

Short Communication

A case of predation on
Ancylometes rufus (Walckenaer, 1837) (Araneae,
Ctenidae) by *Tityus strandi* (Werner, 1939)
(Scorpiones, Buthidae) in Southern Amazonia

Um caso de predação de *Ancylometes rufus*
(Walckenaer, 1837) (Araneae, Ctenidae) por *Tityus*
strandii (Werner, 1939) (Scorpiones, Buthidae) no sul
da Amazônia

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Scorpions, for the most part, are potentially nocturnal generalist predators and consumers and are important in many communities (POLIS, 1990). They prey on annelids to small vertebrates and according to abundance their prey can be classified as casual, seasonal or annual, with arachnids and insects being the most common, having a direct positive correlation between predator body size and prey (POLIS, 1990).

Presently, among the 2,000 species of scorpions described in the world (SHARMA *ET AL.*, 2015), around 130 species recorded in Brazil are known (BRAZIL & PORTO, 2010). Of these, more than 75 occur in the Brazilian Amazon (LOURENÇO & PINTO-DA-ROCHA, 2000; LOURENÇO, 2002a,b; LOURENÇO *ET AL.*, 2004; BRAZIL & PORTO, 2010). Despite the advance in knowledge as to the richness of the Amazon scorpions in recent years, their diversity in this region is not fully known (*e. g.*,

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LOURENÇO, 2002a,b; LOURENÇO *ET AL.*, 2004, 2005; LOURENÇO & DUHEM, 2010; BRAZIL & PORTO, 2010), considering the scarcity of information which is influenced by a deficit of sampled areas and the shortage of specialists in the region (LOURENÇO, 2002b; PINTO-DA-ROCHA *ET AL.*, 2002; STOCKMAN & YTHIER, 2010).

Among the Buthidae, occurring in the Amazon, *Tityus* (Koch, 1836) presents greater abundance with 27 species known so far (LOURENÇO & RAMOS, 2004; LOURENÇO, 2005; BRAZIL & PORTO, 2010). The most opportunistic species in this region are *Tityus obscurus* (Gervais, 1843), *T. metuendus* (Pocock, 1897) and *T. silvestris* (Pocock, 1897) usually found in upland forests (LOURENÇO *ET AL.*, 2005; LOURENÇO & LEGUIN, 2008). Just like the last two species, *T. raquelae* (Lourenço, 1988) and *T. strandi* (Werner, 1939) can also be found with sampling being carried out with greater frequency (LOURENÇO, 2002b). *Tityus strandi*, which belongs to the subgenus *Tityus* (LOURENÇO, 2006), is distributed in the States of Amazonas, Pará and Mato Grosso (LOURENÇO, 1986, 1988, 2002b), and has been considered, along with other species, as terrestrial in upland areas and arboreal in areas of flooded forests (LOURENÇO, 2002b; LOURENÇO *ET AL.*, 2005; PINTO-DA-ROCHA *ET AL.*, 2002).

Spiders are considered as seasonal prey for scorpions and are available during a few months over the year (POLIS, 1990). The predation of spiders by species of *Tityus* was reported for *T. mattogrossensis* (Borelli, 1901) and *T. fasciolatus* (Pessôa, 1935), with the second being specifically of the Dipluridae, Lycosidae and Theraphosidae specimens (LOURENÇO, 1979a,b). The *Ancylometes rufus* (Walckenaer, 1837) (Araneae, Ctenidae) is a species which is widely distributed in the Amazon (HÖFER & BRESCOVIT, 2000; BRESCOVIT *ET AL.*, 2002), in the coastal regions of the Atlantic Forest (HÖFER & METZNER, 2015) and in enclaves of the Cerrado forests (CARVALHO & AVELINO, 2010). It is a terrestrial species, often found near aquatic environments probably due to increased food supply of both invertebrates and small amphibians, reptiles and fish (MOURA & AZEVEDO, 2011; NYFFELER & PUSEY, 2014).

This note registers a case of *A. rufus* predation by *T. strandi* in the Mato Grosso Amazon (see Fig. 1). The sampling was carried out in December 2009 at the Fazenda São Nicolau (9°51'16.9" S; 58°14'57.7" W), Cotriguaçu, Mato Grosso, Brazil. This property has 10,000 hectares, with 7,000 hectares of slightly degraded Amazon forest, 2,500 hectares of pastures and 500 ha of riparian forests. While walking along a track in an upland area for the manual collection of arthropods and amphibians, a *T. strandi* was seen preying on an *A. rufus* specimen. The predation was duly recorded and the individuals gathered. The spider was found dead and part of its abdomen had already been consumed by the scorpion. The registration took place in the morning, at around 10 am, on



Fig. 1. *Ancylometes rufus* (Walckenaer, 1837) (Araneae, Ctenidae) being preyed on by *Tityus strandi* (Werner, 1939) (Scorpiones, Buthidae) in the Mato Grosso Amazon.

the banks of a first order stream, a characteristic place for the occurrence of *A. rufus* (HÖFER & BRESCOVIT, 2000). The exact moment of the spider being captured by the scorpion was not recorded, however, it was possible to photograph the *T. strandi* carrying the individual *A. rufus* on the stem of a tree (Figure 1). The individuals are deposited in the Acervo Biológico da Amazônia Meridional (ABAM), Universidade Federal de Mato Grosso, *Campus* Universitário de Sinop (MT).

