

## Hematology and blood chemistry of Cuban crocodiles (*Crocodylus rhombifer*) at the Zapata Crocodile Farm, Cuba

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**Abstract:** The Cuban crocodile (*Crocodylus rhombifer*) is considered one of the most threatened crocodylian species in the world. The Zapata Crocodile Farm (ZCF) is home to the world's largest captive population of Cuban crocodiles and management practices currently include captive propagation for reintroduction. As sentinels for ecosystem health, biological samples from crocodylians can provide valuable data on individual animal and environmental health. As part of a multi-institutional partnership between the ZCF and Association of Zoos and Aquariums (AZA) institutions, health evaluations have been incorporated into the conservation efforts at the ZCF. In November 2019 we sampled 43 adult crocodiles (6 male:37 female) in human care at the Zapata Swamp Crocodile Farm in Matanzas, Cuba. Visual health evaluations were performed immediately after manual restraint and blood collection from the post-occipital sinus. We performed packed cell volume (PCV), total solids (TS), complete blood counts (CBC), and biochemistry profiles for each crocodile on the day of sampling. Mean PCV (n = 42) was  $21.1 \pm 5.0\%$  and TS (n = 42)  $7.3 \pm 1.2$  mg/dL, respectively. Absolute WBC (n=40) was  $9.6 \pm 5.7 \times 10^9/L$ . Like other crocodylian species, the dominant leukocyte was lymphocytes ( $70.7 \pm 10.4\%$ ), followed by heterophils ( $18.7 \pm 9.7\%$ ). Two of the crocodiles had high heterophil:lymphocyte ratios (0.87 and 0.74), although on visual exam they were both considered healthy. The range of creatine kinase was 41 – 1482 U/L, and may be a reflection of muscle exertion at time of handling. These are the first reference intervals reported for this species, including the first descriptions of WBC morphology and are valuable for the management of animals at the Zapata Swamp Crocodile Farm, for comparison with free-living Cuban crocodiles in Cuba, and for comparison with those managed in human care outside of Cuba. Determining reference values for farmed Cuban crocodiles is the first step in a One Health approach to conserving this critically endangered species. These values will be useful in identifying changes or diagnosing diseases in this population. Moreover, this data will be used to evaluate and guide management decisions at the ZCF, ensuring a healthy, sustainable population is managed for the long-term conservation goals of this unique species.

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