

Measurements of the Big-Headed Turtle (*Platysternon megacephalum* Gray, 1831) (Platysternidae, Testudines) from Phu Luang, Loei Province, Northeastern Thailand

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ABSTRACT: A voucher specimen of *Platysternon megacephalum* is noted for its size being much larger than specimens previously reported. The specimen was measured and the results are herein recorded.

KEY WORDS: *Platysternon megacephalum*, Platysternidae, Big-headed Turtle.

INTRODUCTION

The Big-headed Turtle, *Platysternon megacephalum*, is an uncommon turtle that occurs in isolated localities at high elevations above 700 m in Northern and Western Thailand, Myanmar, and Laos. It is also found in Southern China and Vietnam at lower elevations (Cox, *et al.*, 1998). In Thailand it is classified as endangered (Nabhitabhata and Chan-ard, 2005).

Platysternon megacephalum earlier belonged to the Family Chelydridae (Snapping Turtles) (Gaffney, 1975) because of skull morphology. It now belongs to the Superfamily Testudinoidea, which includes Emydidae (Water Turtles and the more terrestrial American Box Turtles); the aquatic to semi-aquatic Geoemydidae; the highly diverse Bataguridae

that include more aquatic River Turtles and more terrestrial Asian Box Turtles, and Leaf Turtles; Testudinidae (Tortoises), of which most are strictly terrestrial (Zug, *et al.* 2001). Chromosome examination evidence later moved *Platysternon megacephalum* into the group including Old World Pond Turtles and Box Turtles (Haiduk and Bickman, 1982). It is the only member of its Family Platysternidae, which is a testament to its unique morphological characteristics.

As the common name Big-headed Turtle suggests, this species has a very large head, which cannot be retracted into its flattened shell. For a member of Testudinoidea, it also has an uncharacteristically long tail.

Phu Luang Wildlife Sanctuary is among a number of localities where

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Platysternon megacephalum has been recorded in Thailand. At that location, a specimen of exceptional size was measured.

Table 1. Measurements made on the Phu Luang Research Station voucher specimen PWSC 0001 of *Platysternon megacephalum*.

Character	Measurements	Note
Head Width	85 mm	
Head Length	80 mm	
Carapace length	255 mm	from end of nuchal scale
Carapace length (curved)	240 mm	
Carapace width (max.)	200 mm	
Carapace width (at front)	180 mm	
Plastron length	190 mm	
Plastron width (at bridge)	140 mm	
Plastron width (at anterior lobe)	100 mm	
Plastron width (at posterior lobe)	98 mm	
Bridge length	55 mm	
Tail	230 mm	

METHODS AND MATERIALS

A voucher specimen PWSC 0001 of the Big-headed Turtle (*Platysternon megacephalum* Gray, 1831) which is deposited at the Phu Luang Wildlife Research Collection (PWSC), Phu Luang Wildlife Research Station, Loei Province (Figure 1) was measured by the authors as follows in Table 1.

DISCUSSION

Many publications technical and semi-technical state the size of different species where species accounts are given. These are often taken from the record size given for a particular species. For *Platysternon*

megacephalum, these maximum sizes have been fairly consistent over the years. For measurements of turtles, the size is given as the standard for measurement is the carapace length.

Taylor (1970) is one of the few works in Thailand that offer specific morphometric measurements of *Platysternon megacephalum* other than simply the carapace length. He measured two specimens, cataloged as No. 1650, from Loei Province and No. 1651, which does not have a specified locality. Table 2 provides the information of these two specimens. The length of the carapace of these two specimens was 167 mm for both No. 1650 and No. 1651.