Some species of *Tityus* have been recorded climbing tree trunks and palm trees and on bromeliads in both upland environments and in floodplains in the Amazon (LOURENÇO, 2002b; LOURENÇO ET AL., 2005; PINTO-DA-ROCHA ET AL., 2002). The predation of *A. rufus* by *T. strandi* can be considered as occasional, considering the variety of smaller sized prey that can be consumed by the scorpion in this area.

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RESUMO

Aracnídeos em geral são importantes predadores em comunidades de artrópodes, com diferentes tipos de interações interespecíficas com outros táxons, incluindo outros aracnídeos. Assim este estudo registra um caso de predação de *Ancylometes rufus* (Araneae, Ctenidae) por *Tityus strandi* (Scorpiones, Buthidae) no sul da Amazônia, Mato Grosso, Brasil, contribuindo para o entendimento das relações entre estes táxons na região.

PALAVRAS-CHAVE: Arachnida; comportamento alimentar; floresta tropical; interações

SUMMARY

Arachnids in general are important predators on arthropods communities, with different types of inter-specific interactions with other taxa, including other arachnids. So this study registers a case of predation on *Ancylometes rufus* (Araneae, Ctenidae) by *Tityus strandi* (Scorpiones, Buthidae) in Southern Amazonia, Mato Grosso, Brazil, contributing to the understanding of the relationships among these taxa in the region.

KEYWORDS: Arachnida; feeding behavior; interactions; tropical forest

RÉSUMÉ

Les arachnides en général sont d'importants prédateurs, en communautés d'arthropodes, avec différents types d'interactions

interspécifiques avec d'autres espèces, inclus d'autres arachnides. Ainsi cette étude registre un cas de prédation d' *Ancylometes rufus* (Araneae, Ctenidae) par *Tityus strandi* (Scorpiones, Buthidae) dans le sud de l'Amazonie, Mato Grosso, Brésil, contribuant à la compréhension des relations entre ces espèces dans la région.

MOTS-CLÉS: Arachnida; comportement alimentaire; forêt tropicale; interactions

BIBLIOGRAPHY

- BRAZIL, T. K. & T. J. PORTO. 2010. *Os escorpiões*. Edufba, Salvador, 84 pp.
- BRESCOVIT, A. D.; A. B. BONALDO; R. BERTANI & C. A. RHEIMS. 2002. *Araneae*. In: ADIS, J. (ed.). *Amazonian Arachnida and Myriapoda - Identification keys to all classes, orders, families, some genera, and lists of known terrestrial species*. Pensoft Publishers, Sofia. pp. 303-343.
- CARVALHO, L. S. & M. T. L. AVELINO. 2010. Composition and diversity of the spider fauna (Arachnida, Araneae) from Nazareth Farm, José de Freitas Municipality, Piauí, Brazil. *Biota Neotropica*, 10(3): [http:// www.biotaneotropica.org.br/v10n3/en/abstract?article+bn00510032010](http://www.biotaneotropica.org.br/v10n3/en/abstract?article+bn00510032010).
- HÖFER, H. & A. D. BRESCOVIT. 2000. A revision of the Neotropical spider genus *Ancylometes* Bertkau (Araneae: Pisauridae). *Insect Systematic and Evolution*, 31:323-360.
- HÖFER, H. & H. METZNER. 2015. *Ancylometes*. [http:// www.ancylometes.de](http://www.ancylometes.de) (last access 30/03/2015).
- LOURENÇO, W. R. 1979a. The Buthidae scorpion: *Tityus mattogrossensis* Borelli, 1901. Morphology, ecology, biology and postembryonic development. *Bulletin du Muséum National d'Histoire Naturelle. Section A, Zoologie, biologie et écologie animales*, 1(1):95-117.
- LOURENÇO, W. R. 1979b. La biologie sexuelle et le développement postembryonnaire du scorpion Buthidae: *Tityus trivittatus fasciolatus* Pessôa, 1935. *Revista Nordestina de Biologia*, 2(1/2):49-96.
- LOURENÇO, W. R. 1986. Diversité de la faune scorpionique de la région amazonienne; centres d'endemisme; nouvel appui à la théorie des refuges forestiers du Pleistocène. – *Amazoniana*, 9(4):559-580.
- LOURENÇO, W. R. 1988. Synopsis de la faune scorpionique de la région de Manaus, État d'Amazonas, Brésil, avec description de deux nouvelles espèces. *Amazoniana*, 10(3):327-337.
- LOURENÇO, W. R. 2002a. *Scorpions of Brazil*. Les Éditions de l'If. Paris, France. 307 pp.

