Effect of protected areas type and repetitive surveys on two West African crocodiles: *Mecistops cataphractus* and *Crocodylus suchus*

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Abstract: Protected areas (PAs) are one of the most common conservation strategies to halt biodiversity loss. Different types of protected areas, which vary in the level of protection afforded, exist and their effect on biodiversity loss has been largely investigated only for terrestrial species. For aquatic or semi-aquatic species, such as crocodiles, few studies have examined their protection efficacy. We investigated the extent to which protected area type influences *Mecistops cataphractus* and *Crocodylus suchus* populations. We implemented repetitive surveys in 6 national parks, 7 classified forests, 2 community protected areas, and 5 sites completely outside protected areas in Cote d'Ivoire over the period 2015 to 2019. We noted all *M. cataphractus* and *C. suchus* sightings, as well as anthropogenic threats like fishing, artisanal mining, plantations, etc… We used mixed models to assess the effectiveness of each protected area type and to assess the impact of repeated surveys on crocodile wariness. On average national parks, which have a high level of protection, provide the most conservation advantage for both species, followed by community protected areas and classified forests. We found that the use of repetitive surveys for monitoring crocodiles has a mixed effect on their wariness – where a trend is difficult to detect. These results highlight the importance of action-based interventions in protected areas for species conservation and to ensure the future of West African crocodilians, and the need to consider the effects of increasing wariness when using repetitive surveys for crocodile monitoring.

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