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Scientific note

Predation of *Elapomorphus quinquelineatus* (Serpentes: Dipsadidae) by *Micrastur semitorquatus* (Aves: Falconidae)

Vanessa Nocelli [1*], Lúcio Moreira Campos Lima [2] & Henrique Caldeira Costa [1,2]

Elapomorphus quinquelineatus (Raddi, 1820) is a fossorial snake endemic to the Atlantic Rainforest of southeastern to southern Brazil (Nogueira *et al.* 2019). It has cathemeral habits and is found even in disturbed habitats (Costa *et al.* 2010). *Elapomorphus quinquelineatus* is commonly found moving above the ground, although it also has fossorial habits (Hartmann *et al.* 2009; Costa *et al.* 2010), relying on crypsis to avoid predation (Martins *et al.* 2008), and may use cloacal discharge and erratic movements if handled (Marques *et al.* 2019). This rear-fanged snake is not known to bite as a defense, although having a highly hemorrhagic venom (Salomão *et al.* 2003). In this study, we report a specimen of *E. quinquelineatus* preyed by a *Micrastur semitorquatus* (Vieillot, 1817) (Falconidae), popularly known as Collared Forest-Falcon, and reviewed records of predation on the species.

Between 8 and 9 a.m. on 10 November 2020, one of us (LL) was driving on a dirt road in Reserva Particular do Patrimônio Natural Chapadão da Serra Negra (21.9634°S, 43.8014°W), a private protected area of Atlantic Forest in Santa Bárbara do Monte Verde, Minas Gerais, southeastern Brazil. LL saw a Collared Forest-Falcon (*M. semitorquatus*), approximately 50 meters from his car, and stopped the vehicle to observe the raptor. The falcon held a snake with its claws over the sandy soil, flapping the wings to balance and stroke the snake head three to five times with its beak. After about 30 seconds of observation, the falcon flew into the woods, leaving its prey. The snake (female, 685 mm snout-vent length and 67 mm tail length) was bleeding through its mouth and showed only tail reflection movements. After stating that the snake was dead, LL collected it (ICMBio, 2014 [art. 25]), fixed in 10% formalin and preserved in 70% ethanol at the reptile collection of Universidade Federal de Juiz de Fora (catalog number CHUFJF 2209) (Figure 1).

The Collared Forest-Falcon inhabits Neotropical primary and secondary forests from southern United States to northern Argentina (Bierregaard, 1994; Ferguson-Lees & Christie, 2001). Despite its wide geographic range, there are few studies about its food habits, and its diet is based mainly on birds, mammals and reptiles (Thorstrom, 2000; Thorstrom *et al.* 2000; Thorstrom, 2001; Thorstrom *et al.* 2001; Viana *et al.* 2012).

To search for previous predation records of *Elapomorphus quinquelineatus*, we revised the literature on "Google Scholar" database, using the following keywords in Portuguese, English, and

[1] Instituto de Ciências Biológicas, Universidade Federal de Juiz de Fora. CEP 36036-900, Juiz de Fora, Minas Gerais, Brasil.
[2] Programa de Pós-Graduação em Biodiversidade e Conservação da Natureza, Universidade Federal de Juiz de Fora. CEP 36036-900, Juiz de Fora, Minas Gerais, Brasil.
* Corresponding author: nocelli.vanessa@gmail.com

Spanish on 10 May 2022: predação OR presa OR predador OR depredacíon OR predacíon OR depredador OR predation OR prey OR predator OR diet OR dieta AND "*Elapomorphus quinquelineatus*". The search returned 84 results, but only two were relevant for this study (Palmuti *et al.* 2009; Silva, 2014), none citing *Micrastur semitorquatus* as the predator. On 31 May 2022 we did a search in the WikiAves citizen science website (https://www.wikiaves.com.br/) for records of *M. semitorquatus* feeding or preying, resulting in 42 pictures. However, only two showed a snake as prey (Kassis, 2015; Messias, 2015), both from the same predation event. On 06 June 2022 we reviewed all editions of the journal Herpetological Review (1967–2022), which traditionally publishes natural history notes not always tracked by Google Scholar, but no records were found. We also reviewed the supplementary material from Souza *et al.* 2022, finding only one record.

Until now, *E. quinquelineatus* had been reported as prey only to other snakes, the rear-fanged false coral-snake *Erythrolamprus aesculapii* (Palmuti *et al.* 2009) and the front-fanged coral-snake *Micrurus frontalis* (Silva, 2014). This is the first record of *E. quinquelineatus* preyed by a bird. Additionally, for the best of our knowledge, our search revealed this is only the second record of a snake being preyed by *M. semitorquatus* (Souza *et al.* 2022).

Despite its wide geographic range, *M. semitorquatus* is not well known regarding its natural history. The same is true for *E. quinquelineatus*, which has a narrower range and a mostly fossorial lifestyle. Prey-predator reports like this are essential to fill basic gaps in our knowledge of biodiversity, which can later become the basis for wider studies (e.g., Schalk & Cove, 2018; Souza *et al.* 2022).



Figure 1. Female specimen of *Elapomorphus quinquelineatus* (CHUFJF 2209; 685 mm snout-vent length, 67 mm tail length) killed by a Collared Forest-Falcon (*Micrastur semitorquatus*) on 10 November 2020 in Reserva Particular do Patrimônio Natural Chapadão da Serra Negra, Atlantic Forest of southeastern Brazil. Scale bar: 10 mm. Photo: Lucas Morgado.

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