REPTILES & AMPHIBIANS

Two Cases of Ophiophagy by *Clelia clelia*, (Daudin 1803) (Squamata: Dipsadiidae), from the Bolivian Amazon and a List of Snake Species Recorded as Prey

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Clelia clelia (Daudin 1803), a medium to large opisthoglyph (typical total lengths 1,200–1,800 mm, maximum recorded size 2,250 mm) (Zaher 1996; Pizzatto 2005; Scott et al. 2006), has an extensive Neotropical range, which extends from Mexico to Argentina (Peters and Orejas-Miranda 1970; Cisneros-Heredia et al. 2007; Wallach et al. 2014; Nogueira et al. 2019; Uetz et al. 2022). In Bolivia, *C. clelia* has been recorded from the departments of Beni, Cochabamba, La Paz, Pando, and Santa Cruz (Fugler et al. 1995; Moravec and Aparicio 2005; Embert 2007; Quinteros and Aguayo 2021; Rivas et al. 2022).

The species is found in diverse ecosystems (primary and secondary rainforest, submontane forest, Cerrado, and Gran Chaco) and in various habitats (terra firma forest, flood plain areas, open and closed canopy forests, and forest edges) including disturbed areas and urban settings (Duellman 1978, 2005; Cei 1993; Fugler et al. 1995; Gonzales 1998; Martins and Oliveira 1998; Padial et al. 2003; Cortez-Fernández 2005; Scott et al. 2006; Pinto-Viveros et al. 2015; Mano-Cuellar et al. 2015; Eversole et al. 2021; Rivas et al. 2022).

Clelia clelia is primarily nocturnal but is also reportedly active by day (Duellman 1978, 2005; Rodriguez and Cadle 1990; Cei 1993; Martins and Oliveira 1998; Solórzano 2004; Scott et al. 2006; Delia 2009; Bernarde et al. 2012; Alencar et al. 2013; Chavarría and Barrio-Amorós 2014; Cacciali et al. 2016; Solórzano and Sasa 2022). Essentially a generalist (Alencar et al. 2013), the diet of *C. clelia* includes lizards, small mammals, occasionally birds, and snakes (including venomous species) (Duellman 1978, 2005; Dixon and Soini 1986; Teixeira et al. 1991; Cei 1993; Martins and Oliveira 1998; Solórzano 2004; Vaughan and Ruiz-Gutierrez 2006; Delia 2009; Alencar et al. 2013; Chavarría and Barrio-Amorós 2014; McCranie 2016; Barrio-Amorós and ter Harmsel 2017; De la Quintana 2017; Timofeevski et al. 2017; Wright et al. 2019; Quinteros and Aguayo 2021; Solórzano and Sasa

Fig. 1. Predation of *Helicops angulatus* by *Clelia clelia* in the Municipality of Riberalta, Beni, Bolivia. Photograph by Vincent Vos.

Fig. 2. First documented case of predation of *Hydrodynastes gigas* by *Clelia clelia* in the Municipality of Porvenir, Pando, Bolivia. Photograph by Eva Alvarez Freire.

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Table 1. List of snake species recorded as prey of *Clelia clelia*. Only species that have been referenced in the published literature are included. That which applies to captive snakes is marked with an asterisk (*).

Prey	References
Atropoides mexicanus	Solórzano 2004
Bothriechis schlegelli	Chavarría and Barrio-Amorós 2014
Bothrops andianus	Quinteros and Aguayo 2021
Bothrops asper	Campbell and Lamar 2004; Solórzano 2004; Solórzano and Sasa 2022
Boa constrictor	Beebe 1946; Martins and Oliveira 1998
Bothrops atrox	Beebe 1946
Clelia clelia	McCranie 2016
Drepanoides anomalus	Gaiarsa et al. 2013
Drymarchon corais	Cunha and Nascimento 1978
Erythrolamprus reginae	Duellman 1978
Helicops angulatus	Gaiarsa et al. 2013; this paper
Hydrodynastes gigas	This paper
Lachesis stenophrys	Solórzano 2004*
Leptodeira polysticta	Barrio-Amorós and ter Harmsel 2017
Ninia hudsoni	Wright et al. 2019
Porthidium nasutum	Solórzano 2004; Delia 2009
Pseustes poecilonotus	Solórzano and Sasa 2022
Xenodon sp.	Gaiarsa et al. 2013

2022) (see Table 1 for a list of snake species). Herein, we report two incidents of ophiophagy by *C. clelia* and add a new snake species to the list of documented prey.

At 2022 h on 22 December 2020, we observed an adult *Clelia clelia* on the road from Riberalta to Hamburgo, near the crossing of the Beni River in the municipality of Puerto Gonzalo Moreno, in the extreme north of the Beni Department, Bolivia (11.0117 S, 66.0867 W). We observed this individual quickly subdue and begin to ingest an adult *Helicops angulatus* that was in grassy vegetation alongside the road. The *C. clelia* launched a single strike and began ingesting the *H. angulatus* head first (Fig. 1). It then attempted to move away dragging the prey along the road while ingesting it. This encounter, which was partially documented in video (see http://doi.org/10.5061/dryad.qv9s4mwjr), closely resembled the predation behavior of *C. clelia* described by Quinteros and Aguayo (2021).

At 1028 h on 2 July 2022, an adult *C. clelia* was observed by a community member ingesting an adult *Hydrodynastes gigas* (Fig. 2) near the entrance of the community of Sante Fé, Municipality of Porvenir, northern region of the Pando Department, Bolivia (11.2167 S, 68.7311 W). In this case, both snakes were unfortunately killed by members of the local community due to their fear of snakes, which is a common occurrence in Bolivia and globally.

To our knowledge, the cases reported herein represent the first reports of predation of *Helicops angulatus* and *Hydrodynastes gigas* by *C. clelia.* The snakes observed in the field were not collected, but all three species were confidently identified by their coloration and morphology (Rivas et al. 2022). Both predation events took place in the Bolivian Amazon, an area known for its high biodiversity; however, few published reports on the natural history of its herpetofauna exist (De la Riva 1990; Fugler et al. 1995; Dirksen and De la Riva 1999; Moravec and Aparicio 2004, 2005).

Local residents identify *Clelia clelia* as "Culebra Negra" (Black Mussurana), whereas *Helicops angulatus* is identified as "Yope de Agua" or "Sicuricita" (Brown-banded Watersnake) and *Hydrodynastes gigas* as "Curichera" or "Cobra" (Swamp Snake). *Helicops angulatus* is often misidentified by local residents as venomous and potentially deadly (e.g., *Bothrops*). This common misidentification often leads to negative human-snake interactions that result in unnecessary and unwarranted killing of snakes.

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