

The primates of the Amurum Reserve: their conservation status. Nigeria.

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Introduction

Primates play an integral role in the ecology of their habitat. They influence the forest structure and composition by being important pollinators and seed dispersers (Howe 1984, Stiles 1992, Poulsen *et al.* 2001). Because of their roles in the reproductive life histories of many plants, population, a reduction of primate abundance may alter seed dispersal and seed recruitment for plants (Wright *et al.* 1999). In the extreme case of local extinction of the seed dispersing species, plant recruitment can be severely curtailed (Temple 1977, Witmer and Cheke 1991).

In many parts of Africa, primate populations have been reduced to a fraction of their historical size due to hunting (Chapman *et al.* 1999, Oats 1999). In tropical forests where 62-93% of woody flora is adapted for vertebrate dispersal (Jordano 1992) fluctuations in disperser's abundance are likely to prove particularly important.

The aim of this project is to release biological information of species presence and distributions within the Amurum Reserve (9°53'N, 8°59'E) and surrounding areas on the Jos Plateau, and to quantify the level of hunting in the immediate community surrounding the reserve.

Methods

Primates were surveyed between February and August 2007 within the Amurum Reserve and in surrounding unprotected habitats. The Amurum Reserve holds some of the best remaining areas of the Jos Plateau native vegetation (Ezealor 2002). It comprises of grassland interspersed with granite outcrops, inselbergs, and gallery forests. Presently the community manages the forest with support from the A. P. Leventis Ornithological Research Institute.

Primates were surveyed using the line transect method (Bibby *et al.* 2000) on sections of already existing trails. For each group or individuals of primates encountered, group size, distance from transects, activity, the habitat type in which it was seen and edge habitat within a 100m radius was recorded. In the case when primates were foraging, we tried to identify the plant species. Population densities using distance sampling, habitat associations, and diet of the Primates were investigated

Community interaction

In April 2007, we interviewed some members of the local community to gather information on the frequency and reasons for primate hunting. Some of the questions asked were: occupation, alternative occupation (if any), and level of formal education, how often they saw primates, if they had ever killed any primates accidentally or intentionally, and if intentionally, reason for killing the primate, and methods used for hunting primates.

Results

The primates recorded at various locations on the Jos Plateau are Tantalus monkey *Chlorocebus tantalus*, Putty nosed monkey (*Cercopithecus nictitans*), dog-faced baboons (*Papio anubis*), one Galagos species and some members of the community reported seeing what might have been *Chlorocebus aethiops* but this was not recorded during the survey and thus cannot be verified. The main primate species found within the Amurum reserve is the Tantalus monkey and this was the only species with enough sightings for density estimates. The density of the Tantalus monkey in dry season was estimated at 0.45 /ha (95% CI 0.29 - 0.67, n=102) and density in the wet season was estimated at 1.6/ha (95% CI 0.93 – 2.83, n=110).

Habitat association

In the wet season, the Tantalus monkeys were distributed evenly within the three main habitat types of the reserve ($\chi^2=0.67$, $p=0.71$, $n=110$) while in the dry season more monkeys were recorded in the Rocky outcrops and scrub than in the gallery forest ($\chi^2=$, $p=0.004$, $n=102$).

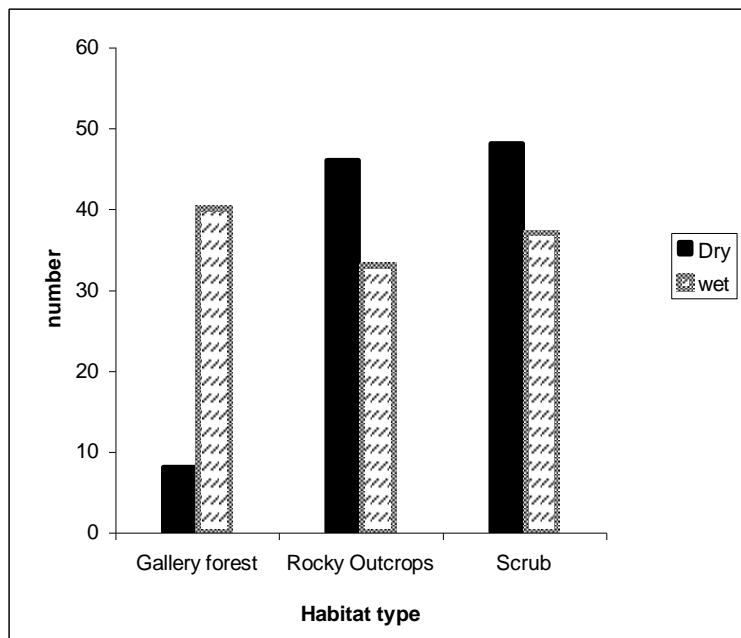


Figure 1: Distribution of the Tantalus monkey in Scrub, Rocky outcrops, and Gallery forest in the wet and dry season within the Amurum Reserve, Central Nigeria.