- LOURENÇO, W. R. 2002b. *Scorpiones*. In: ADIS, J. (ed.). *Amazonian Arachnida and Myriapoda - Identification keys to all classes, orders, families, some genera, and lists of known terrestrial species*. Pensoft Publishers, Sofia. p. 399-438.
- LOURENÇO, W. R. 2005. Scorpion diversity and endemism in the Rio Negro region of Brasília Amazonia, with the description of two new species of *Tityus* C. L. Koch (Scorpiones, Buthidae). *Amazoniana*, 18:201-213.
- LOURENÇO, W. R. 2006. Nouvelle proposition de découpage sous-générique du genre *Tityus* C.L. Koch, 1836 (Scorpiones, Buthidae). *Boletín Sociedad Entomológica Aragonesa*, 39:55-67.
- LOURENÇO, W. R. & R. PINTO-DA-ROCHA. 2000. Additions to the knowledge of the Chactidae of Brazilian Amazonia (Arachnida: Scorpiones). *Amazoniana*, 16(1/2): 259-274.
- LOURENÇO, W. R. & E. C. B. RAMOS. 2004. New considerations on the status of *Tityus magnimanus* Pocock, 1897 (Scorpiones: Buthidae), and description of a new species of *Tityus* from the State of Roraima, Brazil. *Revista Ibérica de Aracnología*, 10: 285-291.
- LOURENÇO, W. R. & A. E. LEGUIN. 2008. The true identity of *Scorpio (Atreus) obscurus* Gervais, 1843 (Scorpiones, Buthidae). *Euscorpius, Occasional Publications in Scorpiology*, 75: 1-9.
- LOURENÇO, W. R. & B. DUHEM. 2010. Further considerations on the genus *Ananteris* Thorell, 1891 (Scorpiones, Buthidae) in Brazilian Amazonia and description of two new species. *Boletín Sociedad Entomológica Aragonesa*, 47: 33-38.
- LOURENÇO, W. R.; P. C. MOTTA; F. S. P. GODOI & J. S. ARAÚJO. 2004. Description of a new species of *Bothriurus* Peters (Scorpiones, Bothriuridae) from the state of Tocantins, Brazil. *Boletín Sociedad Entomológica Aragonesa*, 34: 69-72.
- LOURENÇO, W. R.; J. ADIS & J. S. ARAÚJO. 2005. A new synopsis of the scorpion fauna of the Manaus region in Brazilian Amazonia, with special reference to an inundation forest at the Tarumã Mirim river. *Amazoniana*, 18 (3/4): 241-249.
- MOURA, M. R. & L. P. AZEVEDO. 2011. Observation of predation of the giant fishing spider *Ancylometes rufus* (Walckenaer, 1837) (Araneae, Ctenidae) on *Dendropsophus melanargyreus* Cope, 1877 (Anura, Hylidae). *Biota Neotropica*, 11(4): <<http://www.biotaneotropica.org.br/v11n4/en/abstract?short-communication+bn00211042011>>.
- NYFFELER, M. & B. J. PUSEY. 2014. Fish predation by semi-aquatic spiders: A global pattern. *PLoS ONE* 9(6):e99459. doi:10.1371/journal.pone.0099459.

- POLIS, G. A. 1990. *The Biology of Scorpions*. Ed. Stanford University Press, Stanford, CA, 587 pp.
- PINTO-DA-ROCHA, R.; T. R. GASNIER; A. D. BRESCOVIT & F. B. APOLINÁRIO. 2002. *Broteochactas fei*, a new scorpion species from Brazilian Amazonia, with notes on its abundance and association with termites. *Revista Ibérica de Aracnologia*, 6: 195-202.
- SHARMA, P. P.; R. FERNÁNDEZ; L. A. ESPOSITO; E. GONZÁLEZ-SANTILLÁN & L. MONOD. 2015. Phylogenomic resolution of scorpions reveals multilevel discordance with morphological phylogenetic signal. *Proceedings of the Royal Society of London B: Biological Sciences*, 282(1804) DOI: 10.1098/rspb.2014.2953.
- STOCKMAN, R. & E. YTHIER. 2010. *Scorpions of the World*. N.A.P. Editions, France. 572 pp.

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