

Full Length Research Paper

Habitat Preference of Roan Antelope (*Hippotragus equinus*, Desmarest 1804) in Kainji Lake National Park, Nigeria

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Abstract

The habitat preference of Roan Antelope was assessed during wet and dry seasons in Kainji Lake National Park from May 2007 to April 2009. In each of the habitat type Roans were sighted and counted. Total enumerations of woody plants above one meter in height were carried out taking records of plant species in three (10m x 10m) plots. The collected data were pooled together. The result showed a total of Thirty five plant species and their distribution. The following plant species; *Combretum spp*, *Detarium microcarpum*, *Grewia mollis* and *Gardenia spp*. occurred in the six habitats of Roan. *Burkea africana*, *Kigelia africana*, *Lannea acida*, *Maytenus senegalensis* occurred in five habitat types. In the wet season, 37 Roans were counted in *Burkea – Detarium* habitat. In the dry seasons, 34 Roans were counted in *Burkea – Detarium* habitat. The most preferred habitat for Roan Antelope was *Burkea – Detarium* with 36 Roan Antelope as the highest average number observed in the study.

Keywords: Habitat Preference, Roan Antelope, Seasons.

INTRODUCTION

The Major problem facing wildlife conservation is the increasing rate of habitat loss due to anthropogenic activities through the destruction of their natural habitats leading to the reduction of wildlife population (Soule *et al.*, 1979; John and Skorupa 1987). Habitat quality and quantity of habitat have been identified as the primary limiting factors that influence animal population dynamics (Jansen *et al.*, 2001). Roan prefers localities that sustain few competitors and carnivores and areas of a few square kilometers are grazed intensively for weeks or even months but overall ranges in South Africa has been estimated at 60 to 120 km² over period of 17 years (Young, 1992). The objectives of the study were to determine the habitats of Roan Antelope and Plant Species composition of the habitats in Kainji Lake National Park.

MATERIALS AND METHODS

Study area

The study was conducted in Borgu sector of Kainji Lake National Park covering an area of 3,970.02 km². The park is located at the boundary between the Sudan and the Northern Guinea Savanna (Keay, 1959) and lies between latitude 9° 40" and 9° 23" N and longitude 3° 40" and 5° 47" E (Figure 1). The Major vegetation types of the park includes: *Burkea africana – Detarium microcarpum* wooded savanna, *Isobерlinia tomentosa* woodland, *Diospyros mespiliformis* dry forest, *Terminalia macroptera* tree savanna, *Isobерlinia* savanna woodland, Riparian forest woodland and Oli river complex. The two major features of the climate of the park are the division into wet and dry seasons and the variability from year to year. The wet season extends from May to October. The mean annual rainfall varies from 1,100mm in the eastern part to 1,150mm in the West part. The lowest temperature of the park about 12°C occurs between December and January. The highest mean maximum

