

WILDLIFE CONSERVATION CHALLENGES IN OKOMU NATIONAL PARK, NIGERIA

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Abstract

*Okomu National Park, Nigeria, a rainforest ecosystem is known for its endemic white-throated monkey (*Cercopithecus erythrogaster*) and rare red-capped mangabey (*Cercocebus torquatus*) and a host of other forest mammals, some of which are endangered. Since its inception the area has been encroached for reasons that need to be studied. This study looked at the challenges of conserving the Park's wildlife and other resources. The Park's record of arrests and prosecution from 1999 to 2011 was used as secondary data while a four point Likert-scale questionnaire was used to obtain primary data. Descriptive statistics were used to analyse the arrests data and the personal data of respondents. Inferential statistics were used for responses to the Likert statements. Farming was the main offence (67%) in 1999, the year with the highest recorded offence. 84% respondents opined that wild animals could only be conserved if their habitats were protected, while 91.1% believed that poor maintenance and management of protected areas could lead to loss of wildlife. Respondents' level of education significantly affected their attitude towards wildlife conservation ($P = 0.021$). Age significantly affected the respondents' orientation about poaching on wildlife ($P = 0.035$), and their perception about government's roles on wildlife conservation ($P = 0.024$). Wildlife conservation education and enlightenment programmes would likely help in sustainable wildlife harvesting. Park staff could be more committed to protecting the resources when they are catered for appropriately. Creation of buffer zone could reduce Park's encroachment rate.*

Key Words: *Park Encroachment, Wildlife Conservation, Okomu National Park*

Introduction

Due to lack of sustainable utilization of forest resources and destruction of biological diversity, protected areas (PAs) are being established in many countries under the guidance of the International Union for the Conservation of Nature (IUCN) to conserve biodiversity. National Parks are the most common type of the PAs especially in many developing countries (Ogunjinmi *et al.*, 2009). A Protected area is a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation

of nature with associated ecosystem services and cultural values. The Okomu National Park is one of the seven nationally protected areas in Nigeria.

The Okomu National Park is located in a lowland rainforest ecosystem. Rainforests have very high species richness that 50% of all terrestrial species in the world are found in them (Davies, 2002). The Okomu National Park is endowed with such biodiversity richness that a Wildlife Sanctuary was initially created. It is home to many mammals, birds, amphibians, insects and others. Forest animals, such as forest-

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elephant and buffalo (*Loxodonta africana cyclotis* and *Syncerus caffer nanus* respectively) live in the Park. It is a refuge to several threatened species including the white-throated guenon (Oates, 1995). The scattered population of this guenon in the Park is facing a lot of habitat challenges due to anthropogenic factors including illegal logging activities, poaching and habitat encroachment, deforestation and urbanization (Aremu *et al.*, 2012).

In Nigeria, a major problem facing wildlife conservation is the increasing rate of habitat loss or modification due to human activities (Ogunjemite *et al.*, 2007). Protected areas such as National Parks are meant to conserve natural resources. Even though there is prohibition of illegal activities in National Parks, cases of trespasses have been reported (Meduna *et al.*, 2009). The study looked at the challenges of wildlife conservation in Okomu since it became a National Park in 1999. The most prevalent

illegal activities and their probable drivers were identified. Feasible solutions were suggested for better conservation of the natural resources in the park.

Materials and Methods

Study Area

Okomu National Park (Figure 1), a lowland rainforest ecosystem, is located in Ovia Southwest Local Government Area of Edo State, in south west Nigeria. It lies between latitudes 6° 15' and 6° 25' North and longitude 5° 9' and 5° 23' East. It covers a land mass area of approximately 200km² making it the smallest of the seven National Parks in Nigeria. The Park was carved out from Okomu Forest Reserve that was gazetted in 1935. In 1986, the then Bendel State Government gazetted it for a Wildlife Sanctuary. It became a full-fledged National Park in 1999. The rainfall in the area is above 2500 mm per annum (Akinsorotan *et al.*, 2011).

