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Preliminary Information on the Density and Distribution of Duikers in the Oban Sector of Cross river National park, Nigeria

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Introduction

Duikers (Cephalophinae) represent a very high percentage of animal species killed for meat across forested West and Central Africa. In Nigeria, duikers (Cephalophinae) have not received any serious conservation attention. No effort has been made to determine their abundance or threats to their population at any level as it has been in East and Central Africa (Plumptre, 1994 and Lwanga, 2006,). Estimation of animal abundance across land use gradient in any conservation programme is to answer some important questions relating to conservation, such as habitat preference of animal species, effect of human activities such as hunting and habitat destruction on population dynamics and also to understand the response of animals to conservation efforts. These are not fully addressed in the Oban Sector of Cross River National Park, Nigeria. This study was conducted to estimate the current level of abundance, density and distribution of duikers in four land use types in the study area with a view to generating data for sustainable management planning.

Study Area

The Oban Hill Sector of Cross River National Park is located in Cross River State, Nigeria. The total area is about 3,000km^2. It shares boarder with Korup National Park, Cameroon in the east. It falls within latitudes 05^{0}15' and 05^{0}25'N and longitudes 08^{0}30' and 08^{0}45'E.

The Sector is divided into two corridors, the West and East Corridors. With the permission of the park authorities and the communities, this study was conducted in the two corridors. Two villages each were purposefully selected from each of these corridors including: Obung/Old Netim (05^{0}21' N, 08^0 26'E) and Old Ekuri (05^{0}53'N, 08^0 7'E from the West and Aking/Osomba (05^{0}25'N, 08^0 38'E), and Ekang (05^0 40'N, 08^{0}49'E) from the East (Fig. 1).

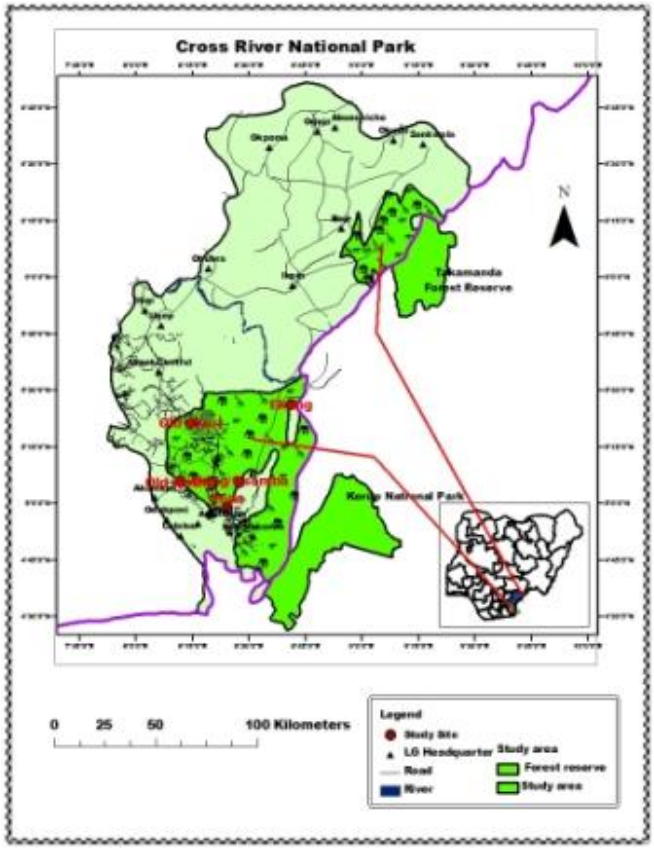

Fig:1 Map of the study area

Data collection

We assessed the current status of duiker populations in the study area using distance sampling method.Thirty two transects (2 km each) were established covering an area of 64 km^2. Eight transects each were located in the Core, Buffer, Farm Fallow and Plantation. Location of these transects followed Buckland *et al.(*1993); Rovero and Marshall (2004); and Waltert *et al*.

(2006). Four diurnal and nocturnal walks were conducted on each of the transects. For each observation, the time, species, number of individuals, perpendicular distances, sighting distances from the animal to the observer, and the position of the observer were recorded. Using habitat as a covariate in modelling detection probability in DISTANCE 6.0, we calculated density of each species and for each habitat.

Result

After 508 km survey efforts on these transects, only two out of the four species of duikers known in the region were recorded, namely: Ogilby's (*Cephalophus ogilby*) and blue duiker (*Cephalophus monticola*). They were sighted 39 and 9 times respectively. A total of thirty sightings were made in the core zone (close-canopy forest) and sixteen in the buffer zone (secondary forest). Two *Cephalophus monticola* were sighted in the farm fallow at Ekuri. There were no sightings in the plantation.

The two larger duiker species known in the region (yellow-backed, *C. sylvicultor* and bay, *C. dorsalis*) were not observed. For blue duiker, estimated densities ranged from 15.5 (95% Confidence Interval C.I.: 7.8 - 30.9)/km^2 in the core, 5.8 (C.I.: 2.6-12.9)/km^2 in the buffer and 0.9 (C.I.: 0.09-10.1)/km² in fallow to no duikers in the plantation. For Ogilby duiker, estimated densities ranged from 1.6 (95% C.I.: 0.7-3.7) individuals /km² in the core, 2.0 (C.I.: 0.8 - 5.1)/km² in the buffer to no duikers in farm fallow and plantation. Based on these estimates, population sizes were estimated at a minimum of 16,000 individuals (lower bound of the 95% Confidence Interval) for the blue duiker and 1,600 individuals (lower bound of the 95% Confidence Interval) for the Ogilby duiker in the 2,866 km² study area, with highest occurrence in the 2,064km² core area of the Park (lower bound of C.I.: 16,100 blue and 1,400 Ogilby duikers).

The Mean Encounter Rate (MER) for core zone was 0.21/km for *C. monticola* and 0.03/km for *C. ogilby*. The respective MER for C. *monticola* and *C. ogilby* in the buffer zone were 0.08/km and 0.04/km, while the MER for C. *monticola* in the farm fallow was 0.02/km. The MER for the four strata is 0.078/km for blue duiker and 0.018/km for Ogilby duiker.

Discussion

The park still has some reasonable population of blue duiker. However, the Ogilby duiker seems to be on the decline which may be due to land use and hunting pressures (Lwanga, 2006). The other two species- Bay and Yellow-backed duikers though previously reported in the area (Happold, 1987), may be locally extinct. The current density and encounter rate of Ogilby duiker indicate that if urgent and adequate conservation measures are not taken, the species may go the way of the other two species.

Blue duiker's density and abundance varied across three of the four land use types with the exception of plantations where no duikers were found. This variation may be attributed to differences in land-use pressures. It is very imperative that awareness campaigns and protection efforts be intensified in the study area .

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