

The Lava lizard *Tropidurus hispidus* (Wied, 1820) as prey of a Common marmoset (*Callithrix jacchus*) in the Brazilian Caatinga: a strategy for energy conservation?

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Tropidurus hispidus and *Callithrix jacchus* are widely distributed in various Neotropical biomes and can be considered habitat generalists. *Tropidurus hispidus* is considered the largest species of its genus and the most abundant in the northeastern region of Brazil (Freitas and Silva, 2007). The species has arboreal habits and displays sit-and-wait foraging behaviour (Vitt and Carvalho, 1995), being more active during the day and primarily feeding on insects (Rodrigues, 1987).

The Common marmoset, *Callithrix jacchus*, is an endemic northeastern Brazilian primate (see Rylands and Mittermeier, 2013). This diurnal species feeds on a wide variety of items, including fruit, leaves, nectar, tree exudates, and animal prey, such as invertebrates, bird eggs, and hatchlings, as well as other small vertebrates (Digby et al., 2011; Amora et al., 2013). In native environments, this social animal exhibits a great behavioural versatility, allowing for high success in prey search and capture activities (Schiel et al., 2010).

In this paper we document a predation event of *C. jacchus* on *T. hispidus* in the Caatinga biome. The scene detailed herein occurred at the boundary between Sertânia and Buíque Municipalities (ca. 8.4000°S,

37.0500°W), in the Caatinga of Pernambuco State, Brazil. On 13 February 2007 at 1023 h, a troop of marmosets was observed during social foraging activity. The dominant female noticed the presence of a *T. hispidus* lizard on the same tree trunk, positioned ca. 90 cm above the forest floor and 3 m distant from her. She stealthily approached the lizard and quickly killed it with a bite to its head. With the dead lizard held in both hands, the female began to eat it, beginning at the rostral region, breaking the skull and stripping the head skin with her teeth (Fig. 1A). Subsequently, she rapidly consumed the anterior limbs and trunk. Small pieces of skull and head skin were discarded. Similarly, the digestive tract, mainly the large intestine, was removed with her mouth and discarded with her right hand (Fig. 1B, C).

The speed and the deliberate and noiseless manner of this predation event and the following consumption of the prey reinforce the assumption of a learned strategy, such as to avoid competition and the theft of nutritive prey, as opposed to an opportunistic behaviour. Despite being the dominant female in her social group, the action of hiding her prey can be justified as a way to save energy, avoiding prey disputes, considering that the event occurred during the typical summer drought period, at the hottest time of the day. In terms of consumption, we assume that, as an adult prey, the lizard body mass was equivalent to 80 g (Ribeiro et al., 2012). Considering the low amount of body parts discarded, we estimate that at least 90% of the prey was consumed. This corresponds to approximately 25% of the body weight of an adult marmoset. For this dominant *C. jacchus* female, a prey such as *T. hispidus* took a short time to be consumed, but entailed a significant mass intake.

Anecdotal events of lizard predation are generally scarce (e.g., Malkmus, 2000; Aguiar and Di-Bernardo, 2004) and, when available, lack in detail. Neotropical

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Figure 1. Predation event by a dominant female Common marmoset (*Callithrix jacchus*) on an adult male Lava lizard (*Tropidurus hispidus*). (A) Head-first consumption, in typical marmoset fashion. (B) The marmoset pulls out the large intestine using her mouth. (C) She discards the intestine using her right hand.

primates are not generally known to be lizard predators (Freese and Oppenheimer, 1981; Ferrari, 1988; Passamani and Rylands, 2000), but capuchin monkeys have been observed to use rods as tools to dislodge lizards from rock crevices (Falótico and Ottoni, 2016). In very few cases is the prey species well identified (Canale *et al.*, 2013).

The report by Amora *et al.* (2014) is a rare case where a “predator-prey” interaction between a primate (*C. jacchus*) and a lizard (*Phyllopezus pollicaris*) is described in detail. Similarities with our observation include the head-first consumption and the type of discarded items. In contrast, our scene suggested a social foraging strategy for energy conservation in a Caatinga scrubland during the drought period. Why does common marmoset eat 90% of *T. hispidus*, that weighs 80 g, and only 50% of *P. pollicaris*, that weighs only 10 g? What could be reasons for this discrepancy? The calculation employed in the estimations of body mass proportions between prey and predator, besides being essential for assessing food intake, open new questions about food preferences, nutritional ecology and conservation physiology.

Acknowledgments. We would like to thank the Graduate Program in Tropical Animal Science from UFRPE and CAPES for funding of a scholarship.

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