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# Nota

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## Predation of the frog *Elachistocleis panamensis* by the spider *Ancylometes bogotensis*: first record

Depredación del sapo *Elachistocleis panamensis* por la araña *Ancylometes bogotensis*: primer registro

Gerson A. Salcedo-Rivera, José A. Fuentes-Mario and José Tovar-Márquez

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### Abstract

We record for the first time a predation event on a Panamá Humming Frog (*Elachistocleis panamensis*) by a Bogotá Giant Fishing Spider (*Ancylometes bogotensis*) in a tropical dry forest fragment in northern Colombia. We discuss aspects related to the predation behavior of *A. bogotensis* and some elements of *E. panamensis* as prey.

**Keywords.** Amphibians. Ctenidae. Microhylidae. Predator-prey interaction. Spiders.

### Resumen

Registramos por primera vez un evento de depredación del sapito de los termiteros (*Elachistocleis panamensis*) por la araña pescadora gigante (*Ancylometes bogotensis*) en un fragmento de bosque seco tropical en el norte de Colombia. Discutimos aspectos del comportamiento de depredación de *A. bogotensis* y algunos elementos de *E. panamensis* como presa.

**Palabras clave.** Anfibios. Arañas. Ctenidae. Interacción depredador-presa. Microhylidae.

## Introduction

Small toads are potential prey and constitute an important component in the diet of many predators (Diesel *et al.*, 2014; Rocha *et al.*, 2014); some arthropods as chilopods, crustaceans, insects and arachnids are known to prey upon them with distinct foraging methods (Menin *et al.*, 2005; Barej *et al.*, 2009; Maffei *et al.*, 2010; Moura & Azevedo, 2011; Diesel *et al.*, 2014; Pinto & Costa-Campos *et al.*, 2017).

Among arthropods, spiders are the most important and frequent predators of anurans (Barej *et al.*, 2009; Zaracho, 2012; Foerster *et al.*, 2017; Pinto & Costa-Campos *et al.*, 2017). There exists broad documentation on anurophagy by spiders, with most of the reports being from the Neotropics (Maffei *et al.*, 2010). Nonetheless, the impact of predation on amphibian populations remains unknown (Barej *et al.*, 2009) because most instances of spider attacks on amphibians are based on fortuitous observations of single events (Menin *et al.*, 2005; dos Santos, 2009).

Toledo (2005) found 68 reports of anurans as prey of invertebrates, from which approximately 48 % presented spiders as predators, especially of the families Pisauridae and Ctenidae (Moura & Azevedo, 2011). Ctenidae (Araneae) is composed by large nocturnal hunters (Barej *et al.*, 2009) that abound in neotropical forests (Bhukal *et al.*, 2015). These spiders are considered to be ambush predators (Maffei *et al.*, 2009) because they wait for their prey to be close enough to capture it (Foerster *et al.*, 2017), especially at the edge of water bodies (Bhukal *et al.*, 2015).

Here we report observations that constitute the first record of a predation event carried out by the spider *Ancylometes bogotensis* (Araneae: Ctenidae) on the frog *Elachistocleis panamensis* (Anura: Microhylidae) in Montes de María, Sucre, Colombia.

## Materials and methods

**Study area.** Our observation was made in a tropical dry forest fragment in the municipality of Colosó (subregion of Montes de María), department of Sucre, Colombia (9°31'53.555"N-75°20'53.027"W; 178 m a. s. l.).

**Methodology.** We observed a fortuitous and already started arachnid-amphibian predation case during nocturnal monitoring in the study area. We identified the species *in situ* following previous knowledge and with support in Höfer & Brescovit (2000). We registered time, temperature and relative humidity using a digital thermo-hygrometer (Max-Min Thermo Hygro & Clock; Brixco®). The description of the predation event was made based on the place of sighting and the behavior of individuals during observation. Lastly, we took a photograph with a digital camera.

## Results

An individual of *A. bogotensis* was observed when it was preying upon an individual of *E. panamensis* at 21:41 h on November 28<sup>th</sup>, 2016 during the rainy season (temperature: 27 °C; relative humidity: 82 %).

The predation case was recorded on a leaf of a shrub (≈0.40 m high) that was not identified, near a stream (≈2 m). The spider was holding the anuran with the chelicerae sunk into its low-abdominal region and with the aid of the pedipalps (Figure 1). No distress or agonistic call was heard; the anuran did not attempt to set itself free from the spider and it was paralyzed.



**Figure 1.** Predation on *Elachistocleis panamensis* by *Ancylometes bogotensis* in a tropical dry forest fragment from Colosó, Sucre, Colombia.

## Discussion

The genus *Ancylometes* (Ctenidae) shows a varied diet that ranges from insects to small vertebrates such as fish, tadpoles, frogs, toads and lizards (Bhukal *et al.*, 2015). Recently, *A. bogotensis* has been pointed as a predator on the crab *Poppiana dentata* (Decapoda: Trichodactylidae) (Bhukal *et al.*, 2015), the fish *Anablepsoides hartii* (Cyprinodontiformes: Rivulidae) (Deacon *et al.*, 2015) and the toad *Rhinella beebei* (Anura: Bufonidae) (White, 2015).

The observed behavior of nocturnal predation on leaves near bodies of water and the use of chelicerae and pedipalps to hold prey coincide with the published literature on the subject for *A. bogotensis*, the genus *Ancylometes* and other members of Ctenidae (Menin *et al.*, 2005; Barej *et al.*, 2009; Santana *et al.*, 2009; Maffei *et al.*, 2010; Moura & Azevedo, 2011; Bhukal *et al.*, 2015; Foerster *et al.*, 2017; Pinto & Costa-Campos *et al.*, 2017).

Also, the paralysis of *E. panamensis* during the observed predation by *A. bogotensis* agrees with previous records of predation by species of the Ctenidae family (Maffei *et al.*, 2010; Foerster *et al.*, 2017; Pinto & Costa-Campos *et al.*, 2017); for example, the poison of *Ancylometes rufus* is known to have a rapid effect, for it may immobilize an individual of *Dendropsophus brevifrons* in 45 seconds (Pinto & Costa-Campos *et al.*, 2017).

*Elachistocleis panamensis* is a small microhylid with a restricted distribution in central Panamá, the lowlands of the Magdalena River valley and the Caribbean region in Colombia (Blanco-Torres *et al.*, 2015). It is classified in the trophic guild of the insectivorous with nocturnal and terrestrial habits (Blanco-Torres & Renjifo, 2014). This frog is a little-known species, and information on its life history is scarce (Vera-Candioti, 2006; Blanco-Torres *et al.*, 2015).

The small size of *E. panamensis* is relevant for the current predation case because allows the species to be an easy prey of invertebrates (Guerra-Batista *et al.*, 2013; Foerster *et al.*, 2017). Nevertheless, the fossorial behavior along with the remarkably seasonal nature of this frog —it is only found after heavy rains, vocalizing

next to water bodies or inundated ponds (Romero-Martínez & Lynch, 2012; Blanco-Torres *et al.*, 2015)— suggest that it is probably not a common prey. On the other hand, previous and present data indicate the important role of *A. bogotensis* as a generalist and opportunistic predator, as pointed out by White (2015).

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