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POPULATION DISTRIBUTION OF BLACK-AND-WHITE COLOBUS MONKEY IN TWO SELECTED RANGES OF OLD OYO NATIONAL PARK

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ABSTRACT

This study was carried out in order to ascertain population and distribution of Black and White Colobus monkey in the Marguba and Tede ranges of Old Oyo National Park. Two ranges Marguba and Tede were selected based on habitat preference of the species. Two transects were laid in each range; Ipadeaya and Oopo in Marguba and Lower-Ogun and Iwawa in Tede range. Each transect was traversed morning and evening once a week for three months to count the monkeys and observe their activities, identify and survey the vegetation in the area and record the elevation of each transect. Collected data were subjected to descriptive statistic and inferential statistic. The results showed total population of fifty (50) Black and White Colobus monkeys with Tede range having the highest. The results also reveal higher sightings of the monkeys in the morning than in the evening. There was no significant relationship between the population of the monkeys and the examined variables in the two ranges, F (4, 12) = 29.237, p = 0.791. The study concluded that there was no relationship between population of Black and White Colobus monkeys in the two ranges and the examined variables in the ranges. Further study is recommended in the two ranges to determine factors that might be influencing the monkeys' population.

Keywords: Black and White Colobus monkey, Distribution, Population, Vegetation, Transect

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INTRODUCTION

The black-and-white colobus monkey has an almost completely black body with a long white "cape" of fur spreading from its tail and down its back. It also has a ring of white fur covering the almost hairless face and the monkeys are best recognized for their significantly reduced, and nearly absent thumb (Safariwest, 2017). The species belong to the family Cercopithecidae and it conservation status is least concern. The black-and-white colobus monkey height ranges between 23-24 in (~58-62 cm) and weights between 17-30 lb (~8-14 kg) (Safariwest, 2017). Black and white colobus monkeys are associated with habitats that have both deciduous and evergreen forests trees (Lwanga, 2006). The species frequently prefers colonizing forests, disturbed, secondary forest and also prefers degraded forests to old growth (Lwanga 2006). They are as well found in savannah and forests woodlands of central Africa extending to montane and highland forests (Oates *et al.* 1994). Moreover, habitats such as riparian, secondary, primary, and upland forest particularly when near lakes and rivers with higher elevations are also being colonised by the species (Dunbar, 1987). Home range of Black and white colobus monkey differs but the full home range estimates ranged from just over .01 km² to 1 km² and home range can overlap with other species (Harris and Chapman 2007). Also, this species has been found living in sympatry with a number of other primate

species such as *Papio anubis* and *Cercocebus albigena* (Thomas, 1991). Historically the species is described as leaf-eaters (Oates, 1994). A study by Fashing (2001) revealed that Black and White Colobus monkeys feed mostly on leaves and fruits although their diet can be quite varied. The monkeys usually eat unripe fleshy fruits which consumption reduces when fully ripen (Harris and Chapman, 2007). The species eat and select young leaves most times, but in times of scarcity rely on mature leaves and fruits. The monkeys also eat foods with high protein-to-fiber ratios (Chapman *et al.*, 2004). Conservation of wildlife species is an essential part of wildlife management, and where species have been exploited; protection of these animals in National Parks or other rigidly controlled areas may be the only practical solution to ensure survival (Burton 1995). Earlier report on Primate distribution in South-west Nigeria had not indicated the presence of black and white colobus monkey in Old Oyo National Park until the work of Haruna (2002). Information regarding the monkeys in the two ranges of the Park is sparse and it becomes imperative to investigate their distribution and population. The objective of the study was to determine the population of black and white Colobus monkey in the ranges and the factors influencing their population.

MATERIALS AND METHODS

Study Area and Methods

The study was conducted in Old Oyo National Park, one of the seven (7) National Parks in Nigeria. The Park is covers a total land mass of 2,512km^2 and is located in south West part of Nigeria, specifically Northern Oyo State at latitude 8^o 15' and 9^o OO'N and longitude 3^o 35' and 4^o 42'E (Figure 1). The location has inevitably placed the Park at a vantage position of abundance land area as well as diverse wildlife and cultural/historical settings. Two transects; Ipadeaya and Oopo were laid in Marguba range and two transects Lower-Ogun and Iwawa were laid in Tede range to make a total of four transects. Each transect was traversed morning and evening every week for three months. The coordinate points of each transects was noted, types of vegetation were identified to species level and quantified in abundance. Also, the activities of the Monkeys were recorded. Collected data were presented in tables, descriptive statistics such as frequency and inferential statistic such as regression analysis was used to determine the relationships between the population of the Monkey and the variables in the ranges.