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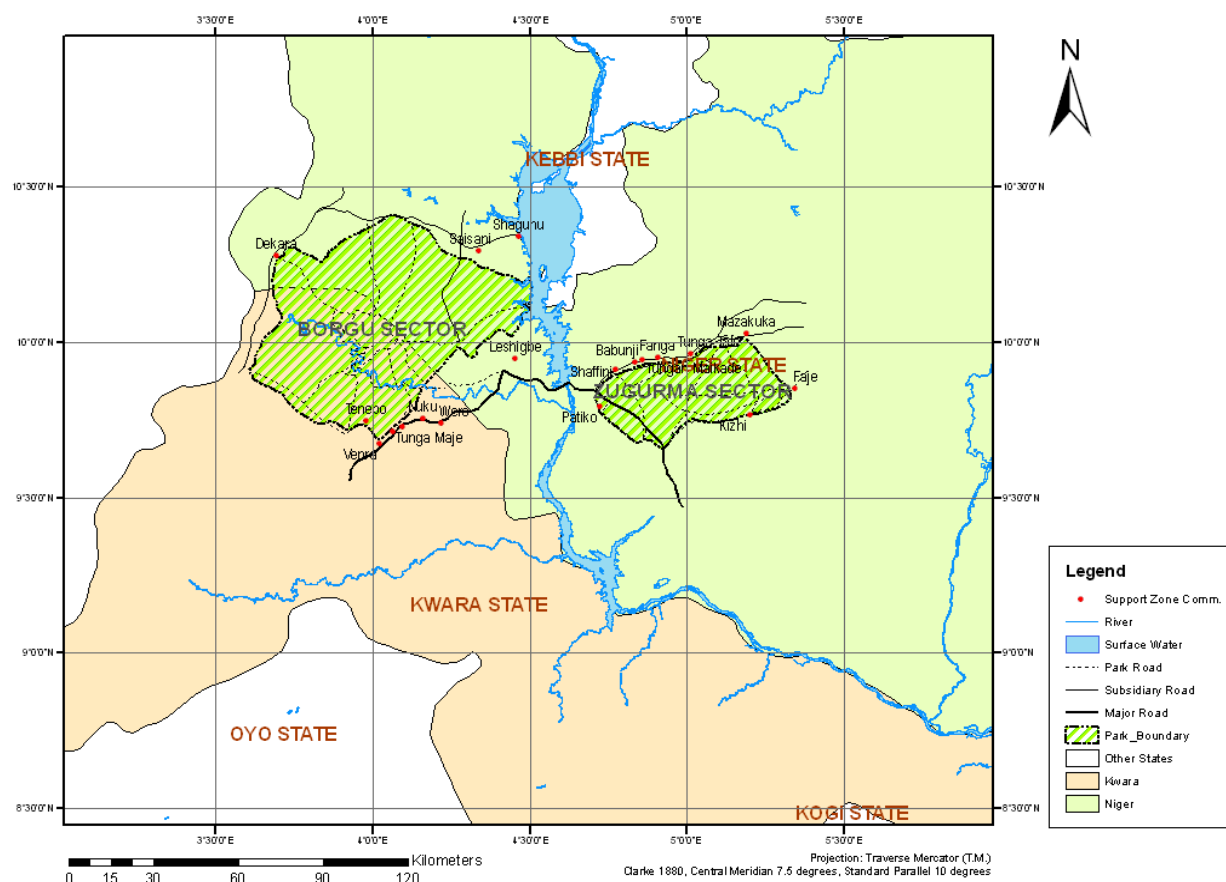


Figure 1. Map of Kainji Lake National Park showing Borgu and Zugurma Sectors
Source: Tuna (1992)

temperature occurs during months of February, March and April and is about 35°C (Afolayan, 1978).

Methods

The study adopted a modified line transect count method by using Jeep tracks as transects. Ten transects were randomly selected and used for the survey. Observations were made on the population of Roan antelope from a Hilux pick up van. Binoculars were used to aid sightings at far distances of >100m. At each sighting, records were made of the habitat / vegetation types, number of individuals of Roans sighted and recorded in Wildlife census data sheet. Surveys were made between 07.00 hrs – 11.00 hrs and 16.00 hrs – 18.00 hrs GMT daily for 120 days for 840 hrs from May 2007 – April 2009, thus spanning two wet seasons (May – October) and two dry seasons (November – April). Within each of the habitat type in which Roans were sighted and counted; total enumeration of woody plants above a meter in height were carried out taking records of plant species in three (10m x 10m) plots.

Data Analysis

Collected data were pooled together and analyzed using simple descriptive statistics and presented in bar diagram.

