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Intraguild predation in Brazilian Atlantic Forest scorpions: Report of *Tityus brazilae* Lourenço & Eickstedt, 1984 preying on *Tityus pusillus* Pocock, 1893 (Scorpiones: Buthidae)

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Abstract: Scorpions are generalist predators that feed on a variety of taxa, including other scorpions. This study reports the first case of predation of *Tityus pusillus* Pocock, 1983 (Scorpiones, Buthidae) by *Tityus brazilae* Lourenço & Eickstedt, 1984 (Scorpiones, Buthidae) in a fragment of the Atlantic Forest in Brazil. During a night collection, an adult female of *T. brazilae* was observed immobilising an adult female of *T. pusillus* with the aid of its pedipalps in the leaf litter.
Key words: Scorpiones, Buthidae, *Tityus brazilae, Tityus pusillus,* interspecific relations, Brazil.

Depredación intragremial en escorpiones de la Selva Atlántica brasileña: un caso de *Tityus brazilae* Lourenço & Eickstedt, 1984 depredando a *Tityus pusillus* Pocock, 1893 (Scorpiones: Buthidae)
Resumen: Los escorpiones son depredadores generalistas que se alimentan de una variedad de taxones, incluidos otros escorpiones. Este estudio reporta el primer caso de depredación de *Tityus pusillus* Pocock, 1983 (Scorpiones, Buthidae) por *Tityus brazilae* Lourenço & Eickstedt, 1984 (Scorpiones, Buthidae) en un fragmento de lo Bosque Atlántico en Brasil. Durante una recolección nocturna, se observó a una hembra adulta de *T. brazilae* inmovilizando a una hembra adulta de *T. pusillus* con la ayuda de los pedipalpos en la hojarasca.
Palabras clave: Scorpiones, Buthidae, *Tityus brazilae, Tityus pusillus,* relación interespecífica, Brasil.

Scorpions have an important ecosystem role, acting as predators of a wide spectrum of organisms (Polis, 1990). However, these animals are subject to predation by insects (Lira *et al*., 2016; Dionisio-da-Silva & Lira, 2019), arachnids (Lira & Silva, 2014; Gadelha *et al*., 2018) and vertebrates (Polis *et al*., 1981; McCormick & Polis, 1990). In scorpions, body size can be a limiting factor for survival and intraguild predation, where smaller individuals are more likely to be preyed upon by other larger scorpions (Sánchez-Piñero & Urbano-Tenorio, 2016). Thus, intraguild predation can be conceptualized as the combination of predation and competition, as an essential resource for both species. In tropical forests some scorpion species coexist in the same micro-habitat (Lira *et al*., 2018), can be cannibalized or preyed upon by other scorpion species (Lira *et al*., 2017). Field predation records are important as they provide information about the animals' natural history. Despite this, intraguild predation records in tropical forests such as the Brazilian Atlantic Forest are scarce in the literature (e.g., Lira & Silva, 2014; Lira *et al*., 2017; Dionisio-da-Silva & Lira, 2019). Thus, aiming to increase knowledge about these arachnids, this paper reports the first case of intraguild predation involving the scorpion species *Tityus pusillus* Pocock, 1893 and *Tityus brazilae* Lourenço & Eickstedt, 1984 in the Brazilian Atlantic Forest.

The observation was made during an active collection of arachnids carried out at night (19:00-22:00h), in October 2021, in a fragment of the Brazilian Atlantic Forest, located in the Campo de Instrução Marechal Newton Cavalcanti (CIMNC), in the state of Pernambuco, Brazil (07° 49' 52" S 35° 06' 12" W). After the photographic record of predation, the scorpions were collected, taken to the laboratory and identified according to Lourenço (2002). Both scorpions were deposited in the Arachnological Collection of the Universidade Federal de Pernambuco (UFPE).

We found an adult female of the buthid scorpion *T. brazilae* in leaf litter near to the base of jackfruit tree (*Artocarpus heterophyllus*) with an immobilized *T. pusillus* adult female in their pedipalp (Figure 1). Several authors that reported intraguild predation and cannibalism between scorpion, argues that microhabitat sharing beyond size difference plays an important role for these antagonistic interactions (Polis & McCormick, 1987; Polis, 1988; Moreno-González & Hazzi, 2012). Despite, both scorpion species are considered as typical elements from forested habitats in Brazilian Atlantic Forest (Lira *et al*., 2020), these colonizes a completely different microhabitat (Bertani *et al*., 2008; Lira *et al*., 2018). *Tityus brazilae* is classified an arboreal scorpion found principally under bark of trees as found on jackfruit trees. While *T. pusillus* is commonly found on forest floor in leaf litter (Lira *et al*., 2018). Therefore, predation events by *T. brazilae* on *T. pusillus* described in this study may be considered as occasional.

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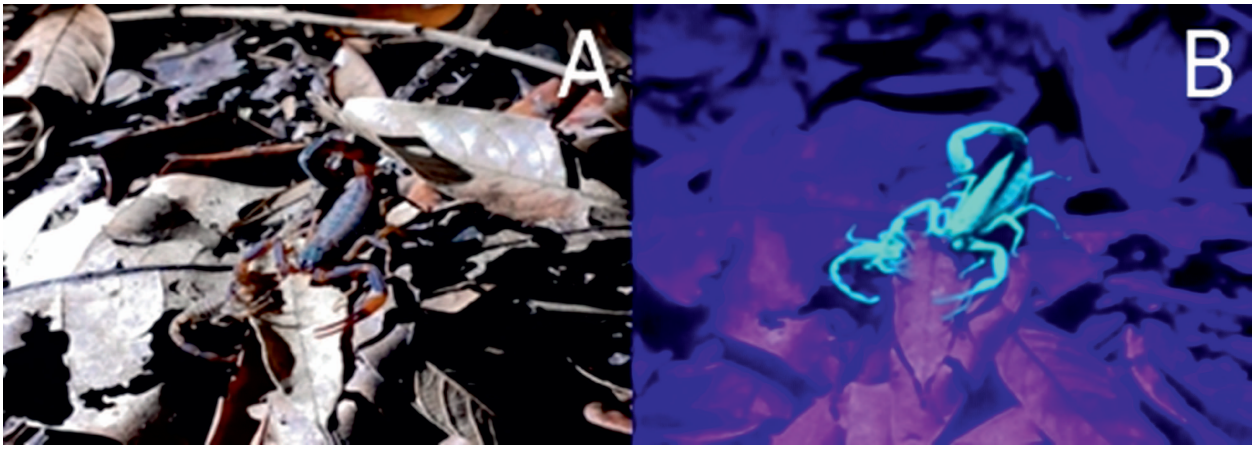


Fig. 1. *Tityus pusillus* Pocock, 1893 (Scorpiones, Buthidae) preyed by *Tityus brazilae* Lourenço and Eickstedt, 1984 (Scorpiones, Buthidae) in the Brazilian Atlantic Forest. **A**, Picture without UV radiation; **B** Picture under UV radiation.

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