Predation of herps by spiders (Araneae) in the Brazilian Cerrado

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Abstract. Two events of predation of herps by spiders in the Brazilian Cerrado are reported here. A lizard Micrablepharus atticolus (Sauria: Gymnophthalmidae) was found being preyed upon by Lycosa erythrognatha (Araneae: Lycosidae) and a frog Physalaemus cuvieri (Anura: Leiuperidae) was seen being preyed upon by Ancylometes sp. (Araneae: Ctenidae).

Keywords. Reptilia, Amphibia, Lacertilia, Squamata, Anura, lizard, frog, prey.

Predation is the greatest cause of mortality in natural populations and can occur in any life history stage (Zug et al., 2001). Arthropods, including spiders, are potential predators of reptiles and amphibians, with numerous reports in the literature (e.g. Bauer, 1990; Jehle et al., 1996; Armas, 2001; Manzanilla et al., 2008; Barbo et al., 2009). However, most of these studies report spiders preying on frogs, and this should be related to the preferentially nocturnal habits of these groups.

Bauer (1990) made a review of predation on geckos (Gekkonidae) by spiders and refers to these types of prey by the small size and its nocturnal habits. Blondheim and Werner (1989) and Schwammer and Baurecht (1988) reported several species of widow–spiders (Latrodectus, Theridiidae) preying on lizards (Mesalina guttulata and Podarcis melisellensis, Lacertidae). Armas and Alayón (1987) cited the lizard Anolis porcatus and A. sagrei (Polychrotidae) as being preyed upon by the banded-garden spider (Argiope trifasciata, Araneidae).

Anurophagy by spiders is well documented in recent reviews on the subject (Menin et al., 2005; Toledo, 2005), with most of the reports being from the Neotropics (Barej et al., 2009). Lannoo (2005) also provides a range of data on amphibians as prey of spiders.

In this note, we report two cases of herpetofaunal predation by spiders; a gymnophthalmid lizard and a leiuperid frog in the Brazilian Cerrado. The two events were observed in an area located at Rio Pardo Farm, municipality of Borebi, central region of São Paulo State (22°48’12”S 49°0’18”O, 650 m elev.), southeast Brazil.

On 28 August 2009 (10:04 h, 25° C) a wolf-spider Lycosa erythrognatha Lucas, 1836 was observed dragging a fragment of a gymnophthalmid lizard (Micrablepharus atticolus Rodrigues, 1996) in an area of open Cerrado. The lizard was already missing the head and limbs. Along with the body of the lizard was a part of the tail surrounded by spider web (Fig.1). It is probable that the spider had been feeding upon the lizard for several hours. Micrablepharus atticolus is a small lizard (less than 43 mm SVL), endemic to the Cerrado and associated with open areas (Rodrigues, 1996).

Reports of the spiders of the genus Lycosa preying on lizards have not previously been reported, but these spiders are known predators of frogs. Raven (1990) cites Lycosa lapidosa preying Litoria lesueurii (Anura: Hylidae) on the rocks of a creek bed. Owen and Johnson (1997) cite Lycosa sp. preying Pseudacris ocularis (Anura: Hylidae) on the ground near a water body. McCormick and Polis (1982) cite Lycosa carmichaeli preying upon Microhyla ornata (Anura: Microhylidae) and Lycosa barmanica preying upon Euphlyctis cf. cyanophlyctis (Anura: Dicroglossidae).

On 23 November 2009 (20:59 h, 21° C) a spider Ancylometes sp. was observed at the edge of a small temporary pond in an area of “Cerradão” (a subtype vegetation from Cerrado biome), 4 km away from the
first record. The frog *Physalaemus cuvieri* Fitzinger, 1826 jumped towards the pond, when the spider entered the water and captured the frog. The spider kept the frog at the edge of the pond, gripping it on the posterior with its cheliceras and with aid of the palpus (Fig. 2). The frog tried to escape, but the spider carried the frog away from the pond. The effect of the spider venom was fast, immobilizing the frog in a few seconds, and four minutes later the frog showed no more reaction. *Physalaemus cuvieri* is a small frog (less than 30 mm SVL), very common in Brazil that occurs in open areas, especially in the rainy season (Uetanabaro et al., 2008). The animals of both records were collected and incorporated at the Scientific Collection Jorge Jim, located at Departamento de Zoologia, Instituto de Biociências, UNESP, Campus de Botucatu, São Paulo State, Brazil (*voucher* CCJJ 7913).

Bernarde et al. (1999) reported three cases of spiders of the genus Ancylometes preying on *Dendropsophus minutus* (Hylidae). Prado and Borgo (2003) reported Ancylometes rufus preying on Scinax alter (Hylidae) and Menin et al. (2005) also cite this spider as a predator of *Dendropsophus minutus* and other anurans (*Dendrophryniscus minutus*, Bufonidae and *Leptodactylus andreae*, Leptodactylidae). Caldwell and Myers (1990) reported the predation on frog by spiders of the family Ctenidae, which are ambush predators. Pombal Jr. (2007) suggests that records of predation by invertebrates are more difficult to register, since it is necessary to observe the moment of predation. Menin et al. (2005) suggest that the use of soil as an environment for spiders is within the reach of small sized prey such as frogs, for example, and this relationship should be fairly common on the forest floor (Barbo et al., 2009).

The records presented here increase our knowledge of the relationship between spiders and the Cerrado herpetofauna, highlighting the existence of important trophic connections between these groups.

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Spiders predation on herps in the Brazilian Cerrado

References


Figure 2. Ancylometes sp. preying on an Physalaemus cuvieri. Photograph: Flávio Kulaif Ubaid.

