



NOTA BREVE:

Intraguild predation case: *Tityus forcipula* Gervais, 1843 (Scorpiones, Buthidae) feeding on *Chactas vanbenedeni* Gervais, 1843 (Scorpiones, Chactidae) in Colombia

Jairo A. Moreno-González & Nicolás A. Hazzi

Sección de Entomología, Programa Académico de Biología, Facultad de Ciencias, Universidad del Valle, Sede Meléndez, Calle 13 No 100-00, Santiago de Cali, Valle del Cauca, Colombia.
E-mail: hansenochrus@gmail.com
E-mail: nicolashazzi@hotmail.com

Revista Ibérica de Aracnología

ISSN: 1576 - 9518.

Dep. Legal: Z-2656-2000.

Vol. 20

Sección: Artículos y Notas.

Pp: 117 - 120

Fecha publicación: 31 Enero 2012

Edita:

Grupo Ibérico de Aracnología (GIA)

Grupo de trabajo en Aracnología

de la Sociedad Entomológica

Aragonesa (SEA)

Avda. Radio Juventud, 37

50012 Zaragoza (ESPAÑA)

Tel. 976 324415

Fax. 976 535697

C-elect.: amelic@telefonica.net

Director: Carles Ribera

C-elect.: cribera@ub.edu

Índice, resúmenes, abstracts

vols. publicados:

<http://www.sea-entomologia.org>

Página web GIA:

<http://gia.sea-entomologia.org>

Página web SEA:

<http://www.sea-entomologia.org>

NOTA BREVE:

Intraguild predation case: *Tityus forcipula* Gervais, 1843 (Scorpiones, Buthidae) feeding on *Chactas vanbenedeni* Gervais, 1843 (Scorpiones, Chactidae) in Colombia

Jairo A. Moreno-González & Nicolás A. Hazzi

Abstract:

The first case of intraguild predation in the neotropical region by *Tityus forcipula* (Gervais) (Buthidae) predating upon *Chactas vanbenedeni* (Gervais) (Chactidae) in Yotoco Forest Reserve, Valle del Cauca, Colombia, is recorded. A comprehensive table including known records of intraguild predation is provided. Despite similarity between the microhabitats of both species, this observation of predation might be casual.

Key words. Scorpions, Chactidae, Buthidae, *Tityus forcipula*, *Chactas vanbenedeni*, intraguild predation, Colombia, Valle del Cauca, Yotoco.

Depredación intragremial: *Tityus forcipula* Gervais, 1843 (Scorpiones, Buthidae) alimentándose de *Chactas vanbenedeni* Gervais, 1843 (Scorpiones, Chactidae) en Colombia

Resumen:

Se registra el primer caso de depredación intragremial en la región neotropical por parte de *Tityus forcipula* (Gervais) (Buthidae) sobre *Chactas vanbenedeni* (Gervais), en la Reserva Forestal de Yotoco, Valle del Cauca, Colombia. Una tabla con los registros de depredaciones intragremiales conocidas es proporcionada. A pesar de la similitud de los microhábitats de ambas especies, la observación de la depredación podría ser casual.

Palabras clave. Escorpiones, Chactidae, Buthidae, *Tityus forcipula*, *Chactas vanbenedeni*, depredación intragremial, Colombia, Valle del Cauca, Yotoco.

Introduction

Scorpions are generalist predators, whose prey includes insects, small invertebrates, vertebrates and even other arachnids. However, scorpions are also the object of predation, including by other scorpions (Polis et al., 1981; McCormick & Polis, 1990; Botero-Trujillo, 2006; Flórez & Blanco-Torres, 2010). Polis et al. (1981) presented data on known predators of scorpions, including cases of intraguild predation (IGP) between sympatric species, suggesting that perhaps the greatest predators of scorpions are scorpions themselves. Despite this, reports about species in which interspecific predation has been observed in field are incredibly scarce and are largely based on laboratory observations (McCormick & Polis, 1990).

Only a few records of this phenomenon have ever been published. In their studies in North American deserts, Polis et al. (1981) and Polis et al. (1987) present the only two known records of IGP in a natural habitat (Table I). A relevant unpublished observation that was found, was of *Brachistosternus multidentatus* feeding on *Vachonia martinezi* in the dunes south of Buenos Aires, Argentina (A. Ojanguren-affilastro Pers. Comm.). However, we found no evidence of records of IGP having been made in the Neotropical region, and thus, knowledge of IGP in this zone remains poor. In this paper, we present the first report of IGP in the Neotropical region; specifically, IGP between two species of scorpions in their natural habitat, in a sub-tropical wet forest of Colombia.

Material and methods

At 12:00 pm on 03 February 2009 while performing daytime observations of arachnids during a field trip to the the Yotoco Forest Reserve, Department of Valle del Cauca, Colombia (03 ° 52 '50 "N, 76° 26' 17"W) (03 ° 52 '50 "N, 76 ° 26' 17 'W), a subtropical wet forest (Holdridge, 1967) with heights between 1300 - 1700 m.a.s.l. and located on the eastern slopes of the Western Mountain Range of the Andes, we detected, under a rotting log, an adult female of *Tityus forcipula* Gervais, 1843 feeding on an adult female of *Chactas vanbenedeni* Gervais, 1843 (Figure. 1).

The event was observed for 15 minutes, during which time the female of *T. forcipula* remained motionless and only made minor movements without ever leaving her prey, which was partially digested at the anterior region of the cephalothorax and mesosoma. After the observation, the rotten log was returned to its original position and we did not collect the observed individuals.