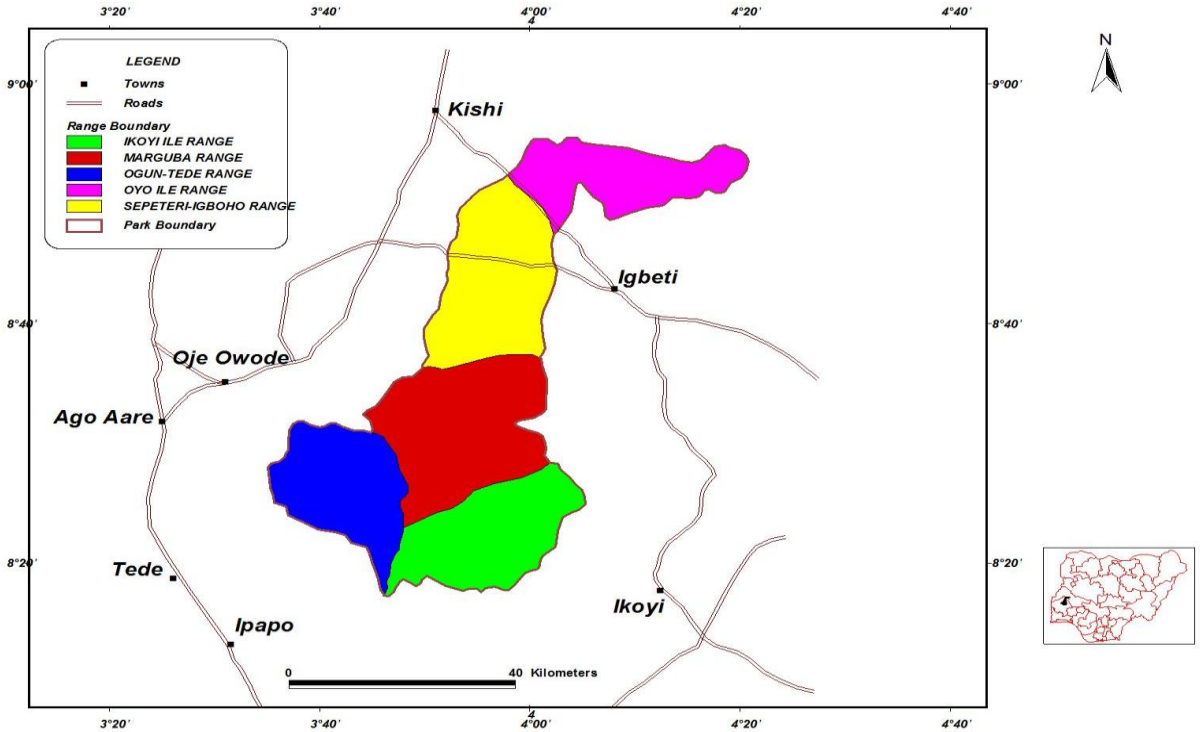

Figure 1: Old Oyo National Park (Source: Ogunjinmi, 2010)

RESULTS

Table 1 shows the total population of Black and White Colobus monkey discovered was fifty (50), with marginal highest population from Tede range (27) and 23 from Marguba range. In Marguba range, highest population of the Colobus monkey was from Oopo transect while the highest population of the monkey in Tede range was from Lower- Ogun transect. Sightings of Black and White Colobus Monkeys was highest in the morning than in the evenings on all transects in both ranges (Table 1).

Table 1: Population of Black and White Colobus Monkey in the two ranges

Marguba Range			Tede Range		
Transect	**Period**	**Population**	**Transect**	**Period**	**Population**
Ipadeaya	Morning	8	Lower-Ogun	Morning	8
	Evening	3		Evening	6
Oopo	Morning	10	Iwawa	Morning	13
	Evening	2		Evening	0
	Total	23		Total	27

The minimum and maximum number of the Monkeys encountered per time was 1 and 4 respectively with mean of 4±0 (Table 2). Monkey activities ranges from 1 (minimum) and 9 (maximum) with mean of 7±0. The minimum and the maximum elevation of the ranges was 286m and 298m respectively with mean of 293±0.63. The minimum and maximum period of observation time was 1 and 2 respectively and the mean of 1±0. The minimum and the maximum of the range transects was 1 and 4 respectively with mean of 2±0.63. The vegetation mean was 2.64±0.148 with minimum of 1 and maximum of 4 (Table 2).