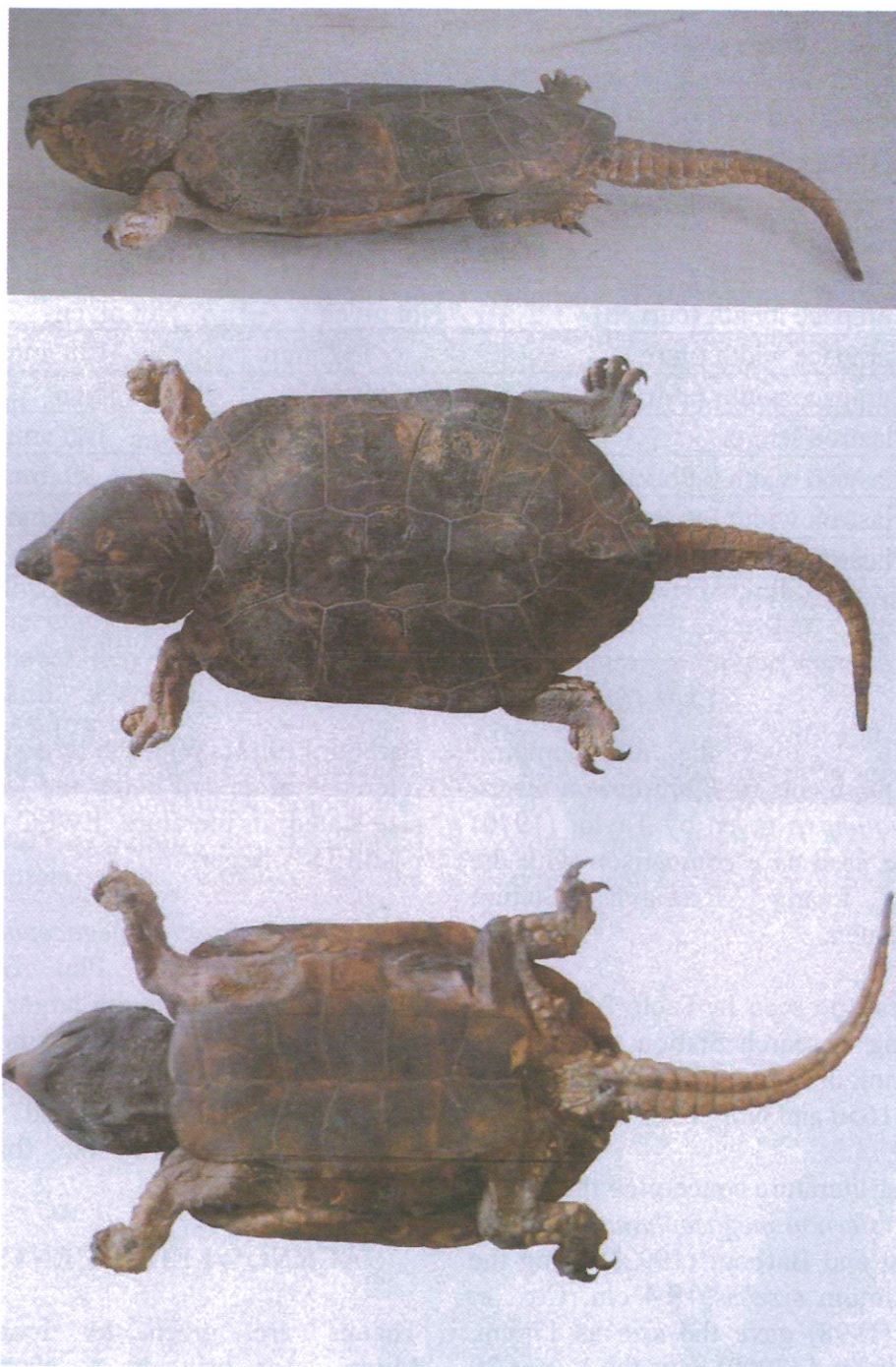


Figure 1. From top to bottom: lateral view, dorsal view and ventral view of the *Platysternon megacephalum* specimen PWSC 0001 from Phu Luang Research Station.

Table 2. Morphometric measurements made by Taylor (1970) on *Platysternon megacephalum*.

Taylor (1970) measurements	Measurements 1650	Measurements 1651
Head width	52 mm	54 mm
Head length	--	Not given
Carapace length	167 mm	167 mm
Carapace length (curved)	Not given	Not given
Carapace width (max.)	132 mm	128 mm
Carapace width (at front)	Not given	Not given
Plastron length	132 mm	136 mm
Plastron width (at bridge)	98.5 mm	99 mm
Plastron width (at anterior lobe)	63 mm	68 mm
Plastron width (at posterior lobe)	71 mm	74 mm
Bridge length	Not given	Not given
Tail	198 mm	broken

Table 2 gives the morphometric measurements of *Platysternon megacephalum* as given by Taylor (1970) to be used as a comparison with the Phu Luang Research Station specimen.

As can be seen in Table 2. The Phu Luang Research Station specimen is 88 mm, or 35% larger than specimens No. 1650 and No. 1651.

Other literature concerning the size of *Platysternon megacephalum* includes Ernst and Barbour (1992) giving the maximum size as 18.4 cm. Cox, *et al.*, (1998) gave the size as 17 cm. Nutaphand (2000) gave the size as 20 cm. Vetter and van Dijk (2006) stated the greatest length for the species, as 18-21 cm. Das (2010) gave the size as 184 mm, the same as Ernst and

Barbour (1992). With the largest size reference at 21 cm being the largest size stated, in literature, PWSC 0001 is still 18% larger.

The *Platysternon megacephalum* specimen from the Phu Luang Research Station is much larger than previously recorded maximum size and indicates a possible record sized specimen for Thailand and may represent the record size for its species.

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REFERENCES

- Cox M. J., P.P. van Dijk, J. Nabhitabhata, and K. Thirakupt. 1998. *A Photo-graphic Guide to Snakes and other Reptiles of Thailand and South-east Asia*. Asia Books, Bangkok. 144 pp.
- Das, I. 2010. *A Field Guide to Reptiles of Thailand & South-east Asia*. Asia Books, Bangkok. 376 pp.
- Ernst, C.H. and R. W. Barbour. Turtles of the World. Smithsonian Institution Scholarly Press. Washington D.C. 313 pp.
- Gaffney, E. S. 1975. Phylogeny of the chelydrid turtles: a study of shared derived characters in the skull. *Fieldiana: Geol.* 33(9): 157-178.
- Haiduk, M. W. and J. W. Bickman. 1982. Chromosomal homologies and evolution of testudin-oid turtles with emphasis on the systematic placement of *Platysternon*. *Copeia* 1982(1): 60-66.
- Nabhitabhata, J. and T. Chan-ard. 2005. *Thailand Red Data: Mammals, Reptiles and Amphibians*. Office of Natural Resources and Environmental Policy and Planning, Bangkok. 234 pp.
- Nutaphand, W. 2000. *Turtles of Thailand*. Translated by K. Thirakupt. Endemic Animals of Thailand Publishers, Bangkok. 208 pp. (in Thai).
- Vetter, H. and P.P. van Dijk. 2006. Terralog. *Turtles of the World Vol. 4 East and South Asia/ Schildkröten der Welt Band 4 Ost- und Südasien*. Edition Chimaira, Frankfurt am Main, Germany. 161 pp.
- Zug, G. R., L. J. Vitt and J.P. Caldwell. 2001. *Herpetology- An Introductory Biology of Amphibians and Reptiles*. Academic Press, San Diego, U.S.A. 630 pp.