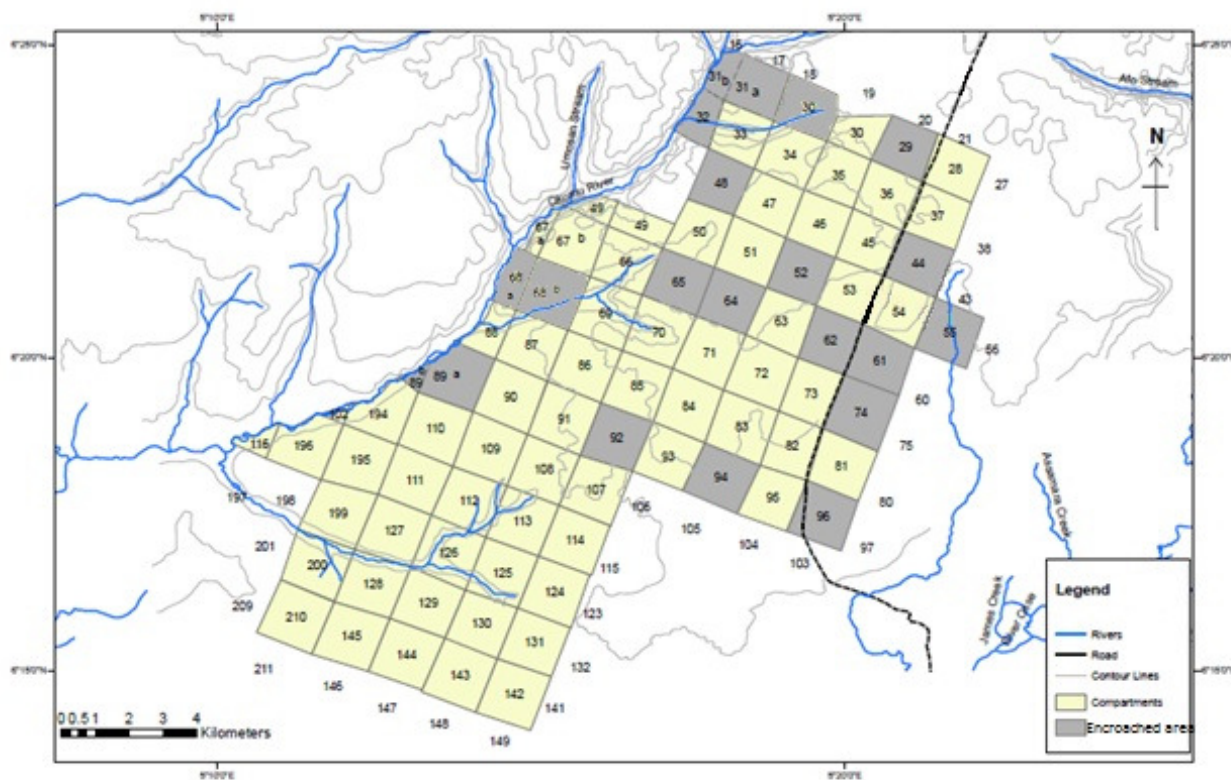


Figure 1: Map of Okomu National Park with more encroached areas in grey.

Data Collection

Secondary data was obtained from the Park's Record of Offences, Arrests and Prosecution for the period 1999 to 2011. Through the record, common offences were identified.

Primary data was obtained through administering four-point Likert-scale questionnaires to the Park's staff and Park's community members. The four points were: Strongly Agreed, Agreed, Disagree and Strongly Disagree. There were 32 Likert-scale statements. These were used to study respondents' opinion on five factors viz;

1. Attitude toward wildlife conservation.
2. Orientation about hunting and poaching on wildlife.
3. Knowledge about habitat destruction.
4. Knowledge about environmental protection.
5. Views about governments' roles in wildlife conservation.

Data Analyses

The Park's record of offences and biodata of questionnaire respondents were analysed descriptively using Microsoft Excel. The

effects of bio data (sex, age and educational level) on the five variables listed above were analyzed using inferential statistics.

The 32 Likert-scale statements were divided into five groups in accordance with the five variables listed above. It was an adoption of the methodology used by Ogunjinmi *et al.* (2012). In each group (also known as a multiple-item subscale), the scale of the variables was tested for reliability using Cronbach's Alpha Reliability Coefficient (CARC). The essence was to eliminate item statements that were not consistent with the rest. This was done to maximize the CARC.

