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PRELIMINARY ASSESSMENT OF THE DISTRIBUTION OF LARGE MAMMALS WITHIN IDANRE FOREST RESERVE, ONDO STATE, NIGERIA

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ABSTRACT

The distribution of large mammals in Idanre Forest Reserve was assessed using the line transect method with a total number of five (5) transect lines and employing the use of Global Positioning System (GPS) to take the different points and location of different species of large mammals both sighted directly and indirectly. It was observed that transect C and D (within the undisturbed forest) 45 and 38 sightings respectively which were evenly distributed within this transects. It was also observed that transect C had 30.41 % the highest rate occurrence in terms of distribution of signs of large mammals. The study also revealed that in terms of vegetation cover preference, all of the large mammals were distributed with the undisturbed forest habitat while the Cephalophus silvicultor were not distributed within the disturbed forest and the farm land .Also, all the primates were available within all the habitat types with the exception of Cercocerbus torquatus which is not distributed within the Cercocebus torquatus farmland. The research revealed that there are still some significant amounts of large mammals within the reserve and if well conserved in terms of enforcement of strict adherence to forest laws, there will be an increase in terms of the distribution within their natural habitat and reduced dispersal outside their natural place of abode.

Keywords: Assessment, Distribution, large mammals, Idanre Forest Reserve

INTRODUCTION

Tropical forests are known to be a major spot for terrestrial mammal diversity and they sustain more than half of all species of large-sized to medium-sized mammals (Ceballos and Ehrlich, 2002). The forests of the tropics are being degraded and destroyed at a very high rate which is been driven by increased human population size and consumption rates (Hansen *et al.*, 2013; Chapman *et al*., 2010).

However, due to expansion of human settlement and agricultural activities, the natural habitats range of many wildlife species have reduced drastically. As a result, wildlife populations are forced to inhabit secluded habitats such as National parks, Game reserve, Forest Reserve, and other Protected Areas (Mamo and Bekele, 2011; Girma *et al*., 2012).

In Nigeria, forest reserves are shrinking in sizes at a rapid rate due to population explosion at all levels thereby, increase in demand for forest land for agriculture and other forest products such as bushmeat, fuelwood and timbers. The anthropogenic activities like fishing, hunting, ecosystem fragmentation, agriculture, tourism and human population settlement are prone to have some degree of ecological effect on wildlife resources and have subjected to intensive studies over years (Wahab, 2014).

The study of the Idanre forest reserve seeks to investigate the level at which ungulates are distributed within their shrinking habitat within the reserve.

MATERIALS AND METHODS

Study Area

Idanre Forest Reserve is a reserve set aside for the preservation or controlled use of flora composition of the forest especially trees. It is situated in Idanre Local Government Area of Ondo State, Nigeria. It covers an area of 540.45km^2 and bordered by Akure-Ofosu Forest Reserve and Ala forest reserve. The forest reserve is situated between latitude 6^o 45' and 06^o 58' 32''N and longitude 04^o 59' 15''E and 05^o 12' 4'' in the lowland forest zone in Ondo State. Rainfall in the area is usually about 2000 mm annually distributed over ten months from February to November. The vegetation is mainly secondary forest with patches of primary forest at higher elevation in rugged terrain.

