

# Length record and regurgitation contents of a sunbeam snake (*Xenopeltis unicolor*) in Northeastern Thailand

Adam J. Aslam

Corresponding author: aaslam14@gmail.com

## INTRODUCTION

*Xenopeltis unicolor* is a primitive snake species characterized by highly iridescent scales and a dorsoventrally flattened skull (Smith, 1943; Frazetta, 1999). This non-venomous, nocturnal, subfossorial snake occurs in South and Southeast Asia, including Indonesia and the Philippines, occupying agricultural areas and lowland forests up to approximately 1000 m (Chan-Ard, 2010). It has unusual morphomechanical jaw apparatus attributes, including flexibly mounted teeth that allow for hinging or rotation (Savitzky, 1983).

The first documented case of predation was of a captive specimen taking a frog, and subsequently eating a frog, lizard or mouse approximately once per week (Mertens, 1943). Other captive sunbeam snakes were reported to consume a meal every 11.5 days on average, never exceeding 18% of their total body mass (Cox, 1993). Wild sunbeam snakes are known to eat reptiles, amphibians, rodents, snakes and birds (Wall, 1921; Smith, 1943; Chan-Ard, 2010; Martins, 2012).

## OBSERVATION AND DISCUSSION

On the night of May 17<sup>th</sup>, 2018, a reptile survey was being conducted in the vicinity of a small reservoir in the dry evergreen forest of Sakaerat Biosphere Reserve in Nakhon Ratchasima Province, Thailand. On this night, a large breeding aggregation of anurans in the reservoir and its banks was observed, which likely increased the activity of their predators such as *X. unicolor*. At 21:20, a sunbeam

snake (**Figure 1A**) was encountered approximately 1.5 m from the edge of the reservoir. Upon capture, it regurgitated two intact common tree frogs (*Polypedates leucomystax*) (**Figure 1B**) that appeared to have been recently consumed. Just before measurement, the specimen ejected a large mass of partially digested meals, including two *P. leucomystax*, and at least two unidentifiable anurans (**Figure 1C**). The total content expelled was at least six anurans, however this number is likely closer to ten due to the sheer quantity of partially digested material.

After regurgitation, the snake was measured. It weighed 1.05 kg and had a total length of 1.25 m. This is longer than any *X. unicolor* reported in literature. Previous maximum total lengths for wild caught specimens are reported as 1.00 m (De Rooij, 1917), 1.145 m (Smith, 1943) and 1.194 m (Bergman, 1955).

Their unique dentary features maxillae and a premaxilla that are fused by bone-to-bone connection, rather than by ligaments (Frazetta, 1999). This may prevent the possibility of taking large prey, thus necessitating predation on many small prey items rather than one large one (Cox, 1993; Frazetta, 1999). While predation on anurans has been previously recorded in *X. unicolor*, feeding on such a large scale has not. Prior literature had suggested that this species consumes one meal item at a time, however, here we show that this is not always the case (Mertens, 1943; Cox, 1993). Large anuran breeding aggregations likely prompt mass



**Figure 1.** Sunbeam snake and regurgitation contents. **A)** Specimen after two regurgitation events. **B)** Upon capture, the snake immediately ejected two frogs. **C)** Regurgitation contents before measurement includes additional frogs, as well as other unidentifiable digested material.

feeding by predators. The sunbeam snake may use these events to “stock up” while prey is abundant and distracted by the other sex. Perhaps this particular specimen was able to reach a record length by taking advantage of mass feeding opportunities. The sunbeam snake’s anatomy coupled with the behavior of their prey may encourage the binging activity that is observed in this paper. More work on the natural history and predator-prey

interactions of *X.unicolor* is needed to fully understand their feeding habits.

#### REFERENCES

- Bergman, R. (1955) The anatomy of *Xenopeltis unicolor*. *Zoologische Mededelingen*, **33**(22): 209-225.
- Chan-Ard, T., Nabhitabhata, J. and Parr, J. (2010) A field guide to the reptiles of Thailand. Oxford University Press.

Cox, M. (1993) Some notes on the sunbeam snake, *Xenopeltis unicolor*. *Bulletin of Chicago Herpetological Society*, **28**(5): 97.

De Rooij, N. (1917) The reptiles of the Indo-Australian archipelago, vol. II. Ophidia. Brill.

Frazzetta, T. (1999) Adaptations and significance of the cranial feeding apparatus of the Sunbeam snake (*Xenopeltis unicolor*): Part 1. Anatomy of the skull. *Journal of Morphology*. **239**:27–43.

Martins, B. and Rosa, G. (2012) *Xenopeltis unicolor* Boie, 1827 predation upon *Sphenomorphus* sp. *Taprobanica*, **4** (1): 48-51.

Mertens, R. (1943) Systematische und ökologische Bemerkungen über die Regenbogenschlange, *Xenopeltis unicolor* Reinwardt. *Der Zoologische Garten*, **15**: 213-220.

Savitzky, A. (1983) Coadapted character complexes among snakes: fossoriality, piscivory, durophagy. *American Zoologist*. **23**: 397–409.

Smith M. (1943) The Fauna of British India; Ceylon and Burma, Including the Whole of the Indo-Chinese Sub-region. In: Amphibia and Reptilia. III. Serpentes. Taylor & Francis.

Wall, F. (1921) *Ophidia taprobanica* or the Snakes of Ceylon, Colombo. Cottle.