Table 1 showed the first subscale registered 5 items with a CARC of 0.549. The second had 6 items with a CARC of 0.507. The third and fourth subscales had 2 items each with CARCs of 0.353 and 0.390 respectively. The highest CARC of 0.733 was for the fifth subscale with 7 items. This highest frequency value implied that the items elicited more consistent responses that were reliable.

Table 1: The Cronbach's Alpha Reliability Coefficient (CARC) of sub-scales of the responses

S/NO	Subscales / Variables	CARC	Items (Questions)	No. of Items
1	Attitude toward wildlife conservation	0.549	6, 7, 8, 12, 13	5
2	Orientation about poaching of wildlife	0.507	14, 15, 16, 18, 19, 20	6
3	Knowledge about habitat destruction	0.353	21, 23	2
4	Knowledge about environmental protection	0.390	25, 26	2
5	Views about government's roles in wildlife conservation	0.733	27, 28, 29, 30, 33, 34, 36	7

Principal component analysis (PCA) was used to re-dimension the items in each section of the questionnaire. Varimax rotation was selected as the analytic rotation used in the PCA. In this work, the sole purpose of PCA was to compress multiple variables extracted from the responses into a

single variable which were used in the t-test and Analysis of Variance (ANOVA).

The effects of biodata were tested on the components obtained from PCA. T-test was used for the sex factor, while ANOVA was used as a statistical method in testing the effect of age and educational level of

respondents. The data analysis was conducted using IBM Statistical Package for Social Science (SPSS) version 20.

Results and Discussion

Record of Offences

Figure 2 shows the type and frequency of offences recorded per year. Farming had the highest value. This was followed by hunting and logging, entry and collection of non-timber products.

The offence pattern is shown on Figure 3. The highest arrests were in 1999. Meduna, *et al.*, 2009 reported the highest poaching arrest

in Lake Kainji National Park in 1999. That was the year that military handed over power to civilian government. Perhaps poverty made people to go to the wilds for sustenance. Encroachment rate declined with time. Lowest arrests were recorded in 2007, 2009 and 2011. Payment of fine and enlightenment may be accountable for the decline.

The more encroached areas were those at the Park’s edges (Figure 1). This was expected since these places were closer to human habitation and thus more easily accessible.

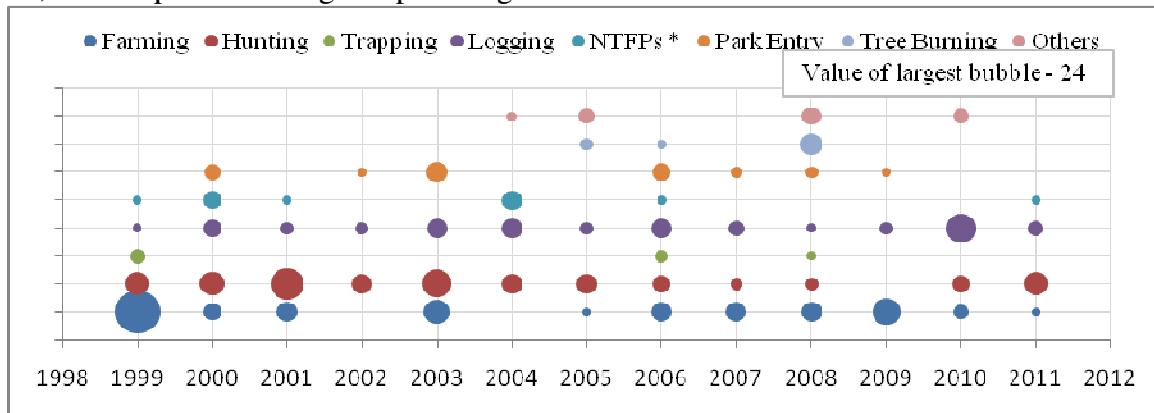


Figure 2: Bubble plot showing the number of cases of each illegal activity in Okomu from 1999 – 2011