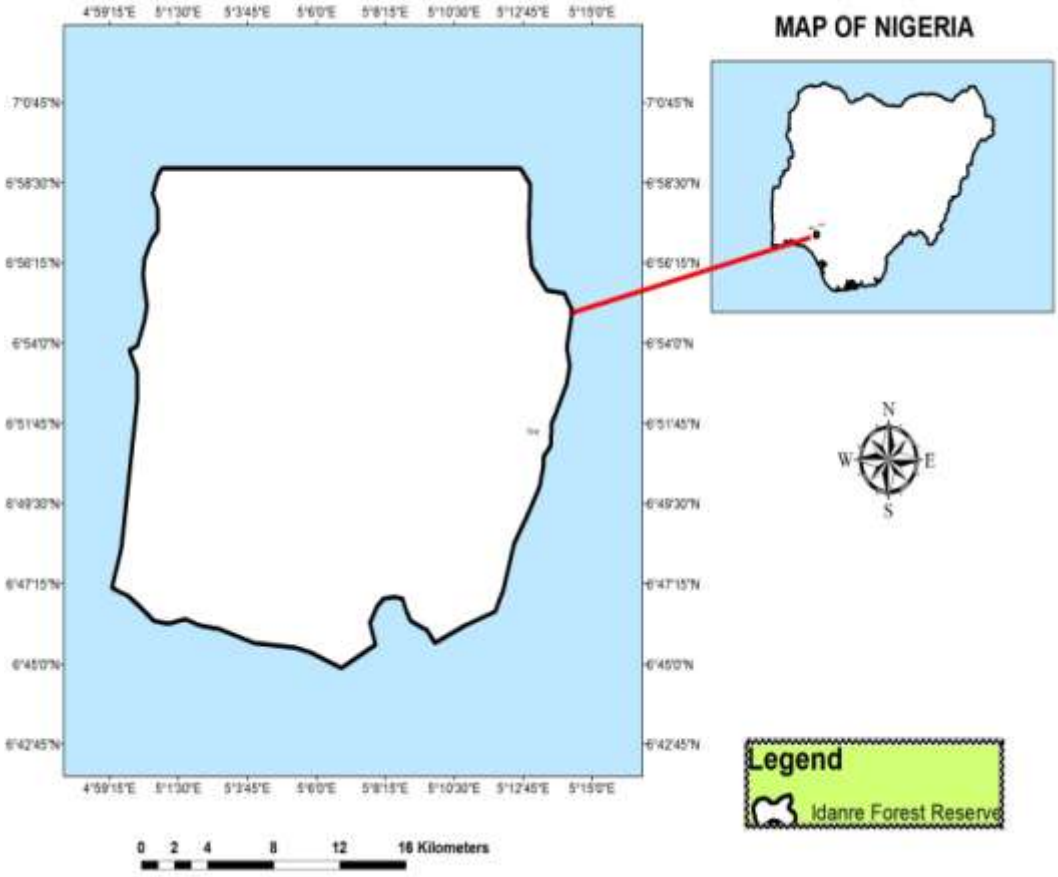

Figure 1: Map of Nigeria Showing Idanre Forest Reserve, Ondo State.

Data Collection

Five (5) transects were selected within the forest reserve covering a distance of 30.2km (A=6.0 km, B=4.0 Km, C=7.2 Km, D=8.0Km, E= 5.0Km) and these transects, were established along hunter's trails and along natural landmarks such as streams. The survey was carried out as described by Awoku and Ogunjemite (2017). These transects were traversed twice daily for two weeks each in each month between the month of August and November 2014. Enumeration was done from 0600-1100h and 1500-1800h. Enumerators (the researcher and experienced hunters) walked quietly and slowly along these transects at a rate of 1.0km per hour. The period of traversed were interspersed with period of silent and watch to increase the possibility of detecting animal that might hide or flee upon the approach or movement of the observers (Buckland, *et al* 1993).

When animal or groups of animals are seen, a standard time of ten minutes was spent observing and taking records of their activities. At each sighting, the coordinate of sighting was taken (using Garmin GPS MAP 62s) alongside the information.

RESULTS

Distribution

Forty-five (45) sightings were recorded on transect C (Figure 2) representing 30.41% of all the sightings. Most of the animal species were sighted using indirect indices such as faecal droppings, footprints, activities sign, animal trail and animal calls with the exception of the primate species which were seen directly. While 21 sightings representing 14.19 % of all the sightings were recorded on transect A. comprising on six (6) out of the nine (9) species recorded. On transect B, 30 sightings were recorded denoting 20.27 % of all the sighted species recorded. Comprising of seven species out of the nine species recorded in the reserve (Table 1).

Also, 38 sightings were recorded for transect D representing 20.27 % of animals sighted. On transect D, all the animal species surveyed were fully represented. Only five sightings (9.46 %) were recorded on transect E. Comprising none of the animals directly observed in the reserve.

Table 1: Large mammal's distribution based on transects used in Idanre Forest Reserve, Ondo State.