Table 2 Descriptive mean of the variables and Black and White Colobus Monkey in the ranges

Variables	N	Minimum	Maximum	Mean	Std. Error
Vegetation types	50	1	4	2.64	0.148
Monkey population	50	1	6	4	0
Monkey Activities	50	1	9	7	0
Elevations(m)	50	286	298	293.86	0.63
Periods	50	1	2	1	0
Range-transects	50	1	4	2	0

Table 3 reveals the highest population of Black and White Colobus monkey were found in mixed woodland of *Daniela/Pterocarpus* (15), Riparian forest (14), *Afzelia Africana* woodland (13), vegetation types respectively. The least population were least found in the Mixed woodland of *Vitex/Aannogeissus* (8). The activities mostly performed by the monkeys was Picking leaves and playing (36), followed by takeoff (20) and Picking fresh leaves and fruits of *Daniella spp* (16). Table 4 shows the result of the regression analysis to determine the relationship between the population of the Monkeys and their habitat variables showed no influence of any of the variables on the population of the Monkeys, F (4, 12) = 29.237, p = 0.791.

Table 3 Population of Black and White Colobus Monkey in the two ranges per Vegetation Types

Vegetation Types	**Frequency**	**Percent**
Mixed woodland of *Vitex/Aannogeissus spp*	8	16
Mixed woodland of *Daniela/Pterocarpus spp*	15	30
Riparian forest	14	28
Woodland of *Afzelia Africana*	13	26
Total	50	100
Colobus Observed Activities	**Frequency**	**Percent**
Feeding on fruits of *Vitex doniana*	2	4.0
Picking fresh leaves of *Vitex doniana*	4	8.0
Feeding on fruits of *Vitex doniana*	1	2.0
Takeoff	10	20.0
Picking fresh leaves and fruits of *Daniella spp*	8	16.0
Jumping on tree branches	3	6.0
Feeding on leaves of *Pterocarpus spp*	4	8.0
Picking leaves and playing	18	36.0
Total	50	100.0

Table 4: Relationship between population of Black and White Colobus Monkey and the two Park ranges, elevation, transects, period, vegetation types and their activities

Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
	Regression	7.704	4	1.926	0.791
	Residual	29.237	12	2.436	
	Total	36.941	16		

DISCUSSION

The highest sightings of the Monkeys (mornings) reveals that colobus Monkeys are mostly active in the mornings and this was evident from the highest number of activities recorded in the the morning than in the evening. The total population of Colobus monkeys sighted was less than result recorded by Haruna (2003), this may be due to the fact that all five ranges were surveyed during the study. The minimum and maximum number of the Monkey encountered per time was 1 and 4 respectively with mean of 4±0.

The monkey activities ranges from 1 (minimum) and 9 (maximum) with mean of 7±0. The minimum and the maximum elevation of the ranges was 286m and 298m respectively with mean of 293±0.63. The minimum and maximum period of observation time was 1 and 2 respectively and the mean of 1±0. The minimum and the maximum of the range transects was 1 and 4 respectively with mean of 2±0.63. The vegetation mean was 2.64±0.148 with minimum of 1 and maximum of 4. The highest population of Black and White Colobus monkey were found in mixed woodland of *Daniela/Pterocarpus* (15), followed by the Riparian forest (14), *Afzelia Africana* woodland (13), and the least found in mixed woodland of *Vitex/Aannogeissus* (8). This reveals that the Colobus monkey is a pure forest species that can found in rain forests, relic forests, or derived savannah as stated by Kingdom (1997). The activities mostly performed by the monkeys was Picking leaves and playing (36), followed by takeoff (20) and Picking fresh leaves and fruits of *Daniella spp* (16) (Table 3). This is similar to the diet of some species of forest guenon, in which leaves form as much as a third of the diet (e.g. *Cercopithecus preussi* 41% (Beeson, 1988), Cercopithecus lhoesti 35% (Kaplin and Moermond, 2000). Regression results to determine the relationship between the population of the Monkeys and their habitat variables showed no influence of any of the variables on the population of the Monkeys, F (4, 12) = 29.237, p = 0.791. This means that none of the variables such as the ranges surveyed, elevation of the transect line, transects laid and the vegetation type, period of

survey (morning and evening) and the monkey's observed activities did not influence the population of the animals (Table 4).

CONCLUSION

The study concluded the variables examined in this study did not have influence on the population of Black and White Colobus monkeys in the two ranges. This may be due to the fact that only two out of the five ranges were surveyed during the study. Further lengthy research is recommended on Black and White Colobus monkey in order to determine factors that influence their population dynamics so as to inform effective conservation policies and good management strategies to protect the animals.

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