



TAIL SPINE CHARACTERISTICS OF STINGRAYS (ORDER MYLIOBATIFORMES): A COMMENT TO SCHWARTZ (2005).

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Abstract: Freshwater stingrays from Thailand *Himantura chaophraya* and *H. cf. H. signifer* show high total tail spine serration count, close to what can be found in marine species. It seems therefore that total tail spine serration cannot be used to infer stingray habitat.

Key words: Stingrays, tail spines, *Himantura*, Thailand.

Introduction

Schwartz (2005) proposed that among Myliobatiformes there was a correlation between their total tail spine serration and their habitat frequenting. He stated that "Species like *Urogymnus ukpam*, that frequent freshwaters, possess total spine serrations of 21-50" (Schwartz 2005, p. 4) and that a total spine serration below 25 indicates a freshwater species (Schwartz 2005, p. 1). Serrations counts on tail spines from two freshwater *Himantura* from Thailand, *H. chaophraya* and *H. cf. H. signifer* seem however to contradict this hypothesis.

Material and Method

During a trip to Payuhakiri (range from 150 27' N 1000 07' E to 150 25' N 1000 08' E) (Nakhon Sawan Province, Thailand) in May 2001, the authors obtained from a local government officer, Kowit Kiatsewee, through his contacts with local fishermen, the distal part of a broken spine of a female *Himantura chaophraya*, 160 cm disk wide. During a second trip in February 2002, the authors obtained from the same person two complete spines of *Himantura cf. H. signifer*. The three spines are deposited in the collection of the Zoological Museum of the University of Copenhagen (ZMUC numbers). Unfortunately the *H. cf.*

H. signifer specimens were not measured (their disk width was around 30 cm) and their sexes were not determined. All specimens we have seen from the Chaophraya River possess a large pearl spine, while the type specimen of *H. signifer* from Indonesia is devoid of pearl spine (Compagno & Roberts 1982). Such a discrepancy between the Thai and Indonesian populations was already noted by Compagno and Roberts (1982), and we therefore refer the Thai specimens as *H. cf. H. signifer*, pending a revision of the species. Serrations were counted on these three spines.

Maximum size of the different species discussed in this article is taken from FishBase (<http://filaman.ifm-geomar.de/>).

Observations

The preserved distal part of the *Himantura chaophraya* tail spine (Figure 1) is 72 mm long, and there are 34 serrations on its left side, and 32 on its right side. The minimum total serration count is therefore 66. The spine ZMUC P08659 of *H. cf. H. signifer* is 87 mm long and show 32 serrations on its left side and 38 on its right side (total serration: 70), while ZMUC P08660 is 86 mm long and very asymmetric (Figure 2). There are 50 serrations on its left side and 39 on its right side (total serration: 89).

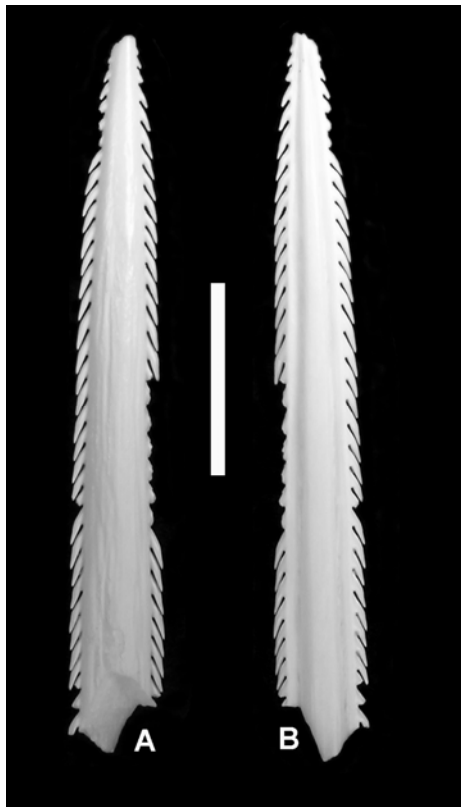


Figure 1: Distal part of the spine of *Himantura chaophraya* ZMUC P08658 in A: dorsal, and B: ventral view. Scale bar = 2 cm.