RESULTS

Six Roan habitat types were recorded in the study with Thirty five plant species and their distribution. The following plant species; *Combretum spp*, *Detarium microcarpum*, *Grewia mollis* and *Gardenia spp*, occurred in all the six habitats. *Burkea africana*, *Kigelia africana*, *Lannea acida*, *Maytenus senegalensis* were present in five habitat types. The result further showed twenty two, seventeen, nineteen, twenty three, twenty and twenty three species respectively occurring in the habitats: *Azelia africana* (A), *Burkea – Detarium* (B), *Terminalia* (c), Oli river complex (D), *Isobertinia* (E) and Riparian forest (F) respectively. The highest numbers of 37 Roans were sighted in the *Burkea – Detarium* habitat during wet season. The *Azelia africana* woodland recorded 15

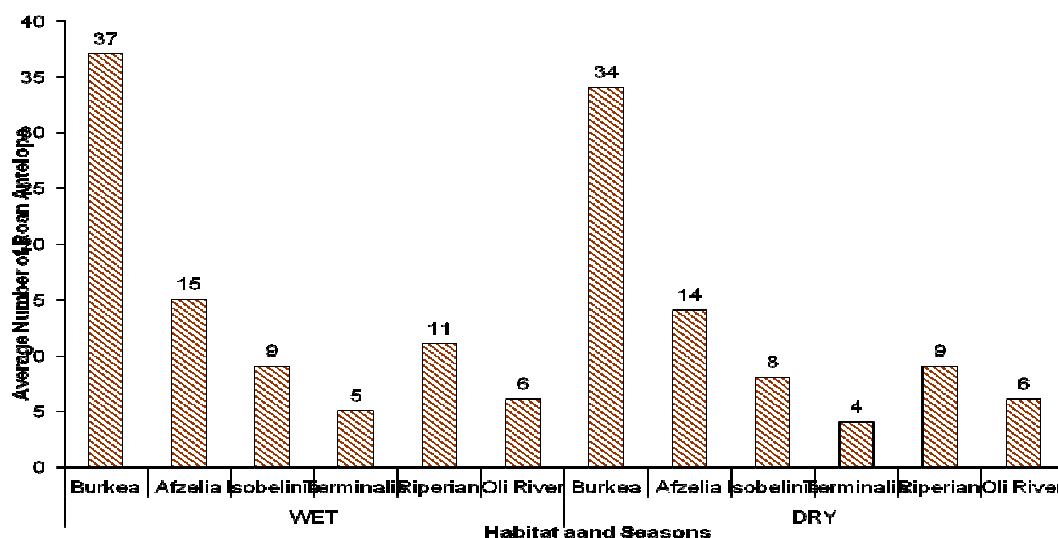


Figure 2. Average Number of Roan Antelopes in Different Habitats at Different Seasons at KLNK

