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# Predation on the lizard *Bachia heteropa* (Lichtenstein & Martens 1856) (Lacertoidea, Gymnophthalmidae) by the spider *Hapalopus triseriatus* Caporiacco 1955 (Aranae, Theraphosidae) in Northwestern Venezuela

Depredación del lagarto *Bachia heteropa* (Lichtenstein & Martens 1856) (Lacertoidea, Gymnophthalmidae) por la araña *Hapalopus triseriatus* Caporiacco 1955 (Aranae, Theraphosidae) en el noroeste de Venezuela

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**Abstract.** Within Squamata, snakes and lizards are potential prey for many arthropods, but little has been documented about predation involving spiders in northern South America, especially Venezuela. A predation event on *Bachia heteropa* (Gymnophthalmidae) by a *Hapalopus variegatus* spider (Theraphosidae) in a semideciduous forest near the town of Licua, Lara State, Venezuela is reported. This is the first record of predation by a spider of the genus *Hapalopus* on a fossorial lizard of the family Gymnophthalmidae in Venezuela. This anecdotal record reinforces the argument that spiders of the Theraphosidae family have relevant roles as predators of many snakes and lizards.

**Keywords:** natural history, arachnids, reptiles, northern South America

**Resumen.** Dentro de los Squamata, las serpientes y lagartos son presas potenciales de muchos artrópodos, pero poco se ha documentado acerca de la depredación que involucran arañas del norte de Suramérica, especialmente Venezuela. Un evento de depredación sobre *Bachia heteropa* (Gymnophthalmidae) por la araña *Hapalopus triseriatus* (Theraphosidae) en un bosque semicaducifolio cerca de la población de Licua, estado Lara, Venezuela es reportado. Este es el primer registro de la depredación de una araña del género *Hapalopus* sobre un lagarto fosorial del género *Bachia* en Venezuela. Este registro anecdótico refuerza el argumento de que las arañas de la familia Theraphosidae tienen roles relevantes como depredadores de muchas serpientes y lagartos.

**Keywords:** historia natural, arácnidos, reptiles, norte de Suramérica

The predation of vertebrates by invertebrates has been little explored and, therefore, underestimated, despite the fact that many arthropods consume lizards (Reyes-Olivares et al. 2020). Even so, there are reports on predation in neotropical lizards and snakes by different groups of invertebrates indicating its importance in the food chain (McCormick and Polis 1982, Maffei et al. 2010, Viera et al. 2012, Borges et al. 2016, Oliveira et al. 2017, da Silva et al. 2019, Von May et al. 2019, Luna et al. 2020, Machado-Bilce et al. 2021, Nyffeler and Gibbons 2021). Within arachnids, spiders exhibit a generalist diet (Riechert and Harp 1987), which includes a variety of hunting modalities, ranging from active foraging to ambush or sit-and-wait strategies (Willemart and Lacava 2017).

In Neotropical and Andean regions, spider predator and lizard prey interactions occur between Ctenidae and Theraphosidae spider families and lizard species of Datyloidea and Gymnophthalmidae of the latter all species reported are mostly cryptozoic or semifossorial habits and strictly diurnal (Reyes-Olivares et al. 2020).

Mygalomorphae (tarantulas in a broad sense), which comprises around 3,000 species included in 16 families, has its highest radiation in the tropics (Bond et al. 2012), and the species are mostly associated with the ground, nocturnal or twilight activity, and generalist diet. *Hapalopus* Ausserer 1875 (subfamily Theraphosinae) includes 9 spider species from Panama to northern South America. Of them, *H.*

*nigriventris* (Mello-Leitão 1939), *H. triseriatus* Caporiacco 1955, and *H. variegatus* (Caporiacco 1955) are present in Venezuela, and have not been reported to predate on lizards.

At 19:50 h, a nocturnal herpetological survey on April 28, 2021, to monitor the composition and diversity of reptiles and amphibians in xeric thorn scrub, semi-deciduous and cloud forests present in Licua, Crespo municipality, Lara State, Venezuela (10.3176 N, 69.1349W; altitude 560 m) was made. In the semi-deciduous forest, we sighted at ground level on the litter a black tarantula with a red pattern, identified as *Hapalopus triseriatus* using available taxonomic information. It was stationary but active and preying on an adult microteiid lizard *Bachia heteropa* (Lichtenstein & Martens 1856), near a stream that adjoins the path inside the forest. At the time of observation, the temperature was between 23°C and 26°C, with 75 % and 85 % humidity. Initially, the spider was observed 30 cm away from a *Xiphidium caeruleum* Aubl. plant. Although the capture of the lizard by *H. triseriatus* specimen was not observed, after a few minutes, the spider had consumed the approximately one-third of the body anteriorly from the head (Fig. 1), which it held tightly while moving in search of shelter.



**Figure 1:** Predation on *Bachia heteropa* (lizard) by the spider *Hapalopus triseriatus* in the Forest of Licua, Lara State, Venezuela. Photograph by Luis Felipe Esqueda. Figura 1: Depredación sobre *Bachia heteropa* (lagartija) por la araña *Hapalopus triseriatus* en la Selva de Licua, Estado Lara, Venezuela. Fotografía por Luis Felipe Esqueda.

Despite an interesting diversity of spiders of the Theraphosidae family in Venezuela, reports on predation on reptiles are not known. Therefore, our finding represents the first formal record for the family and *Hapalopus* genus predating on a reptile. Geographic and ecological information on the species of this genus in the country is discreet. However, when reviewing general information on predation (see Reyes-Oliveros et al. 2020) and our observation, we can speculate the following: (1) Under the predator-prey strategy idea, members of *Hapalopus* are strictly nocturnal, whereas the lizard *Bachia heteropa*, here reported as prey, is diurnal. This phase difference in predator-prey activity could suggest active foraging by this spider in obtaining possible prey, such as elongated-bodied reptiles. Despite the scant ecological information available on members of the *Bachia* genus in South America, documented

information shows that these lizards with reduced limbs are strictly cryptozoic, semifossorial or fossorial (Texeira et al. 2013, Ramos-Pallares et al. 2015) and under intense rains that saturate the ground, these lizards emerge and are sighted. In fact, in flooded forests, they are usually refuged within the bracts of water palms (pers. obs. Luis Felipe Esqueda 2004). Our observation does not allow us to dismiss the occurrence of a more habitual and non-opportunistic spider's active foraging strategy. (2) Predation from the head of this specimen of *B. heteropa* may involve a behavior reported in specialized predators, in which nutrient balance may be possible by selective eating of various body parts (Pekár et al. 2010). Since the predator physiology and behavior of arthropods have not been well-explored in reptile predation, documentation of the consumption disposition of the prey is relevant. (3) The semi-deciduous forests along the central-western axis of Venezuela (which exhibit a high richness in both reptiles and arachnids; data not yet published) are exposed to a strong reduction in their extension due to the conversion for different anthropogenic activities (Oliveira-Miranda et al. 2010). The conservation of these critically endangered semi-deciduous forests will allow the protection of poorly-studied predator-prey dynamics that involve reptile populations (Nyffeler 2000). This report contributes to filling the knowledge gap about lizard-invertebrate trophic interactions, contributing to the natural history of both.

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