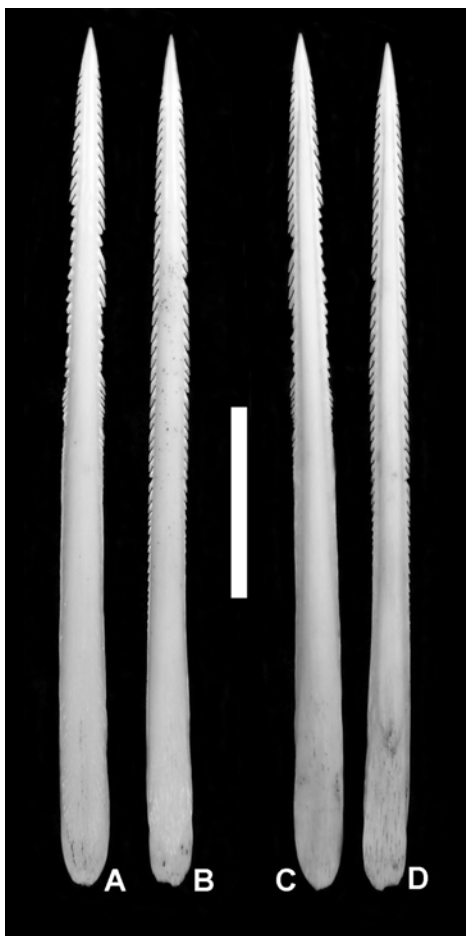


Figure 2: Two fin spines of *Himantura* cf. *H. signifer* in A and B: dorsal, and C and D: ventral view. A and C: ZMUC P08659, B and D: ZMUC P08660. Scale bar = 2 cm.

Discussion

With a minimum total serration count of 66, *Himantura chaophraya* would fall together with *Gymnura altavela*, *Myliobatis aquila*, and *Dasyatis margarita* as a near substrate inhabitant (Schwartz 2005), while it is a freshwater species (Last and Stevens 1994; Martin 2005). With a minimum total serration count between 70 and 89, *Himantura* cf. *H. signifer* would fall together with *Dasyatis pastinaca*, *Pteromylaeus bovinus*, *Himantura uarnak* and *Taeniura meyeni* as a midwater species, but again it is a freshwater species (Compagno and Roberts 1982). Size could not explain these discrepancies. The near substrate group of Schwartz (2005) encompasses a large array of different sizes, from *Gymnura altavela* that can reach a disc width of 400 cm to *Dasyatis margarita* that does not exceed 100 cm in disc width, and *H. chaophraya*, with a maximum disc width of 240 cm, does not fall outside the size range of this group. Same is true for the midwater group, which goes from *Dasyatis pastinaca* with a maximum disc width of 57 cm to *Taeniura meyeni* with a maximum disc width of 330 cm. *Himantura* cf. *H. signifer* with a maximum disc width of 60 cm again does not fall outside the size range of this group. Both *H. chaophraya* and *H. cf. H. signifer* show a higher serration counts than the euryhaline species *Urogymnus ukpam* (Martin 2005) although both *Urogymnus ukpam* (65 cm total length) and *Himantura* cf. *H. signifer* (60 cm disc width) are of similar size. It seems therefore that total serration count cannot be used to predict freshwater habitat for Myliobatiformes rays.

Conclusion

Available data do not support the hypothesis of a correlation between total spine serration and habitat frequenting among freshwater Myliobatiformes, and, contrary to what was proposed by Schwartz (2005), this character should not be used in the present state of our knowledge to try to infer the habitat of fossil species.

Acknowledgements:

The authors wish to thank Kowit Kiatsewee for his unvaluable help on the field, and the logistic support of the University of MahaSarakham. GC's work in Thailand was made possible through grants from the Danish Natural Science Research Council and Carlsberg Foundation.

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