Tracking ontogenetic shifts in cranial proportions of *Crocodylus moreletii*

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Abstract: The Morelet's crocodile (*Crocodylus moreletii*) is a medium sized crocodylian found throughout areas near Mexico's coast with the Gulf of Mexico and the Caribbean Sea, as well as into the Yucatan Peninsula and into Belize and Guatemala. Like all species of crocodylian, offspring hatch out measuring just a small fraction of what their maximum potential size can be. This, however, does not mean that they are perfect miniatures of their fully-grown counterparts. Though at first glance most bodily proportions seem similar, it is obvious upon closer inspection that they may be very different from those of an adult. When comparing a newly-hatched individual with an adult specimen, it is clear that the cranium, in particular, has undergone radical changes. Even comparing a neonate to a yearling shows significant ontogenetic shifts in cranial proportions. It is known that growth rates are highest during the first year of life for crocodylians and this is reflected through changes in proportions to the cranium (as well as other parts of the body) and later affects changes to other aspects of their biology as new prey items may be taken with increasing head size, dominance over other individuals may be more easily asserted, etc. Our study consisted of 13 captive-bred *C. moreletii* over the course of one year beginning at two weeks of age until 12 months. Each month, standard body length and weight measurements were taken for each individual, along with six basic measurements of the cranium: cranial length, snout length, cranial width, snout width, width at nares, and cranial height. These measurements served as the basis for our analysis of cranial proportions over the course of the first year which we hope may begin to identify periods where growth is accelerated, reduced, or maintained, as well as track growth on a bi-axial plane.

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