

Predation of *Hemidactylus mabouia* (Squamata: Gekkonidae) by *Guira guira* (Cuculiformes: Cuculidae) in northeastern Brazil

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ABSTRACT: The accurate identification of natural predators may contribute to the understanding of prey's defensive strategies. We reported the predation record of the exotic lizard *Hemidactylus mabouia* by the native bird *Guira guira* in a perianthropic forest patch in Fortaleza municipality, Ceará state, northeastern Brazil. Our findings expand the knowledge on natural history of *H. mabouia* through identification of its natural predator, and of *G. guira* by adding a lizard species to its list of consumed preys.

Key-words: Diet, Exotic prey, Guira Cuckoo, House Gecko, Native predator.

RESUMO: (Predação de *Hemidactylus mabouia* (Squamata: Gekkonidae) por *Guira guira* (Cuculiformes: Cuculidae) no nordeste do Brasil.) A identificação precisa de predadores naturais pode contribuir para a compreensão das estratégias defensivas das presas. Nós relatamos o registro de predação do lagarto exótico *Hemidactylus mabouia* pela ave nativa *Guira guira* em um fragmento florestal periantrópico no município de Fortaleza, estado do Ceará, nordeste do Brasil. Nossos achados expandem o conhecimento sobre a história natural de *H. mabouia* pela identificação de seu predador natural, e de *G. guira* por adicionar uma espécie de lagarto à sua lista de presas consumidas.

Palavras-chave: Anu-branco, Dieta, Lagartixa doméstica, Predador nativo e Presa exótica.

The accurate identification of natural predators may contribute to the understanding of a wide array of prey strategies as such as its defensive behavior, microhabitat use and activity patterns. Nevertheless, predation events are not

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commonly observed in nature, and when they are, it is often difficult to precisely identify the involved species (Rocha & Vrcibradic, 1998). Furthermore, this kind of information can be especially useful for exotic and invasive species, for which comprehension of population dynamics is essential for their effective control (e.g. Cabrera-Gúzman *et al.*, 2012). Herein, we report the predation record of the exotic lizard *Hemidactylus mabouia* (Moreau de Jonnés, 1818) by the native bird *Guira guira* (Gmelin, 1788) in Brazil.

On 9 January 2014 at 16:00 h, in the vicinity of a perianthropic forest patch (3°44'23" S / 38°34'21" W, Datum: WGS 1984) at campus of Universidade Federal do Ceará, Fortaleza municipality, Ceará state, northeastern Brazil, we occasionally observed a predatory event of a lizard by a *G. guira*. The first sighting took place in an electric cable, and the lizard was not moving, indicating it was no longer alive (Figure 1). Thereafter, the bird flew to a nearby tree *Pithecellobium dulce* (Roxb.) Benth, where it repeatedly handled and bitten the prey with its beak. During prey handling, the bird successively shifted its perch position among the branches, usually in response to the approach of conspecifics, that seemed to pile its food. Observations lasted ca. 10 minutes, afterwards the bird flew away with the lizard in its beak, preventing us to know if it swallowed the prey. We were able to precisely identify the lizard as *H. mabouia* with the photographic records (Figure 1), in view of this is the unique large gecko species occurring in the study area with the following combination of morphological characters: double row of infradigital lamellae (single row in *Phyllopezus pollicaris*), and lamellae under fourth toe not reaching the foot base (reaching the foot base in native *Hemidactylus*), as supported by taxonomic bibliography (Vanzolini, 1978; Avila-Pires, 1995).

The Tropical House Gecko *H. mabouia* (Gekkonidae) is an exotic and invasive species which has successfully established in the New World, occurring across the North (Meshaka, 2000), Central (Howard *et al.*, 2001) and South America (Rocha *et al.*, 2011). This lizard presents nocturnal activity and is commonly found in anthropogenic environments (Avila-Pires, 1995). Due to its broad distribution, *H. mabouia* is able to interact with a wide array of species, and has been reported as prey for several kinds of native predators, such as spiders (Lanschi & Ferreira, 2012), lizards (Siqueira & Rocha, 2008), snakes (Mesquita *et al.*, 2011), birds (Figueiredo-de-Andrade & Silveira, 2012), and mammals (Wojnowski & Selempo, 2005). A more extensive list of predators of *H. mabouia* can be seen in Nogueira *et al.* (2013).

The Guira Cuckoo *G. guira* (Cuculidae) is widely distributed through South America, being commonly found in open landscapes and anthropogenic areas (Sick, 1997; Payne, 2005). This bird is a powerful diurnal predator, feeding mainly upon arthropods, although also includes vertebrates in its diet



Figure 1. Individual of *Guira guira* holding an adult *Hemidactylus mabouia* by its beak in Fortaleza municipality, Ceará state, northeastern Brazil (A). Details of the diagnostic infradigital characters that allowed us to identify the prey at species level (B).

(Beltzer, 1995; Payne, 1997). Among vertebrates, anurans constitute the most frequent prey eaten by *G. guira*, existing predation records of several genera, such as *Hypsiboas* (Soave *et al.*, 2008), *Leptodactylus* (Repenning *et al.*, 2009), *Physalaemus* (Kokubum & Zacca, 2003), *Rhinella* (Mesquita, 2009), and *Scinax* (Morais *et al.*, 2013). To our knowledge, although lizards have been registered compounding *G. guira* diet (Macedo, 1994), accurate identification of the lizard species consumed by this bird is scarce in the scientific sources (Soave *et al.*, 2008).

As it would be expected for a nocturnal lizard, *H. mabouia* is preyed by predators as the Heart-nosed Bat *Cardioderma cor* (Wojnowski & Selempo, 2005), and the Burrowing Owl *Athene cunicularia* (Silva-Porto & Cerqueira, 1990; Vieira & Teixeira, 2008). Nevertheless, the consumption of this gecko by diurnal birds has also been registered, for instance by the Roadside Hawk *Rupornis magnirostris* (Macêdo & Freire, 2010) and by the Smooth-billed Ani *Crotophaga ani* (Figueiredo-de-Andrade & Silveira, 2012). To our knowledge, although there are no previous predation records of *H. mabouia* by *G. guira* in the scientific bibliography, we found two anecdotal registers of *G. guira* individuals feeding upon lizards in the Wikiaves photographic database, in

which we were able to confirm the identification of prey species as *H. mabouia* (Crivellari, 2011; Fenalti, 2012). Together, the present report for Ceará state and these two additional photographic registers for São Paulo state (Crivellari, 2011) and Rio Grande do Sul state (Fenalti, 2012) suggest that the predatory event of *H. mabouia* by *G. guira* is likely to occur wherever the two species live in sympatry, with confirmed records along the whole eastern Brazilian coast. Therefore, our findings expand the knowledge on natural history of exotic lizard *H. mabouia* through identification of its natural predator, and of *G. guira* by adding a lizard species to its list of consumed preys.

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