

SHORT COMUNICATION

Ninia hudsoni* (SERPENTES: DIPSADIDAE) AS PREY OF THE CORAL SNAKE *Micrurus hemprichii ortonii* (SERPENTES: ELAPIDAE) IN NORTHWESTERN AMAZONIA

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Abstract

Objective: To make a description of a predatory event by the *Micrurus hemprichii ortonii* coral snake on the *Ninia hudsoni* snake. **Scope:** Contribution to the knowledge of the natural history of Neotropical snakes, particularly in relation to trophic interactions. **Methodology:** Dissection in the laboratory. **Main result:** This is the first record of the trophic interaction between *M. h. ortonii* and *N. hudsoni*. **Conclusions:** The relation between the total length of the prey and the snout-vent length of the predator was very high (>90%), indicating that this species of coral snake can ingest preys of great volume and size in relation to its own body.

Key words:

***Ninia hudsoni* (SERPIENTE: DIPSADIDAE) COMO PRESA DE LA SERPIENTE CORAL *Micrurus hemprichii ortonii* (SERPIENTE: ELAPIDAE) EN EL NOROESTE DE LA AMAZONÍA**

Resumen

Objetivo: Realizar una descripción de un evento depredatorio por parte de la serpiente coral *Micrurus hemprichii ortonii* sobre la serpiente *Ninia hudsoni*. **Alcance:** Contribuir al conocimiento de la historia natural de serpientes neotropicales, particularmente en lo referente a interacciones tróficas. **Metodología:** Disección en laboratorio. **Principal resultado:** Este es el primer registro de interacción trófica entre *M. h. ortonii* y *N. hudsoni*. **Conclusiones:** La relación entre la longitud total de la presa respecto a la longitud rostro-cloaca del depredador, fue muy alta (> 90%), indicando que esta especie de serpiente coral puede ingerir presas de gran volumen y tamaño respecto a su propio cuerpo.

Palabras clave:

* FR: 18-X-2017. FA: 27-X-2017.

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CÓMO CITAR:

ROJAS-MORALES, J.A., CABRERA-VARGAS, F.A., RUIZ-VALDERRAMA, DH., 2018.- Short communication. *Ninia hudsoni* (Serpentes: Dipsadidae) as prey of the coral snake *Micrurus hemprichii ortonii* (Serpentes: elapidae) in northwestern Amazonia. *Bol. Cient. Mus. Hist. Nat. U. de Caldas*, 22 (1): 102-105.

DOI: 10.17151/bccm.2018.22.1.9



In relation to other groups of less charismatic and colorful snakes, the natural history of coral snakes is relatively well known (ROZE, 1996; CAMPBELL & LAMAR, 2004; MARQUES *et al.*, 2006, 2013). Ophiophagy is a common and widespread feeding strategy amongst coral snakes (CAMPBELL & LAMAR, 2004; ROZE, 1996), which are chemically oriented to detect prey (ROZE 1996). Additionally, the venom composition and toxicity of some coral snake species are specifically oriented towards ophiophagy (SILVA & AIRD, 2001).

The coral snake *Micrurus hemprichii ortonii* Schmidt, 1953, is distributed through the rainforests of the Northwestern Amazon, including the Andean foothills of Peru, Ecuador and Colombia (DIXON & SOINI, 1986; ROZE, 1996; SILVA-HAAD, 1994; MARTINS & OLIVEIRA, 1998). This species feeds upon elongate animals such as onychophorans (Peripatidae: Onychophora), lizards (*Leposoma*: Gymnophthalmidae), amphisbaenids (Amphisbaenidae), and terrestrial snakes of the genera *Atractus* and *Tantilla* (CUNHA & NASCIMENTO, 1978; SILVA, 1993; MARTINS & OLIVEIRA, 1998). In captivity, SILVA-HAAD (1994) reported individuals feeding on the snakes *Erythrolamprus reginae*, *Amerotyphlops reticulatus* and juveniles of *Bothrops atrox*. This indicates that *M. hemprichii* may prey upon a wide range of elongate syntopic species that present similar secretive habits. However, prey preferences are incompletely documented for this coral snake. In this note we present the first documented record (to our knowledge) of predation of *M. hemprichii ortonii* upon the terrestrial coffee snake *Ninia hudsoni* Parker, 1940.