Animal species	Transect A	Transect B	Transect C	Transect D	Transect E
Syncerus caffer nanus	6	2	12	8	2
Tragelaphus scriptus	2	8	6	5	1
Cephalophus maxwelli	5	10	8	9	2
Canis aureus	0	0	1	2	5
Potamochoerus porcus	4	3	8	5	4
Cephalophus silvicultor	0	0	0	1	0
Cercophithecus mona	2	3	4	3	0
Cercophithecus erythrogaster	2	3	4	3	0
Cercocebus torquatus	0	1	2	2	0
Total	**21**	**30**	**45**	**38**	**14**

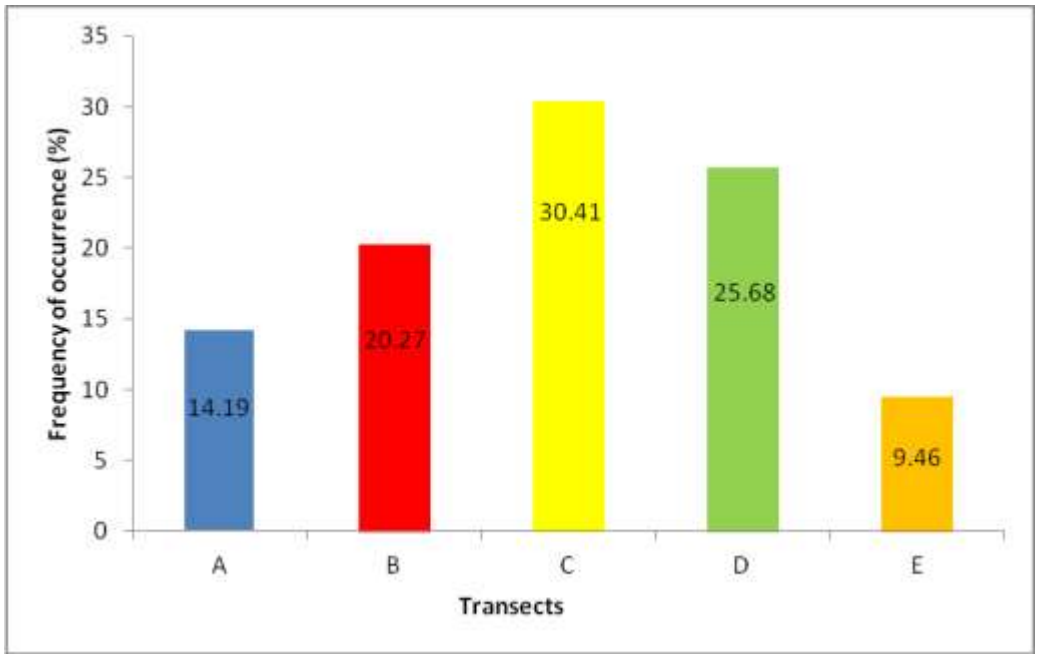

Figure 2: Frequencies Occurrence of Large Mammals Signs on Each Transect in Idanre Forest Reserve

