

# **Population structure and abundance of *Crocodylus acutus* (Crocodylia: Crocodylidae) in the coast of Sinaloa, Mexico**

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**Abstract:** The American crocodile (*Crocodylus acutus*) is widely distributed in the New World and occurs in wide variety of habitats. However, the conservation status of the species locally is unknown in different regions of its distribution. Population abundance and structure are important parameters to evaluate and know the conservation status of a population. This study describes the population abundance and structure of *C. acutus* in six sites (El Verde Camacho-BV estuary, El Verde Camacho-BRQ estuary, Chiricahueto Lagoon, El Brinco estuary, Capomitos Stream and El Tular Stream) in Sinaloa, México. The field works were conducted during the period from January to October 2013 for five sites and 2016 for one, the number of individuals in these sites were counted to obtain population estimates. During nocturnal visual detection we recorded a total of 3434 crocodiles. Approximately 30.4 km were surveyed with a recorded general encounter rate of 14.2 crocodiles/km and in specific sites the encounter rate ranged from 8.4 to 42.7 crocodiles/km. The estimated population size using Messel's model ranged from 43 to 187 crocodiles. The distribution of class sizes observed was the following: 11% neonates, 45% juvenile, subadults 26%, adults 20% and 9% were recorded as EO (eyes only). The results of size-class distribution and abundance of crocodiles suggest that Chiricahueto lagoon and estuary El Brinco are two important sites for the conservation of *C. acutus*. The population structure observed shows a dominance of subadult and adult individual in the studied localities, indicates that the long-term recruitment is occurring, which is necessary to implement conservation strategies on these sites.

**Keywords:** Abundance population, Population structure, *Crocodylus acutus*

**Type of presentation:** Poster

**Thematic area:** Research and Knowledge (Population status)