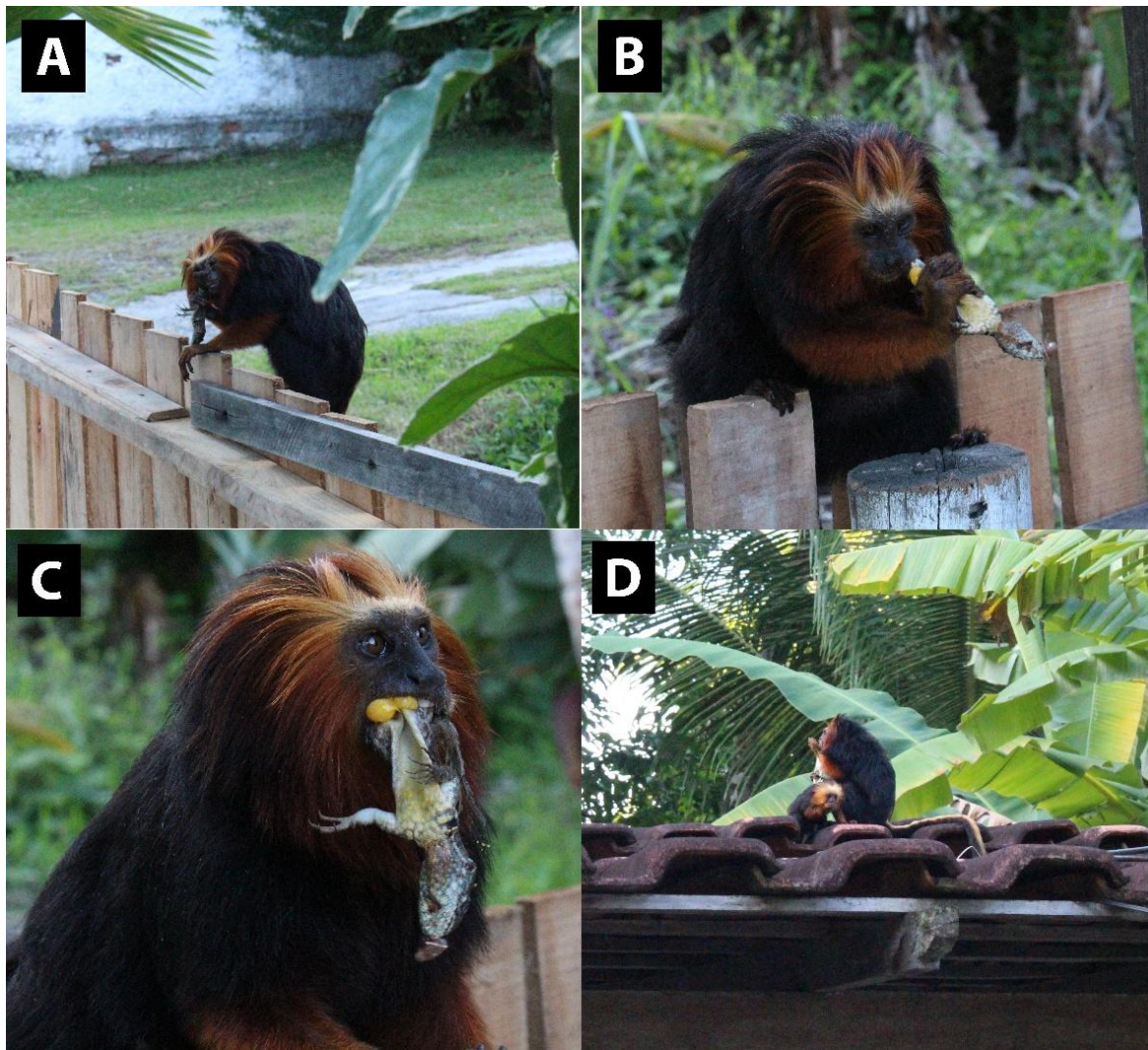


Figure 3. A) Adult individual of *L. chrysomelas* with the captured lizard *T. torquatus*, displaying repeated bites on a wooden wall 1,5 meters high. B) Manipulation and ingestion of prey by tail region. C) Partially ingested prey, showing the progress of consumption. D) A second adult removes the resource and feeds on the prey, while a juvenile attempts to access other remaining structures of the lizard.

Vertebrates predation has been recorded across several primate taxa, but detailed descriptions identifying prey species remain uncommon, particularly among callitrichids (Butynski 1982; Fedigan 1990; Vasquez et al. 2025), due to the fact that they occupy higher vertical strata near the canopy and move rapidly, making it difficult to identify the food source (Dias et al. 2025; Kaizer et al. 2025). The successful capture of *T. torquatus* supports an opportunistic foraging strategy, in which individuals exploit a variety of microhabitats while moving through heterogeneous and human-modified landscapes. Anthropogenic environments may increase predator–prey encounters by altering prey behavior and exposure, particularly in structurally simplified habitats or near resource subsidies such as fruit trees (Rodewald et al. 2011, Teixeira et al. 2024). Coconut trees for example, provide humid microhabitats and refuge for invertebrates and small vertebrates, potentially increasing prey availability (Mariau 2001).

From a nutritional perspective, vertebrate prey represents an important source of protein and energy, compensating for the low protein content of fruit-based diets typical of lion tamarins (Milton, 1981; Heymann et al. 2000). The observed behavior of consuming the viscera first is consistent with optimal foraging strategies documented in other mammals and primates, as internal organs provide high energetic and nutritional value with lower processing costs (Schaller 1976; Gittleman 1989). This strategy may maximize energetic return following a costly predation event.

Although predation events are rarely observed and even more rarely documented in detail, records such as this provide valuable insights into the trophic flexibility and behavioral ecology of primates. Such records are important for improving our understanding of the ecology of threatened species, particularly regarding diet and opportunistic foraging (LaBarge et al 2020). We emphasize the need for increased monitoring and reporting of occasional feeding events, including the use of non-invasive approaches (e.g., camera trapping, acoustic monitoring and opportunistic observations), to fill current knowledge gaps and support conservation efforts.

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