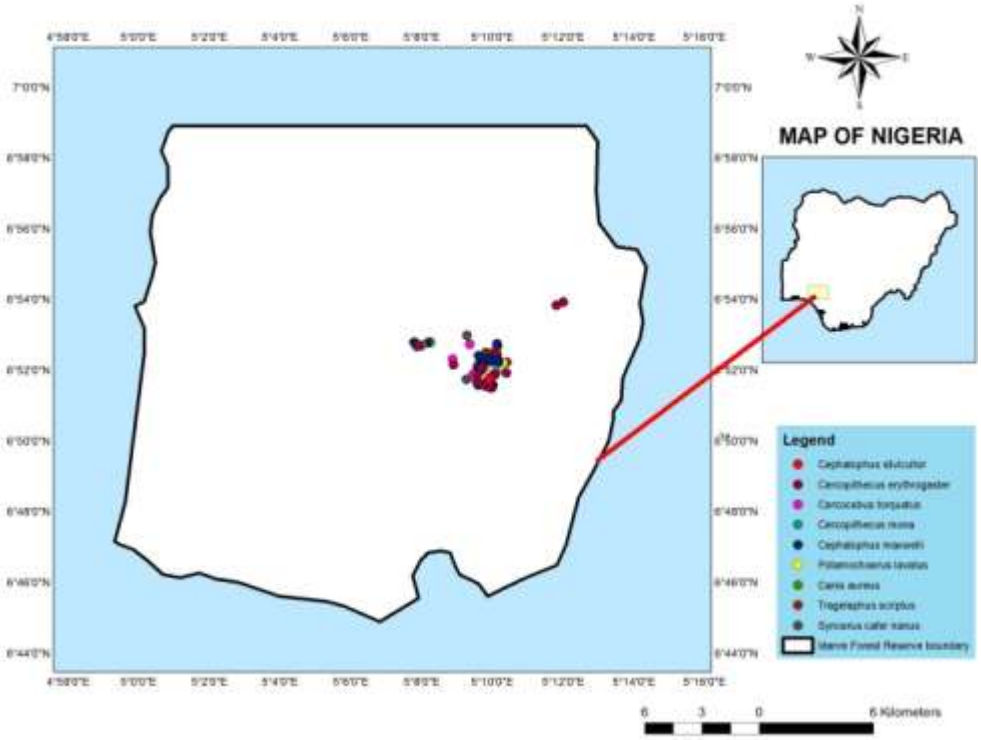

Figure 3: The distribution of large mammals' species within Idanre Forest reserve within the scope of the study.

Habitat Preference

More than 50% of all the sightings (including both the direct and indirect observations) were recorded in the undisturbed forest except for the *Cercocebus torquatus* which was not recorded within the farmland area. It is represented in Table 2 below.

Table 2: **Habitat preference of the Large Mammals of Idanre Forest Reserve**

	Habitat types		
Animal species	**Undisturbed forest**	**Disturbed Forest**	**Farmland**
Syncerus caffer nanus	18 (60)	3 (10)	9 (30)
Tragelaphus scriptus	15 (68.18)	2 (9.09)	5 (22.72)
Cephalohus maxwelli	19 (55.88)	4 (11.76)	11 (32.35)
Potamochoerus porcus	14 (58.33)	2 (8.33)	8 (33.33)
Cephalophus silvicultor	1 (100)		
Canis aureus	4 (50)	1 (12.5)	3 (37.5)
Cercopithecus mona	9 (75)	2 (16.67)	1 (8.33)
Cercopithecus erythrogaster	9 (75)	2 (16.67)	1 (8.33)
Cercocebus torquatus	4 (80)	1 (20)	-

DISCUSSIONS

Distribution within the Habitat

Large mammals in the reserve shy away from any form of human activities but their signs are mostly detected in areas with low human activities i.e. undisturbed forested part of the reserve. This is the case in transect C, D and B with 30.41 %, 25.68 % and 20.27 % respectively accounting for more 70 % of the total sightings within the forested environment. The animals in such situation feel more secured which is as a result of the transects falling within a specific the undisturbed forest area of the reserve this is also reported in Awoku and Ogunjemite (2017) that reduced impact of human activities will also favours the proliferation of large mammals with the reserve.

The distribution of large mammals is concentrated towards this area of the reserve due to the reduced impact of agricultural, logging and hunting activities within this area. The selected area for the research seems to habour more of these large mammals due to the low impact of human activities within this area which also reported in other studies by Akinsorotan and Ogunjemite (2011) , Koyenikan (2004), and Green grass (2006). However, the distribution of large mammals in this area of Idanre Forest Reserve could not be generalized over the entire reserve, since the rate of agricultural development; hunting and lumbering activities within the reserve are common occurrences. These animals may have been intelligent enough to escape disturbance and thus, migrate to a secured area of the forest reserve thereby, hampering proper enumeration of these large mammals.

CONCLUSION

Idanre Forest Reserve serves as a viable source of natural resources in terms of the large mammals' species components within Nigeria's rainforest ecological zones. The proliferation of human activities and the demand for fallow land for cultivation within the forest reserve has resulted into increase in the rate at which large mammals dispersed within their habitat thereby affecting their distribution negatively. These anthropogenic activities such as logging, farming and hunting as resulted to shrinkage of large mammals within the reserve and if care is not taking the forest reserve will become an entire farmland of great magnitude thereby leading to local extinction of these remaining species of large mammals. Therefore, strict adherence to the forest law should be enforced within the Idanre Forest Reserve in order to revive the destroyed habitat of large mammals within the reserve.

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