Results and discussion

Chactas vanbenedeni, is a species that lives in galleries inside and under rotting logs, under rocks, on slopes of soft substrate, and even makes use of the rock walls of human constructions to settle (J. Moreno, unpubl. data). Similarly, *T. forcipula* is usually found on the bark and branches of shrubs, or occasionally on the surface of soft substrate ravines, under decomposing logs, under rocks and sand (N. Hazzi, unpubl. data). Despite some differences, the types of microhabitats where both species reside are often the same.

Considering the time (midday) at which the observation was made, the status of recently predated *C. vanbenedeni* (partially digested) and the fact that scorpions eat their food in the same place that it is hunted, we can say that almost certainly this was a casual event of predation. We believe that the female of *T. forcipula* may have accidentally entered into the gallery of *C. vanbenedeni*.

Polis et al. (1981) suggested that a large percentage of cases of intraguild predation are attributable to females, while males mainly exhibit cannibalistic behaviors on individuals of the same species. Furthermore, they suggested that larger species tend to be predators of smaller species in environments where they share habitats.

Despite the conclusions of Polis et al. (1981) being made on species outside of the Neotropics, it is possible

to hypothesize that this may apply to *T. forcipula*, a large sized scorpion found in a wide altitudinal range (0- 1000 m.a.l.s); and similar to *C. vanbenedeni*; is a common element to the Choco region (Lourenço & Flórez. 1990) that is found along several habitats shared with other sympatric small sized species, such as *Tityus betschi* Lourenço, 1992 (J. Moreno, unpubl. data). In conclusion, we believe there is an essential need for future research on the natural history of Neotropical scorpions, to provide accurate information about their coexistence and the interactions between them.

Acknowledgements

We are very grateful to Camilo Mattoni (Universidad Nacional de Córdoba) for his corrections and useful suggestions on this contribution, to Ricardo Botero-Trujillo (PUJ) and Eduardo Flórez (ICN-UN) for their comments on early drafts of the manuscript. Also, special thanks to Andrés Ojanguren-Affilastro (MACN-Ar) for allowing the use of their field observations, and to Diana González and Luke Eggleston for english corrections.

References

- BOTERO-TRUJILLO, R. 2006. Anuran predators of scorpions: *Bufo marinus* (Linnaeus, 1759) (Anura: Bufonidae), first known natural enemy of *Tityus nematochirus* Mello-Leitão, 1940 (Scorpiones: Buthidae). *Revista Ibérica de Aracnología*, 13: 199-202.
- FLÓREZ, E. & BLANCO-TORRES, A. 2010. Registros de escorpiones incluidos en la dieta de anuros en la costa atlántica colombiana. *Revista Ibérica de Aracnología*, 18: 105-106.
- HOLDRIDGE, L. R. 1967. *Life zone ecology*. Tropical Science Center. San. Jose, Costa Rica.
- LOURENÇO, W. R. & FLÓREZ, E. 1990. Scorpions (Chelicerata) from Colombia. III. The scorpio-fauna of pacific region (Choco), with some biogeographic considerations. *Ama-zoniana*, XI (2): 119-133.
- MCCORMICK, S. J. & POLIS, G. A. 1990. Prey, Predators, and Parasites. In: POLIS, G. A. (ed.) *The Biology of Scorpions* Stanford, California: Standford University Press.
- POLIS, G. A., SISSOM, W. D. & MCCORMICK, S. J. 1981. Predators of scorpions: Field data and a review. *Journal of Arid Environments*, 4: 309-326.
- POLIS, G. A & MCCORMICK, S. J. 1987. Intraguild predation and competition among desert scorpions. *Ecology*, 68(2): 332-343.



Figure 1. Adult female of *Tityus forcipula* (Gervais) feeding on an adult female *Chactas vanbenedeni* (Gervais), under a rotten log.

Table I. Records of intraguild predation cases in scorpions. Showing: scorpion predator-prey, locality and author(s). *predation case presented in this paper.

Scorpion predator	Scorpion(s) prey	Locality	Author(s)
<i>Hadrurus arizonensis</i> Ewing, 1928	<i>Paruroctonus luteolus</i> <i>P. mesaensis</i> <i>Vaejovis confusus</i>	California (United States)	Polis et al. (1981) & Polis & McCormick (1987)
<i>P. luteolus</i> Gertsch & Sologlad, 1966	<i>P. mesaensis</i> <i>P. borregoensis</i> <i>V. confusus</i>	California (United States)	
<i>P. mesaensis</i> Williams, 1972	<i>H. arizonensis</i> <i>P. luteolus</i> <i>P. mesaensis</i> <i>V. confusus</i>	California (United States)	
<i>P. borregoensis</i> Williams, 1972	<i>P. luteolus</i>	California (United States)	
<i>V. confusus</i> Stahnke, 1940	<i>P. mesaensis</i>	California (United States)	
<i>H. concolorus</i> Stahnke, 1969	<i>Vejovoidus longitunguis</i> (Williams, 1969)	Guerrero Negro (Baja California, Mexico)	
<i>Brachistosternus multidentatus</i> Maury, 1984	<i>Vachonia martinezi</i> Abalos, 1954	South of Buenos Aires (Argentina)	Andrés Ojanguren-Affilaastro Pers. Comm.
<i>Tityus forcipula</i> Gervais, 1843	<i>Chactas vanbenedeni</i> Gervais, 1843	Yotoco (Valle del Cauca, Colombia)	*