

Predation on a tropical house gecko, *Hemidactylus mabouia* by a juvenile colubrid snake, *Chironius bicarinatus*, in a Brazilian Atlantic Rainforest area

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ABSTRACT

Snakes in the Neotropical genus *Chironius* are mainly batrachophagous, and tend to consume relatively small prey. We present a report of a juvenile *Chironius bicarinatus* that had ingested a house gecko (*Hemidactylus mabouia*) corresponding to ca. 62% of its preserved body mass. The ingestion of such a large prey item is unusual for a snake of the genus *Chironius*, as is the consumption of lizards. Consumption of unusually large prey items may be more common in young snakes than in adults, possibly due to a lower availability of prey of appropriate size and/or to a lower capacity to evaluate the size of potential prey.

The colubrid snake genus *Chironius* Fitzinger, 1826 is endemic to the Neotropical region, occurring from Honduras and Nicaragua southwards to southern Brazil, Uruguay and northeastern Argentina (Dixon *et al.*, 1993; Klaczko *et al.*, 2014), and contains 22 currently recognized species (Hamdan and Fernandes, 2015). Snakes in this genus are diurnal, active foragers that feed almost exclusively on frogs, rarely consuming other types of prey such as salamanders, lizards and birds (Dixon *et al.*, 1993; Marques and Sazima, 2004; Pinto *et al.*, 2008; Bernarde and Abe, 2010; Nascimento *et al.*, 2013). *Chironius bicarinatus* is distributed exclusively within the Atlantic Rainforest biome in eastern Brazil, extreme northeastern Argentina and northwestern Uruguay, and attains up to ca. 1800 mm in total length (Dixon *et al.*, 1993). The feeding habits of this species have been documented a number of times in the literature, and indicate that it is almost exclusively batracophagous (Dixon *et al.*, 1993; Carvalho-Silva and Fernandes, 1994; Marques and Sazima, 2004; Oliveira, 2008; Hartmann *et al.*, 2009a,b; Bovo and Sueiro, 2012). In the present note, we report on the consumption of a gekkonid lizard by a juvenile *C. bicarinatus*, emphasizing the relatively large size of the prey compared to the size of the snake.

On March 2015 one of us (DV) received a dead juvenile *Chironius bicarinatus* (SVL = 300 mm, tail =

156 mm) from an undergraduate student. The snake had been killed by a resident near a forest edge in the region of Alto da Boa Vista (22° 57' 50.5" S, 43° 16' 46.0" W; elevation 380 m a.s.l.), within the urban limits of the city of Rio de Janeiro, state of Rio de Janeiro, Brazil, and later handed over to the student. The reptile had a bulge on its body, suggesting it had eaten a relatively large prey not long before being killed. After dissecting the snake, we found an adult female tropical house gecko, *Hemidactylus mabouia* (SVL = 56.8 mm, or 18.9% of the snake's SVL) in its stomach. The snake had ingested the lizard head first. The gecko's abdomen was partly digested and the two eggs that were inside it were found loose in the snake's stomach. The combined preserved mass of the gecko (whose tail was broken off near the base and was not inside the snake) and the eggs was 2.8 g, which corresponds to 62.2% of the snake's preserved body mass (i.e. 4.5 g without the prey). The snake and the gecko were deposited at the reptile collection of the Museu Nacional, Rio de Janeiro (MNRJ 25389 and MNRJ 25390, respectively) (Fig. 1).

The ingestion of such a large prey item (compared to the size and body mass of the snake) is unusual for a snake of the genus *Chironius*, as well as for the family Colubridae (*sensu* Zaher *et al.*, 2009) as a whole. It has been suggested that the ingestion of relatively small prey items may be a common

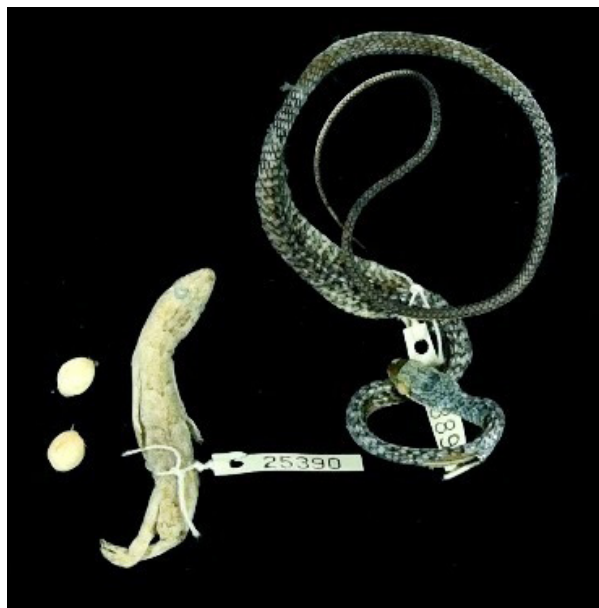


Figure 1. Juvenile of *Chironius bicarinatus* (MNRJ 25389) and a house gecko, *Hemidactylus mabouia* (MNRJ 25390; with its two eggs), removed from the snake stomach.

trait among Neotropical colubrids (Marques *et al.*, 2014). Regarding the genus *Chironius* in particular, Pinto *et al.* (2008) reported maximum prey mass/snake mass ratios of 0.21 for *C. flavolineatus* and 0.19 for *C. quadricarinatus*, with the mean ratios being only 0.05 and 0.11, respectively (compared to 0.62 in the present report). Nascimento *et al.* (2013) also remarked that Amazonian *C. fuscus* feed on relatively small prey (though they did not give prey mass/snake mass ratios). The fact that the snake in the present report was immature may partly explain the relatively large size of the prey it consumed. It has been suggested that the ingestion of unusually large prey items may be more common in young snakes than in adults, presumably due to a lower availability of prey of appropriate size and/or to a lower capacity to evaluate the size of potential prey (Sazima and Martins, 1990). Interestingly, there are reports of juvenile snakes of other species having died as a consequence of swallowing individuals of *Hemidactylus mabouia* that were comparatively large relative to their size (Nogueira *et al.*, 2013; Gavira *et al.*, 2015).

The present record is unusual not only because of the relative size of the prey, but also because snakes in the genus *Chironius* are mainly batracophagous, and consume lizards infrequently (Dixon *et al.*, 1993; Nascimento *et al.*, 2013). Since *H. mabouia* is a nocturnal lizard and *Chironius* spp. have diurnal habits,

the *C. bicarinatus* probably found and captured the gecko while it was resting in a shelter. *Chironius bicarinatus* forages actively and is known to pick inactive nocturnal prey from their diurnal retreats (Carvalho-Silva and Fernandes, 1994).

Hemidactylus mabouia has been previously reported as prey of *C. bicarinatus* (Dixon *et al.*, 1993) and of the congener *C. exoletus* (Nogueira *et al.*, 2013), as well as of several other species of South American snakes (Nogueira *et al.*, 2013; Panzera and Maneyro, 2014; Gavira *et al.*, 2015). *Hemidactylus mabouia* is an exotic species of African origin that is currently widespread in the Neotropics, where it is found mainly associated to anthropic and peri-anthropogenic environments (Kluge, 1969; Ávila-Pires 1995). The relatively small size and widespread presence of this lizard in tropical America make it a potential prey for many species of native snakes, especially those that are tolerant to anthropically disturbed habitats.

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