On 5 December of 2015 at 05:10 h four killed snakes were sighted at the base of a shrub, in a public park in the suburbs of the city of Florencia, department of Caquetá, Colombia (1°38'02.2'' N, 75°36'18'' W, WGS84, 350 m. elevation). These were three specimens of *N. hudsoni*, and one *M. hemprichii ortonii* (472 mm snout-vent length [SVL] and 44 mm tail length [TL]) (Table 1). All the snakes were collected and deposited in the herpetological collection of the Museo de Historia Natural Universidad de la Amazonia (UAM-H).

The specimen of *M. hemprichii ortonii* (UAM-H 354), corresponds to a female found with its head damaged, which had been killed while swallowing one of the *N. hudsoni* individuals (UAM-H 353), and with only half the tail still protruding from the coral snake's mouth (Fig. 1A). Following dissection of the coral snake, we determined that the prey (346 mm SVL and 86 mm TL) was ingested headfirst (Fig. 1B, C) (Table 1). Despite the head damage of the *M. hemprichii* specimen, the ratio of prey total length [TTL] to predator SVL was very high, reaching 0.91 (Table 1, Fig. 1B).

The preyed individual of *N. hudsoni* is a Type IIb prey *sensu* CUNDALL & GREENE (2000), with an elongate and stout body relative to the predator. Other coral snake species have been observed preying on large items, such as *M. corallinus* (MARQUES & SAZIMA, 1997) and *M. paraensis* (SOUZA *et al.*, 2011).

Table 1. Summary of morphological characteristics of *Micrurus hemprichii ortonii* and its *Ninia hudsoni* prey referred to in this paper. n/a spaces correspond to scales impossible to count owing to body damage. Bracketed numbers correspond to scales in contact with the orbit and the genual scales, respectively.

Character/specimen	<i>Ninia hudsoni</i> UAM-H 353 (prey)	<i>Micrurus hemprichii ortonii</i> UAM-H 354
Snout-vent length (mm)	346	472
Tail length (mm)	86	44
Dorsals	21-21-19	15-15-15
Ventrals	148	181
Subcaudals	60	24
Cloacal plate	Entire	Entire
Supralabials	7-7(3-5)	n/a
Infralabials	8-8(1-5)	n/a
Postoculars	1-1	n/a
Temporals	1+2	n/a

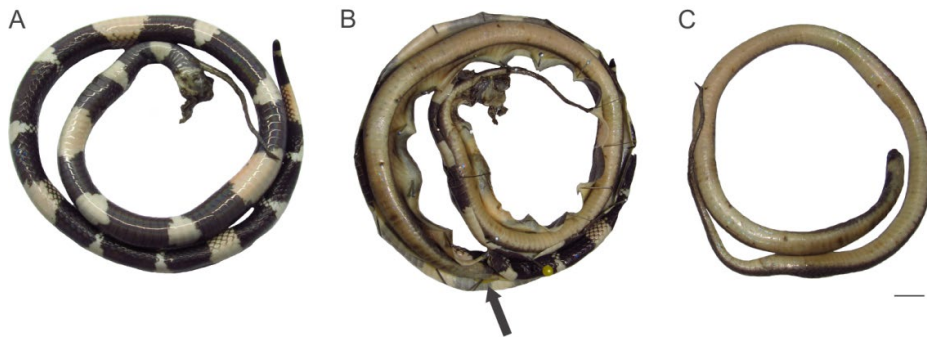


Figure 1. Female of *Micrurus hemprichii ortonii* (UAM-H 354), and its *Ninia hudsoni* prey (UAM-H 353) from municipality of Florencia, department of Caquetá, Colombia. (A) *Micrurus hemprichii ortonii* before dissection, with *N. hudsoni* tail protruding. (B) Dissection of *M. hemprichii ortonii*, arrow indicates the position of the prey's head in the posterior section of stomach. (C) Extracted specimen of *Ninia hudsoni* (UAM-H 353). Scale bar 10 mm.