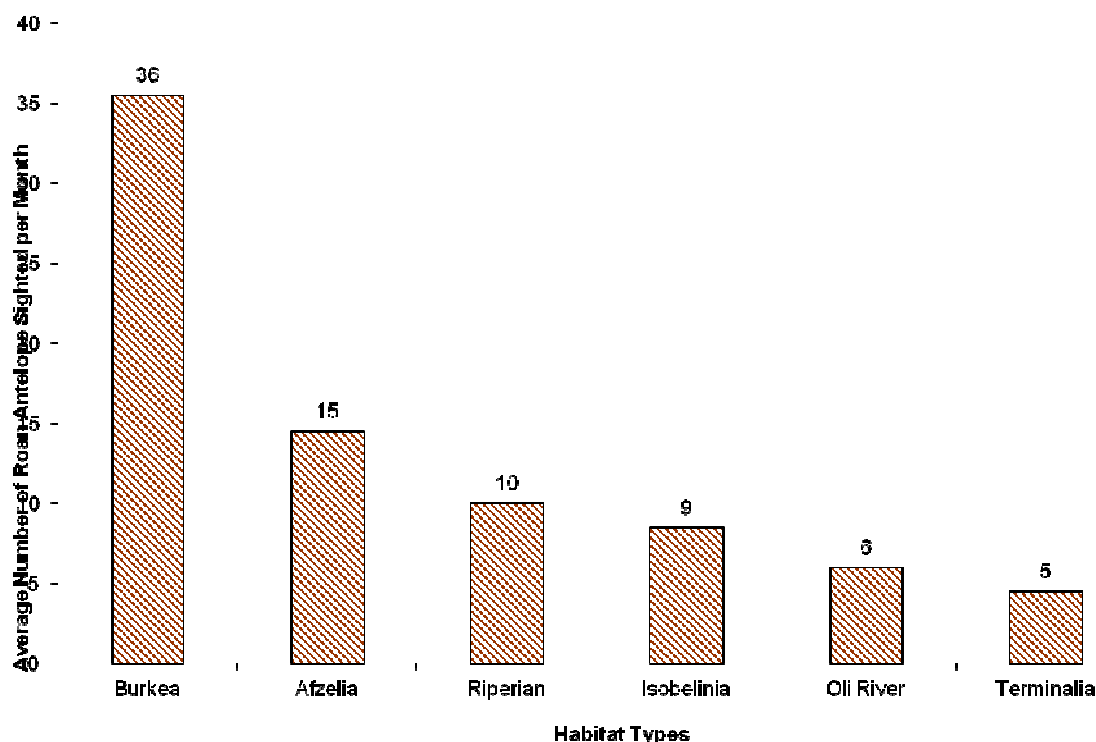


Figure 3. Habitat Preference of Roan Antelope at Kainji Lake National Park

Roans in wet season. The least record of 5 Roans were sighted in the *Terminalia* woodland. The Riparian, *Isoberlinia* and Oli river complex habitats supported 11, 9, 6 and 5 Roans respectively in the wet season. Similarly, in the dry season, the *Burkea – Detarium* habitat had supported 34 Roans in the dry season. *Afzelia africana* habitat supported 14 Roans in the dry season. While

Riparian, *Isoberlinia*, Oli river and *Terminalia* habitats recorded; 9, 8, 6 and 4 Roans respectively in the dry Seasons (Figure 2). The *Burkea - Detarium* had 36 Roans followed by 15 Roans in *Afzelia africana* in the whole study. The Riparian, *Isoberlinia* and Oli river habitats had recorded 10, 9 and 6 Roans respectively in the whole study (Figure 3).

Table.1 Woody plants species composition in Roan Antelope Habitat in Kainji lake national park:

S/no	Species name	Habitat Type					
		A	B	C	D	E	F
1.	<i>Azelia africana</i>	+	+	-	-	-	-
2.	<i>Acacia spp.</i>	+	+	-	+	-	+
3.	<i>Anona senegalensis</i>	-	+	+	+	-	+
4.	<i>Anogeissus leiocarpus</i>	-	-	+	+	-	+
5.	<i>Burkea africana</i>	+	+	-	+	+	+
6.	<i>Bridelia ferruginea</i>	-	-	+	+	-	+
7.	<i>Combretum spp.</i>	+	+	+	+	+	+
8.	<i>Crossopteryx febrifuga</i>	-	+	-	-	-	+
9.	<i>Cochlospermum tinctorium</i>	-	+	-	+	+	+
10.	<i>Detarium microcarpum</i>	+	+	+	+	+	+
11.	<i>Daniella oliveri</i>	+	-	+	+	-	-
12.	<i>Diospyros mespiliformis</i>	-	-	-	+	+	-
13.	<i>Entanda africana</i>	+	-	-	-	-	-
14.	<i>Grewia mollis</i>	+	+	+	+	+	+
15.	<i>Gardenia spp</i>	+	+	+	+	+	+
16.	<i>Hymenocardia acida</i>	+	-	-	-	+	+
17.	<i>Isobertlinia doka</i>	+	-	-	+	+	-
18.	<i>Khaya senegalensis</i>	-	-	-	+	-	-
19.	<i>Kigelia africana</i>	+	-	+	+	+	+
20.	<i>Lannea acida</i>	+	-	+	+	+	+
21.	<i>Monotes keitingii</i>	+	-	-	+	+	+
22.	<i>Maytenus senegalensis</i>	+	-	+	+	+	+
23.	<i>Nauclea latifolia</i>	+	-	+	-	+	-
24.	<i>Prosopis africana</i>	+	+	+	-	-	+
25.	<i>Pterocarpus erinaceus</i>	+	+	-	-	+	-
26.	<i>Piliostigma thonningii</i>	-	+	+	+	-	+
27.	<i>Parinari polyandry</i>	-	+	-	-	-	-
28.	<i>Strychnos spinosa</i>	+	-	-	-	-	+
29.	<i>Sterculia setigera</i>	-	-	+	-	+	-
30.	<i>Stereopermum kunthianum</i>	-	+	-	-	+	+
31.	<i>Terminalia spp.</i>	+	+	+	+	+	+
32.	<i>Termarindus indica</i>	-	-	+	-	-	-
33.	<i>Vitellaria paradoxa</i>	+	+	+	+	+	+
34.	<i>Vitex doniana</i>	+	-	-	+	-	-
35.	<i>Ximenia Americana</i>	-	-	+	+	+	+