*NTFPs stands for: Non-Timber Forest Products

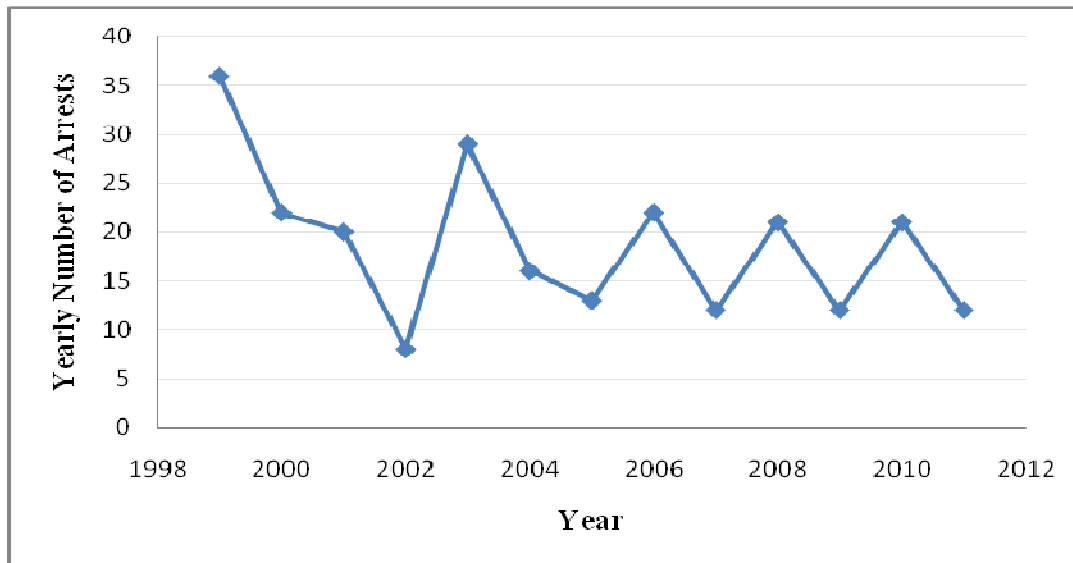


Figure 3: Yearly Number of Arrests in Okomu National Park (1999-2011)

Primary Data Analysis

Table 2 showed personal data of respondents. It showed that 77.3% were males and 14.7% were females. The skew might be due the fact that most of the Park staff were males. Those within ages 20-30 were 37.5% while those in 31-40 made up 33.0%. Senior Secondary School Certificate holders made up 48.9%. Thus a good number of the respondent were young and had some level of education.

Table 2: Biodata of Respondents

Variable	Frequency (N=88)	Percentage	Mode
Gender			
Male	68	77.3	Male
Female	13	14.7	
No response	7	8.0	
Age (Years)			
20-30	33	37.5	20-30
31-40	29	33.0	
41 and above	12	13.6	
No response	14	15.9	
Educational Qualification			
Senior Secondary School Certificate	43	48.9	Senior Secondary School Certificate
Ordinary National Diploma	7	8.0	
Higher National Diploma	2	2.3	
First Degree	12	13.6	
Others	11	12.5	
No response	13	14.8	

Table 3 shows that the effects of sex and age on attitude towards wildlife conservation were not significant ($P = 0.435$ and 0.114 respectively) whereas the effect of educational level was significant ($P = 0.021$). From the outcome, it could be deduced that gender and age did not affect attitude towards wildlife conservation whereas the educational level of respondents significantly influenced their attitude towards conservation of wildlife. This was similar to the outcome of Ogunjinmi *et al.*, 2012.

Table 3: Effect of personal factors on attitude towards wildlife conservation

Variables	P-Value	Decision
Sex	0.435	NS
Age	0.114	NS
Educational Level	0.021	S

P-Value: Probability value for the t-statistic (sex) and F-statistic (Age and Educational Level)

S: Significant (when P-Value ≤ 0.05) NS: Not Significant

Table 4 showed that the effects of sex and educational level on orientation about poaching on wildlife conservation were not significant ($P = 0.185$ and 0.681 respectively) whereas the effect of age was significant ($P = 0.035$). From the outcome, it could be deduced that gender and educational level did not affect attitude toward, wildlife conservation whereas the age of respondents significantly influenced their attitude towards conservation of wildlife. The

outcomes did not agree with results obtained by Ogunjinmi *et al.* (2012) on environmental attitudes of local community members in all the National Parks in Nigeria. Chi-Square for gender and educational level and Pearson’s Correlation (r) for age were used for that study. In this study t-test was used for sex and F-test for age and educational level.

