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Diet of Juvenile *Crocodylus porosus* at Kuching Wetlands National Park, Sarawak, East Malaysia

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Abstract The diet of juvenile, including hatchlings and presumed yearlings of the Saltwater Crocodile, *Crocodylus porosus*, was studied at the Kuching Wetlands National Park, western Sarawak, East Malaysia (Borneo), using both frequency of occurrence and volumetric composition of diet through the stomach flushing technique. Crustaceans form the primary component of the diet of juvenile crocodiles, comprising shrimps of the family Atyidae (*Caridina* sp., and *Penaeus indicus*), occurring in the stomach of 17 individuals (53% by occurrence). An estimated 91.7% of hatchlings stomach-flushed had shrimps, and the emergence of hatchlings may be associated by inland migration of its shellfish prey, as reported in the literature. The secondary food item of hatchlings and presumed yearlings was ocypodid crabs, occurring in 16 individuals (in addition to a subadult), and comprise 47%–50% by occurrence. Other items taken incidentally include rodents (in large yearlings, exceeding 100 cm in total length), and fish (in seven hatchlings and in one subadult), or in 29% of total individuals captured (47.7% in hatchlings and 15% in yearlings). A dietary change in ontogeny is therefore evident, as reported earlier in crocodilians.

Keywords saltwater crocodile, *Crocodylus porosus*, food, ecology, Borneo

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1. Introduction

The diet of the Saltwater Crocodile, *Crocodylus porosus*, is known to vary with habitat type, size, and age (Taylor, 1979). Yearling crocodiles in tidal rivers eat small mud crabs, prawns, and insects during the dry season, but predominantly consume insects during the wet season (Grenard, 1991). Juveniles in freshwater environments feed mainly on insects, while larger individuals (≥ 2 m) in tidal waters continue to eat crabs, fish and prawns, as well as small birds, aquatic reptiles (including turtles), rodents, and other mammals that venture to the water's edge (Webb *et al.*, 1982).

Among crustacean prey, ocypodid crabs and atyid prawns are frequently consumed, especially in mangrove habitats (Webb *et al.*, 1991; Shahrul and Stuebing, 1996). Unlike fishes, crabs and other aquatic macroinvertebrates, mammals and birds are typically found sporadically in or next to water, and crocodiles appear to search for sites of prey concentration, such as under trees hosting a flying fox colony or spots where herds of water buffaloes habitually feed (Bayliss *et al.*, 1986). Subadult crocodiles weighing 8.7–15.8 kg and measuring 1.36–1.79 m in length have been recorded killing and eating goats (*Capra aegagrus hircus*), weighing 50%–92% of body mass in Odisha State, eastern India, so are capable of attacking large prey from an early age (Webb and Manolis, 1991). The diet of early stages has been summarized to be more diverse than adults, which often ignore prey below a certain size (Magnusson, 2017).

There has been no studies focusing on the diet of crocodilians in Sarawak, and during the course of a wider investigation on the spatial ecology of *Crocodylus porosus* at the Kuching Wetlands National Park, between 2011–2012, data on the diet of juveniles were collected via stomach flushing. The intention of the study was to document the diet of this population in