KEY. **A = *Azelia africana*** **B = *Burkea/Detarium*** **C = *Terminalia* woodland** **D = *Oli River* Complex**
 E = *Isobertlinia* woodland **F = *Riparian Forest*** **+=Present** **--Absent**

DISCUSSIONS

In the present study, the sighting of Roan antelopes in the six habitat types clearly depicts the *Burkea – Detarium* wooded savanna as the most preferred habitat for Roan in the studied area. The *Burkea-Detarium* habitat is located upland and comprises of lightly wooded savanna with medium to tall grasses which are preferred by Roan Antelope. The second habitat of choice is the *Azelia africana* which is also located upland and comprises of lightly wooded savanna with short grasses which are grasses which are also preferred by Roans. In the *Isobertlinia* woodland habitat Roans were resting in shaded places to avoid hot sun. Roans were observed drinking water and feeding in *Riparian* habitat during dry season. It was also observed that Roan frequently visited saltlicks close to Roan gate and *Oli river* complex. Jansen *et al.*, (2001) reported that, food and cover plays an important role in habitat selection of animals. However, Dunn (1993a) suggested that, in nature wild animals are not evenly distributed all over the habitat in

any habitat. He further stated that distribution of animals varies with time or seasons. Therefore conservation of wildlife within protected areas depends mainly on maximizing the numbers of habitat patches that supported self – sustaining populations. It is quite clear from the study that, *Burkea – Detarium* habitat is the most preferred habitat for Roan antelope in Borgu sector of Kainji Lake National Park. Therefore it is important adequate protection of the *Burkea – Detarium* habitat and as well as other associated habitats to ensure the protection of Roan species. The results of the study are relevant to the management of the Roan. Roan as the star species in the National park for tourism aspect, the Park authority should give priority to conserve it immediately through habitat management.

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REFERENCES

- Afolayan TA (1978). Savanna burning in Kainji Lake National Park, Nigeria. *East Afr. J. Wildlife*. 16:245-255.
- Dunn A (1993a). Manual of census techniques for surveying large animals in Tropical Forest. A report prepared for WWW (UK) 20pp.
- Jansen R, Robinsin ER, Little RM, Crow TM (2001). Habitat constraints limit the distribution and population of red wing *francolinus levaillantii* in the high land grasslands of Mpumalanga province, South Africa. *Afri. J. Ecol.* 39:146-155.
- John AD, Skorupa JP (1987). Responses of rainforest primates to habitat disturbance: a review *Int. J. Primatol.* 8:157-191.
- Keay RW (1959). An outline of Nigerian Vegetation 3rd ed. Fed. Min. of Information Lagos, Nigeria.
- Soule ME, Wilcox BA, Holtby C (1979). Benign neglect: A model of Faunal collapse in game reserve of East Africa. *Biological Conservation* 15:259-272.
- Tuna (1992). Review of Master plan for Management of Kainji Lake National Park, Nigeria. 189pp.
- Young E (1992). Game Farming and Wildlife Management. Eddie Young Publishers. South Africa. 204pp