Leptophis ahaetulla marginatus (Southern green parrot snake): Behaviour.

JONATHAN R. CLEGG

Para La Tierra, Reserva Natural Laguna Blanca, Santa Rosa del Aguaray, San Pedro, Paraguay.
Email: clegg.jonathan@rocketmail.com

Leptophis ahaetulla marginatus, the southern green parrot snake, is a diurnal, arboreal snake that occurs from southeastern Bolivia to western Sao Paulo State in Brazil, through Paraguay and southern Brazil to northeastern Argentina and Uruguay (Peters and Miranda, 1970). It is a large snake, up to 1500mm, and is an active forager in trees and bushes (Cei, 1993; Lopez et al., 2003). The diet of *L. a. marginatus* is reported to consist primarily of semiarboreal and arboreal hylid frogs, (particularly species from the genus *Scinax*) supplemented by birds (Lopez et al., 2003)

Trachycephalus typhonius (previously *T. venulosus*), the marbled tree frog, is an arboreal hylid species that *L. a. marginatus* is known to prey upon (Prado, 2003; Albuquerque and Di Bernardo, 2005). This is despite *T. typhonius* exuding a sticky, toxic secretion that deters predation in some snakes (*Drymarchon corais*, Leary and Razafindratsita 1998; *Leptodeira annulata*, Manzanilla et al., 1998)

On December 18th, 2010, the distress call of *T. typhonius* drew our attention to an adult *L. a. marginatus* attempting to predate an adult *T. typhonius* in Atlantic Forest at Reserva Natural Laguna Blanca, Departamento San Pedro, Paraguay (S23°49'44.3", W056°17'32.3"). The snake and frog were on branches approximately 4m from the ground. The *L. a. marginatus* had the posterior of the dorsum and legs of the frog in its mouth when we first located it at 2.55pm.

The struggle between the snake and frog lasted over an hour, and during this time the frog continued to perform the distress call as it began to break free from the snake (Fig 1). The frog eventually broke free and jumped from its position on the branch directly to the forest floor in one motion. The snake immediately chased the frog and tracked it the 4m distance from the branch to the forest floor. The frog had barely moved from its position on the forest floor when the snake once again grabbed the frog head first and consumed it without a struggle. Recapture predatory behaviour of snakes in snake-frog predator-prey interactions is rarely reported and is particularly interesting in this observation given the noxious skin secretions of *T. typhonius*.

It is likely that the skin secretion of *T. typhonius* acts as a viscous glue that loosens the grip of the snake and does not have a lasting toxic effect, at least in *L. a. marginatus*. Considering the immediate recapture and consumption of the frog, the defensive secretion of *T. typhonius* may not change the outcome of predation events between these two species.

Figure 1. Adult *T. typhonius* breaking free from adult *L. a. marginatus*. Photograph; J. Clegg.

Prado (2003) described another predation of *T. typhonius* by *L. ahaetulla*, in the Pantanal, Mato Grosso do Sui, southwestern Brazil, without struggle. Ingestion was complete after 28 minutes, despite glue like skin secretions of the frog visible on the snout of the snake. This predation event took place 1m from the ground, with the snake having consumed the frog head first (Prado, 2003). The present observation therefore suggests that despite the toxic skin secretion of *T. typhonius* having anti-predation effects on other snake species, predation on *T. typhonius* by *L. a. marginatus* is a frequent occurence and the secretions likely have limited or no effect.

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