The distribution of the monkeys was positively correlated with the number of fruiting trees ($r=0.91$, $p<0.001$, $n=211$). We could identify ten species of trees and shrubs fed on by the Tantalus monkeys and they were also recorded eating farm crops like maize (*Zea maise*). The table below gives a list of these identified plant species.

Table1: Plants that have been identified as forming part of the diet of the Tantalus monkey within the Amurum Reserve

Tree species	Common names	Proportion of time monkeys recorded on each
<i>Albizia lebbbeck</i>		9%
<i>Ficus spp</i>	Fig	20%
<i>Ficus Ovata</i>	Fig	13%
<i>Guarea sp</i>		8%
<i>Parkia biglobosa</i>		21%
<i>Canthium volgare</i>		4%
<i>Dichrostachys cinerea</i>		4%
<i>Mangifera sp</i>	Mango	13%
<i>Olea europaea</i>	Olive	4%
<i>Syzigium sp</i>		4%

Questionnaire sessions

19 farmers, eight students, two public servants, two hunters, and 3 business men (32 people) were interviewed about the hunting of primates and on their views on the presence of primates around the community. 16 people (50%) say they have killed primates; 10 (77.5%) of these were farmers. The reason for killing primates was crop destruction and for traditional reasons. The skin and tail are used in making traditional costumes.

Discussion

This study is an important first step in identifying the specific plants that may depend on primates for seed dispersal. Some of the plants eaten by the Tantalus monkeys are plants that have food, medicinal and commercial value for humans. For instance, *Canthium vulgare* is used as an astringent to treat colds, and to treat eye and lung problems, *Albizia lebbbeck* and *Syzigium sp* are highly utilized for firewood and charcoal (Chaskda Unpublished), and the pulp in *Parkia biglobosa* pod is eaten and the seeds used as local soup seasoning. *Meliaceae guarea* is listed as vulnerable by the IUCN and is wood used for good timber.

It remains uncertain to what extent continued hunting might affect the primate population but if unchecked, the population of plants that depend on these monkeys for dispersal may be negatively affected in the long term especially in a community highly dependent on firewood as fuel source.

Contact with the local community during this study was met with both curiosity and some suspicion. The free movement of monkeys between the Amurum Reserve and the community is often a source of tension between the community and the A. P. Leventis Ornithological Research Institute (APLORI). Because some of the plants eaten by the monkeys like maize, *Pakia biglobosa*, and olives form a major part of the staple diet of the locals and are important cash crops' there is an ever on-going animal-human conflict.

Farmers are a majority in this community and are an important group to involve in any measures aimed at sustaining primate populations within this community. The feedback from these interactive sessions provided useful information that could be incorporated into the community development programmes APLORI. For instance, farmer enlightenment programmes could be organized to talk to farmers on the ecological and economic benefits of primates. Farmers could also be encouraged and assisted in getting and using non-harmful techniques like 'scare crows' to keep monkeys away from farmlands. There is currently a drive by APLORI to train local student to assist researchers within the community. This is one way of providing a source of alternative income at the same time an opportunity to expand the local knowledge on wildlife conservation. There are also concerted efforts being made to secure funds to start a major tree planting campaign in the community.

Conclusion

The study was an important step towards quantifying the level of primate hunting in the Laminga community and the reasons for this. Public education and awareness and a provision of non-invasive means of protecting farm crops from primate destruction is the next step towards reducing people-wildlife conflict within the Laminga community.

This study was also an important first step in identifying the specific roles primates play in habitat regeneration within the Amurum Reserve and surroundings. In an environment where there is a high level of habitat loss/alteration, the Tantalus monkeys are providing an important ecological service of seed dispersal thereby ensuring the continuity of plant populations. This information will be useful during public awareness campaigns.

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