Table 4: Effect of personal factors on orientation about poaching on wildlife conservation

Variables	P-Value	Decision
Sex	0.185	NS
Age	0.035	S
Educational Level	0.681	NS

P-Value: Probability value for the t-statistic (sex) and F-statistic (Age and Educational Level)

S: Significant (when P-Value ≤ 0.05) NS: Not Significant

None of the variables on Tables 5 and 6 showed significant difference at $P \leq 0.05$ on habitat destruction and environmental protection.

Table 5: Effect of personal factors on knowledge about habitat destruction

Variables	P-Value	Decision
Sex	0.894	NS
Age	0.545	NS
Educational Level	0.368	NS

P-Value: Probability value for the t-statistic (sex) and F-statistic (Age and Educational Level)

S: Significant (when P-Value ≤ 0.05) NS: Not Significant

Table 6: Effect of personal factors on knowledge about environmental protection

Variables	P-Value	Decision
Sex	0.892	NS
Age	0.087	NS
Educational Level	0.504	NS

P-Value: Probability value for the t-statistic (sex) and F-statistic (Age and Educational Level)

S: Significant (when P-Value ≤ 0.05) NS: Not Significant

The result showed people’s perception about government’s roles on wildlife conservation (Table 7). Sex and educational level did not significantly affect the people’s perception ($P = 0.460$ and 0.340 respectively), but age did significantly affect the people’s perception ($P = 0.024$).

Table 7: Effect of personal factors on views about government’s roles on wildlife conservation

Variables	P-Value	Decision
Sex	0.460	NS
Age	0.024	S
Educational Level	0.340	NS

P-Value: Probability value for the t-statistic (sex) and F-statistic (Age and Educational Level)

S: Significant (when P-Value ≤ 0.05) NS: Not Significant

Conclusion

People encroached into the Okomu National Park for farming, hunting (poaching), logging and collection of non-timber products despite the illegality of the actions. Since the study site was a protected area, it was assumed that habitat destruction, conversion and fragmentation should be human actions which are manifestation of beliefs and attitudes were the main issues studied. Community people saw wildlife as nature's gift that could be used for subsistence and commercial purposes. Conservation of resources in the Park could be enhanced if government laws on protection of the areas are enforced. Creation of buffer zones where local people could use to meet their needs, education/enlightenment campaign on the values of natural resources could help in reducing the rate of encroachment.

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References

Akinsorotan, O.A., Ogunjemite, B.G. and Afolayan, T.A. (2011). Assessment of the Large Mammals of Arakhuan Range, Okomu National Park, Nigeria. *Ethiopian Journal of Environmental Studies and Management*, 4(3): 25-37.

Aremu, O.T., Emelue, G.U., Osayimwen, F.E. and Obasogie, F.O. (2012). Estimate of Habitat Quality of White-

throated (*Cercopithecus erythrogaster*) in Okomu National Park, Nigeria. *Nigerian Journal of Agriculture, Food and Environment*. 8(1): 47-51.

Davies, G. (Ed.) (2002). *African Forest Biodiversity: a field survey manual for vertebrates*. Earthwatch, Oxford, United Kingdom, 172 pp.

Meduna, A.J., Ogunjinmi, A.A. and Onadeko, S.A.A. (2009). Biodiversity Conservation Problems and Their Implications on Ecotourism in Kainji Lake National Park, Nigeria. *Journal of Sustainable Development in Africa* 10(4): 59-73.

Oates, J.F. (1995). The dangers of conservation by rural development- A case study from the forests of Nigeria. *Oryx* 29:115-122. DOI:<http://dx.doi.org/10.1017/S0030605300020986>

Ogunjemite, B.G., Ajayi, B. and Agbelusi, E.A. (2007). Habitat structure of chimpanzee communities in Nigeria: a comparison of sites. *Acta Zoologica Sinica*. 53(4): 579-588.

Ogunjinmi, A.A., Ojo, L.O., Onadeko, S.A. and Oguntoke, O. (2009). An Appraisal of Environmental Interpretive Policies and Strategies of Nigeria National Parks. *Tropical Agricultural Research and Extension* 2(1): 7-12.

Ogunjinmi, A.A., Onadeko, S.A. and Adewumi, A.A. (2012). An Empirical Study of the Effects of Personal Factors on Environmental Attitudes of Local Communities around Nigeria's Protected Areas. *The Journal of Transdisciplinary Environmental Studies*. 11(1): 40-53.