

A PREY ITEM NOT PREVIOUSLY RECORDED FOR *BOTHROPS ASPER*: A CASE OF OPHIOPHAGY INVOLVING TWO SYMPATRIC PIT VIPER SPECIES

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Abstract: We document the first record of viperid predation for *Bothrops asper*. The feeding event involved a neonate of this species and a neonate of *Porthidium lansbergii*, the prey item. We consider neonate viper ophiophagy in *B. asper* a density-dependent response, as has been shown in cannibalistic events. High neonate abundance during common parturition dates makes encounters of both species likely to occur. Although we consider this feeding behavior as opportunistic, its true frequency in nature is unknown.

Key Words: Serpentes, Viperidae, ecology, diet, feeding habits, *Porthidium lansbergii*, Colombia.

Resumen: J.S. Mendoza Roldan y M. Fernández Lucero. “Una presa de *Bothrops asper* no reportada previamente: un caso de ofiofagia que involucra dos especies simpátricas de víboras”. Documentamos el primer registro de depredación de víperidos por *Bothrops asper*. El evento de alimentación involucró un neonato de esta especie y un neonato de *Porthidium lansbergii*, la presa. Consideramos que la ofiofagia en *B. asper* es una respuesta denso-dependiente, como se ha descrito en eventos de canibalismo. Abundancias elevadas de neonatos durante las fechas de nacimientos comunes para ambas especies, facilita el encuentro entre ellas. Aunque consideramos este comportamiento alimentario como oportunista, su frecuencia verdadera en la naturaleza es desconocida.

Palabras Clave: Serpentes, Viperidae, ecología, dieta, hábitos alimentarios, *Porthidium lansbergii*, Colombia.

INTRODUCTION

The diet of the pit viper *Bothrops asper* (Garman, 1883) has been characterized by various authors. Prey items include a great diversity of vertebrates such as mammals, anurans, birds, lizards and fishes (Boada *et al.* 2005, Martins *et al.* 2002). Snakes such as *Tantilla melanocephala* (Linnaeus, 1758), *Ninia atrata* (Hallowell, 1845), *Leptodeira annulata* (Linnaeus, 1758), *Atractus torquatus* (Duméril, Bibron *et* Duméril, 1854), and other unidentified colubrids, have been found in *B. asper* and *B. atrox* stomachs (Campbell and Lamar 2004). Cannibalism has been documented in juveniles and neonates of *B. asper*, and observations made in captivity show that intra specific ophiophagy is a common event between newborn siblings (Campbell and Lamar 2004, Egler *et al.* 1996). Low-prey density, high conspecific abundance, starvation, and poor kin recognition, have been considered causes of this type of feeding behavior in snakes (Polis *et al.* 1985, Pernetta *et al.* 2008, Engeman *et al.* 1996). Herein we report a prey item not previously recorded for *Bothrops asper*, being the first record of pit viper ophiophagy in this species.

NEW PREY ITEM RECORD

On 7 July 2007, at 19:00 h, a neonate *Bothrops asper* was captured during a night search held following the course of a small stream in the tropical dry forest reserve “Reserva Forestal Tierra Arena”, Vereda San José de Saco, Municipio de Juan de Acosta, in the departamento del Atlántico, Colombia. The specimen, having a total length of 381 mm, was sacrificed and deposited at the Museo de Historia Natural, Universidad de los Andes, Bogotá, Colombia, under the catalog number ANDES- R 170. In a later stomach content analysis performed by opening the stomach and intestines of this pit viper specimen, an undigested *Porthidium lansbergii* (Schlegel, 1841) neonate (ANDES- R 171), with a total length of 180 mm, was found (Fig. 1). Insect appendages belonging to small beetles (Coleoptera) and a pupa of an unknown fly (Diptera) were present in the hindgut of the snake, suggesting that an amphibian had been previously digested. This finding questions whether other vipers constitute a common prey in *Bothrops asper* diet or if this prey item may be only consequence of a casual opportunistic behavior.

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DISCUSSION

Boada *et al.* (2005) suggested that *Bothrops asper* is dominant over smaller and ecologically less versatile pit vipers, often displacing them by means of competitive exclusion. *Porthidium lansbergii* is also known as a versatile species with a wide range of trophic and ecological habits (Campbell and Lamar 2004), and tends to be a dominant snake in Northern Colombian dry forests wherever low densities of *B. asper* neonates and juveniles are found (Mendoza *et al.* 2008). Both neonates and juveniles of *B. asper* present, up to a certain degree, dietary and habitat overlap with all age-groups of *P. lansbergii* (Martins *et al.* 2001, Campbell and Lamar 2004). However, competition, differences in reproductive cycles, diel activity, microhabitat preferences, and behavior, may account for spatial and temporal segregation between both species (Campbell and Lamar 2004, Acuña and Escorcía 2005). Encounters between these two vipers are more likely to occur during common parturition dates (July and September), where both species show high neonate abundance in riparian forests (Acuña and Escorcía 2005, J.S. Mendoza unpublished data). Viper ophiophagy in *B. asper* neonates may be

attributed to a density-dependent response, as has been shown in other cannibalistic events by Polis *et al.* (1985) and Campbell and Lamar (2004).

We have observed that, under natural conditions, the frequency of ophiophagy in *B. asper* is low, with snakes being one of its least representative prey items. The opportunistic nature of this feeding habit is suggested by a set of 40 prey items found in 50 *B. asper* stomachal contents where only 7.5% of total prey items were identified as snakes, comparable with the observations performed by Egler *et al.* (1996) in *Bothrops atrox*. The highly digested fragments of unidentified ophidians in this sample hinder calculations on the ophiophagy frequency of specific taxa. Our observations during an eight-months period on well-fed neonates of both species kept in captivity in a common enclosure, never evidenced predation events involving either species, suggesting the observed feeding behavior may be opportunistic in the wild. Additional field research on *Bothrops asper* ophidian preys from northern Colombian tropical dry forests is needed to reveal whether this feeding behavior is actually rare or more common than expected.



FIG. 1. Pitviper *Bothrops asper* neonate (right) besides its prey, a neonate *Porthidium lansbergii*. Note: Both specimens were photographed after being preserved through injection with formalin 10%, which distorted somehow their original shape; specially that of the *P. lansbergii* neonate.

Neonato de la víbora *Bothrops asper* (derecha) al lado de su presa, un neonato de *Porthidium lansbergii*. Nota: Ambos ejemplares fueron fotografiados después de haber sido preservados tras inyección con formalina al 10%, lo que distorsionó algo su forma original; especialmente la del neonato de *P. lansbergii*.

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