Figure 1.

ACKNOWLEDGEMENTS

We are very grateful to Yarelis Mora for their help with laboratory instruments in the Museo de Historia Natural of the Universidad de la Amazonia. To Gustavo González (ICN), Mark O'Shea, Nelson Jorge da Silva (Pontificia Universidade Católica do Goiás), José Rancés Caicedo (Instituto Sinchi), Paulo Roberto Melo (Universidade Federal do Rio de Janeiro) and Ivan Sazima (Universidade Estadual de Campinas) for improved the manuscript with their suggestions.

REFERENCES

- CAMPBELL, J.A. & LAMAR, W.W., 2004.- *The venomous reptiles of the Western Hemisphere*. Ithaca, Comstock Publishing Associates, Cornell University Press. (2 volume).
- CUNDALL, D. & GREENE, H.W., 2000.- Feeding in snakes: 293–333 (en) SCHWENK, K. (ed.). *Feeding: form, function, and evolution in tetrapod vertebrates*. San Diego. Academic Press.
- CUNHA, O.R. & NASCIMENTO, F.P., 1978.- Ofídios da Amazônia X: as cobras da região Leste do Pará. *Publicações Avulsas do Museu Paraense Emílio Goeldi*, 31: 1-218.
- DIXON, J.R. & SOINI, P., 1986.- *The reptiles of the Upper Amazon Basin, Iquitos region, Peru*. Milwaukee Public Museum, Milwaukee, Wisconsin, USA.
- MARQUES, O.A.V., ALMEIDA-SANTOS, S.M., & RODRIGUES, M.G., 2006.- Activity patterns in coral snakes, genus *Micrurus* (Elapidae), in south and Southeastern Brazil. *South American Journal of Herpetology*, 1: 99-105.
- MARQUES, O.A.V. & SAZIMA, I., 1997.- Diet and feeding behavior of the coral snake, *Micrurus corallinus*, from the Atlantic forest of Brazil. *Herpetological Natural History*, 5: 88-93.
- MARQUES, O.A.V. PIZATTO, L., & ALMEIDA, S.M., 2013.- Reproductive strategies of new world coral snakes, genus *Micrurus*. *Herpetologica*, 69: 58-66.
- MARTINS, M., & OLIVEIRA, M.E., 1998.- Natural history of snakes in forest of the Manaus region, Central Amazonia, Brazil. *Herpetological Natural History*, 6: 78-150.
- ROZE, J., 1996.- *Coral Snakes of the Americas: Biology, Identification, and Venoms*. Malabar Florida, Krieger Publishing Company.
- SILVA, Jr., N.J., 1993.- The snakes from Samuel hydroelectric power plant and vicinity, Rondônia, Brazil. *Herpetological Natural History*, 1: 37-86.
- SILVA Jr., N.J., & AIRD, S.D., 2001.- Prey specificity, comparative lethality and compositional differences of coral snakes venoms. *Comparative Biochemistry and Physiology*, 128: 425-456.
- SILVA-HAAD, J.J., 1994.- Los *Micrurus* de la Amazonia colombiana. Biología y toxicología experimental de sus venenos. *Colombia Amazónica*, 7: 1-76.
- SOUZA, S.M., JUNQUEIRA, A.B., CONTE, A.C., ASSUNÇÃO, P.A., & CORREIA, J.A., 2011.- Feeding behavior and ophiophagous habits of two poorly known Amazonian coral snakes, *Micrurus albicinctus* Amaral 1926 and *Micrurus paraensis* Cunha and Nascimento 1973 (Squamata, Elapidae). *Herpetology Notes*, 4: 369-372.