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***SIMOPHIS RHINOSTOMA* (SQUAMATA: COLUBRIDAE): FEEDING HABITS AND DEFENSIVE BEHAVIOR**

***SIMOPHIS RHINOSTOMA* (SQUAMATA: COLUBRIDAE): HÁBITOS DE ALIMENTACIÓN Y CONDUCTA DEFENSIVA**

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ABSTRACT. The biology of *Simophis rhinostoma* (Schlegel, 1837) is poorly known. There are not enough information about its diet, just about feeding on anurans and, in captivity, there are records of lizards ingestion. We present the first record of fish ingestion by *S. rhinostoma*, a colubrid inhabiting the Atlantic Forest and Cerrado areas, also some behavior aspects during feeding.

The colubrid snake *Simophis rhinostoma* (Schlegel, 1837) is distributed in eastern Paraguay, and in Brazil it occurs in the western, southeastern and central regions (Peters & Orejas-Miranda 1970, Cacciali *et al.* 2009), with its distribution range extended into the northeastern region (Argôlo 1998). This species is found in Atlantic Forest and Cerrado areas (Colli *et al.* 2002, Costa *et al.* 2007, Sawaya *et al.* 2008).

The biology of *Simophis rhinostoma* is poorly known. Published data suggest it is a diurnal and terrestrial species, and there is no substantial information on diet (Sazima & Abe 1991, Sawaya *et al.* 2008). Some authors have previously mentioned that lizards and small rodents might be its prey items (Amaral 1976, Freitas 1999), however there are only records of ingestion of anurans in nature (Bizerra *et al.* 1994, França *et al.* 2008,

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RESUMEN. Poco se conoce sobre la biología de *Simophis rhinostoma* (Schlegel, 1837). No existe información substancial al respecto de su dieta, apenas que se alimenta de anuros y, en cautiverio, hay registros de la ingestión de lagartos. Presentamos el primer relato de la ingestión de peces por *S. rhinostoma*, un colúbrido que habita los dominios de la Mata Atlántica y Cerrado, así como algunos aspectos de su comportamiento exhibido durante la alimentación.

Sawaya *et al.* 2008). In captive specimens, ingestion of small frogs and lizards was reported by Sazima & Abe (1991).

The species is uncommon, and in the lack of studies in the nature, observations of animals kept in captivity can add knowledge on the biology of the species (Souza 2004), providing information for conservation programs. We present a report of fish ingestion by *Simophis rhinostoma*, as an alternative way to feed the species in captivity, and some aspects of their feeding habits and defensive behavior.

In April 2015, a young female of *Simophis rhinostoma* (SVL = 250 mm; tail length = 56 mm; body mass = 9 g) from Araraquara, São Paulo state (21° 47' S, 48° 10' W), was collected and kept in captivity at Museu Biológico do Instituto Butantan for public exhibition.



Figure 1. *Simophis rhinostoma* (young female) at the beginning of fish ingestion.

Tadpoles of *Lithobates catesbeianus* (body mass ranging from 1-2 g; n = 4) were offered once a week, since newly metamorphosed frogs are too large for ingestion. However, only one tadpole was swallowed (25%) and regurgitated the following day.

Therefore, small fishes were tried as alternative food to *Simophis rhinostoma*, since we have observed its acceptance by non-piscivorous colubrid species kept in captivity. During 80 days, a total of 31 fishes (*Hyphessobrycon eques*; body mass ranging from 1-2 g) (Fig. 1) were offered twice a week. The mass of each prey ranged from 11-22% of the snake body mass.

When the first fish was ingested, the second was provided. The snake snapped the fishes mainly when they were offered in tweezers, but snapped too when they were left alive on the substrate (*Sphagnum sp.*). However, when the fishes were left on the water, the snake didn't show interest. The time of ingestion ranged between 40 and 45 s, considered fast as observed in other colubrids eating small prey (Marques *et al.* 2014). We have succeeded in the feeding of *Simophis rhinostoma* with fishes in 64.5% of attempts (Table 1).

In the first attempts, the snake, right after seeing the fishes, showed some defensive displays before holding the prey, such as hiding and elevating its head, and locomotor escape. After few feeding attempts, the snake did not display the defensive behaviour and just approached and snapped the fishes, usually in the middle of the body, and manipulated their prey mainly to head first ingestion (80%).

This work presents the first report of fish ingestion by the snake *Simophis rhinostoma*. In captivity conditions, fishes could be an alternative prey to feeding this species. Our observations confirmed the similarity between the defensive behavior displayed by *S. rhinostoma* and

Table 1. *Simophis rhinostoma*: attempts of fish (*Hyphessobrycon eques*) ingestion.

	Attempts	Ingested	Not ingested
Offered in tweezers	17	17	0
Left alive in <i>Sphagnum sp.</i>	5	3	2
Left alive in water	9	0	9
Total	31	20 (64.5%)	11 (35.5%)



coral snakes of the genus *Micrurus*, described by Sazima & Abe (1991), and Marques (2000).

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