

## Project Updates: January 2020

### Activities Undertaken and Methodology

This update covers parts of project activities 1, 2, and 3 (crocodile population and threat status surveys, social survey, and stakeholder consultation workshops respectively). The project began in the last week of July 2019 with a reconnaissance survey involving field surveys and review of reports from the media, Ghana Wildlife Division as well as hearsays aimed at identifying and confirming areas of species occurrence. A total of nine sites, (KNUST campus (KNUST), Fumesua Crop Research Institute (FCRI), Christian Village (CV), Parkoso (Park), Complex (Com), Esuyeboah (Ey), Kwadaso CRI (KCRI), Atasemanso (At), and Abuontem (Ab)), were reported to harbour the species. But the reconnaissance did not confirm any crocodile presence in Kwadaso CRI, hence this was removed from the main survey. Atasemanso and Abuontem which are traditionally protected in the city could not be confirmed since local access permits could not be granted at that time (but we hope to survey these sites as soon as we get the access). This preliminary work preceded a main survey by the project team. Both day and night surveys (four night surveys per site) were conducted on a 4 km standardised survey routes in five of the sites. The sixth site, Fumesua CRI, which is a dam, only had a complete round distance of 1.6 km. During the day surveys, site disturbances such as habitat encroachment (farming and settlement), and hunting indices (traps and empty cartridges from shootings) were recorded. The day surveys were also utilised in planning the nocturnal survey routes. The night surveys were utilised for recording crocodile encounters. Individuals were approached and their life-stages were determined based on the ocular estimation of each individual's length (Shirley et al., 2009; Smolensky 2015). Ten key informant interviews were also conducted per site where information on the historic occurrence of the species was obtained as well as their perception of habitat and population threats. Meetings were also held with selected key stakeholders serving as the beginning of all our subsequent stakeholder dialogues.

### Findings

A total of 68 encounters were recorded across all the six sites in 24 surveys covering a total survey distance of 21.6 km; KNUST (n=32), FCRI (n=3), CV (n=19), Park (n=10), Com (n=3), and Ey (n=1). The population status was estimated using the encounter rates and population structures following the guidelines defined in Shirley et al., (2009) and Smolensky (2015). I calculated the population structure as the relative proportions of the number of encounters per life stage per site and the encounter rates were calculated as the number of crocodile encounters per kilometre (Shirley et al., 2009; Smolensky, 2015). Generally, *Osteolaemus sp. nov. cf. tetraspis* population is dominated by adults and hatchlings (41.176% [n=28]; and 39.706% [n=27] respectively) with juveniles accounting for the lowest representation (19.118% [n=13]). However, at site level, the population was dominated by hatchlings in KNUST (hatchling=46.875% [n=15]; adults=34.375% [n=11]; and juveniles=18.750% [n=6]). A similar pattern was also observed in CV (hatchling=52.632% [n=10]; juveniles=10.526% [n=2]; and adults=36.842% [n=7]). This pattern is however different in park where the population is dominated by juveniles (juveniles=50% [n=5]; adults=30% [n=3]; and hatchlings=20% [n=2]). Interestingly, no hatchlings or juveniles were recorded at FCRI, Com, and Ey where all encounters were adults (n=3, 3, and 1 respectively) resulting in an adult bias population structure in these three sites. The encounter rates were high in KNUST ( $2.000 \pm 0.540/\text{km}$ ), CV

( $1.188 \pm 0.516/\text{km}$ ), and Park ( $0.625 \pm 0.144/\text{km}$ ), but were low for FCRI ( $0.188 \pm 0.240/\text{km}$ ), Com ( $0.188 \pm 0.240/\text{km}$ ) and Ey ( $0.063 \pm 0.125/\text{km}$ ). Environmental determinants of the observed population and distribution patterns were hunting, habitat loss due to settlement and farming encroachment, dredging of stream channels, and the lack of awareness. The majority of the key informants interviewed reported that crocodiles were frequently and abundantly spotted 10-20 years ago in all the sites.

### **What Next?**

Next on our schedule are: 1) Dry season crocodile surveys and habitat threat assessment; 2) Two stakeholder consultation and capacity building workshops (1 day each for the middle of the project, and end of the project); 3) Market surveys to ascertain information on crocodile meat trade and local perception on crocodile conservation; 4) Community education and school outreach programs; and 5) The remaining days will be used in planning, organizing, Monitoring and evaluating, data analyses, report writing, and dissemination.



Adult dwarf crocodile.



Hatchling dwarf crocodile



Left: Inspection of a hatched nest. Right: Inspection of a failed nest.



Habitat encroachment for farming.