

## Predation of *Dermatonotus muelleri* (Anura, Microhylidae) by *Guira guira* (Cuculiformes, Cuculidae) in the coastline of the Sergipe state, northeastern Brazil

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### Predação de *Dermatonotus muelleri* (Anura, Microhylidae) por *Guira guira* (Cuculiformes, Cuculidae) na costa de Sergipe, nordeste do Brasil

**Resumo:** A predação pode gerar um efeito significativo sobre a estrutura da comunidade. No entanto, a observação e a documentação desta interação ecológica são ocasionais e ainda escassas para muitos grupos. Nosso objetivo aqui é relatar a predação de *Dermatonotus muelleri* (Boettger, 1885) por *Guira guira* (Gmelin, JF, 1788). Como a dieta de *G. guira* frequentemente inclui pequenos vertebrados, acreditamos que esta espécie pode atuar como um importante regulador da população de *D. muelleri*. Este registro de predação pode fornecer informações sobre o conhecimento das interações entre representantes de Microhylidae Günther, 1858 (1843) e outras espécies.

**Palavras chave:** Anfíbios, aves, Restinga, interações ecológicas, Praia de Atalaia.

**Abstract:** Predation can drive significant effect upon the community structure. However, the observation and documentation of this ecological interaction is occasional and yet scarce for many groups. Our goal here is to report the predation of *Dermatonotus muelleri* (Boettger, 1885) by *Guira guira* (Gmelin, JF, 1788). Because *G. guira* diet frequently includes small vertebrates we believe that this species may act as an important regulator of *D. muelleri* population. This predation report can input insights about the knowledge of interactions of Microhylidae Günther, 1858 (1843) members and others species.

**Key words:** Amphibians, birds, Restinga, ecological interactions, Atalaia beach.

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Predation is an ecological relationship of direct order which happens between species, which is capable of promote abundance changes of prey populations through the actions of predators (Wootton 1994; Miller & Travis 1996). This interaction is considered as one of the main forces that takes action upon the structure of communities (Pianka 1973; Skelly 1997; Vitt *et al.*

1999). However, despite its frequency, it is a hard documentation event because of paucity of nature observations (Shepard 2007).

Microhylidae Günther, 1858 (1843) is a widespread family of frogs which encompass about 607 species distributed throughout the Americas, Africa, India and North Australia (Frost 2017). *Dermatonotus* Méhely, 1904 genus presents only one specie known in Brazilian territory named as *Dermatonotus muelleri* (Boettger, 1885) (Segalla *et al.* 2016) which has a digger habit and vocalize in dams and ponds of different levels of ephemerality (Nomura 2008). This species is adapted to support dryness seasons and periods of stowage, breeding promptly as early rain season (Nomura 2003) behavior known as “explosive breeding” (Wells 1977).

During survey aimed at characterizing the birds composition in urban areas in Aracaju municipality, Sergipe State, Northeastern Brazil, we recorded on July 14, 2013, approximately 2:00 p. m. a Guira Cukoo, *Guira guira* (Gmelin, JF, 1788), preying an individual of *Dermatonotus muelleri* at Atalaia beach (11°00'4.89" S, 37°03'27.32" W). The site of predation was an urbanized region close to the beach but presenting remnant of Restinga vegetation with seasonal rains. We observed several small frogs runover on the road and about six *G. guira* individuals on the ground which flew to the environment surround. At this moment we could notice that the Guira Cukoo were eating the dead frogs and one particular bird was observed preying a living frog which we identify as *D. muelleri* (Figure 1).



**Figure 1.** *Guira guira* preying on a narrow-mouthed frog *Dermatonotus muelleri* (Photo: Bruno Jackson Melo de Almeida).

Birds are well known as frogs predators (Toledo *et al.* 2004; Santos 2009; Andrade *et al.* 2013) and it's seems to composed an important resource for the diet of Neotropical birds (Poulin *et al.* 2001). The Guira Cuckoo is a Crotophaginae Swainson, 1837 belongs to Cuculidae Leach, 1820 family which has a widespread distribution in the South America (Sick 1997). It is a cosmopolitan specie well adapted to open areas and/or deforested landscapes, as well as urbanized environments (Mesquita 2009), frequently observed in flocks (Martins & Donatelli 2001). *Guira guira* is an active forager and it's diet is mainly carnivorous (Martins & Donatelli 2001) majority composed by invertebrates and small vertebrates just like frogs, lizards and others birds (Mesquita 2009; Repenning *et al.* 2009; Ramos *et al.* 2011; Smanioto *et al.* 2017).

Despite the little information gathered during the observation we believe that the explosive breeding strategy of *Dermatonotus muelleri* can result a fast and very accessible resource to predators and that would potentialize the relationship of Guira Cuckoo as abundance regulator. This is the first documentation report of *D. muelleri* predation by a bird. This predation report can input insights about the knowledge of interactions of Microhylidae members and others species.

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