

Population status of the West African crocodile in the complex W-Pendjari Biosphere Reserves of Benin in West Africa

G. Nathalie Kpéra^{1,2}, Ridwane Bio Ouré^{2,5}, Barthélémy Kassa², Matthew H. Shirley^{*4,5}, C.A.M. Sylvestre Djaoun², A. Belarmain Fandohan³, Armand K. Natta⁶, Gaudens Djego², G. Apollinaire Mensah¹

¹National Institute of Agricultural Research of Benin (INRAB), Abomey-Calavi, Bénin (nathalie.kpera@gmail.com; mensahga@gmail.com)

²Laboratory of Applied Ecology (LEA), Abomey-Calavi, Bénin (ridwane.biooure@gmail.com; kbarthlmy@yahoo.fr; dchabi@gmail.com; gdjego@yahoo.fr)

³National Agricultural University (UNA), Kétou, Bénin (bfandohan@gmail.com)

⁴Florida International University, North Miami, Florida, USA (mshirley@rarspecies.org)

⁵Project *Mecistops*, Sarasota, Florida, USA (projectmecistops@gmail.com)

⁶Laboratory of Ecology, Botanic and Plant Biology (LEB), University of Parakou (armand.natta@gmail.com)

Abstract: The current taxonomic resurrection of the West African crocodile (*Crocodylus suchus*) calls for new assessment of their population in their potential habitat. We aimed to map the current distribution of *C. suchus* in the complex W - Pendjari Biosphere Reserve and to assess their abundance. Data were collected from November 2018 to November 2019. The distribution area of *C. suchus* was mapped with ArcGis 10.5 software using geographical coordinates of presence/absence points. And, we determined population size and structure during day and night counts on foot. *C. suchus* occurred in 54.2 % of water points of the complex (N = 83). A total of 389 crocodiles were recorded across the complex (77.6 % in the Pendjari Reserve and 22.4 % in the W), giving a relative abundance of 10.3 ± 1.13 crocodiles/km in the Pendjari Reserve and 11.4 ± 3.82 crocodiles/km in the W reserve. We used a Getis-Ord Gi* Hot Spot Analysis to show that the two main hot spots of occurrence were located in the most secure parts of the Pendjari Reserve (Getis-Ord Gi* Z score = 8.08; Confidence = 99 %) and W National Park (Getis-Ord Gi* Z score = 2.41; Confidence = 95 %). Based on comparison with previous efforts, the crocodile population in the Pendjari reserve is likely to be growing, while the crocodile population in the W reserve is threatened by siltation, illegal fishing and hunting, pollution by pesticides carried from outside the reserve, and illegal access of cattle which call for better management.

Keywords: *Crocodylus suchus*, Distribution, Illegal fishing and hunting, Conservation

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