

Wildlife Environmental Conservation: A Case Study of Oba Hill Forest Reserve

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Abstract

This paper draws attention to the major threats of nature conservation in Nigeria (Oba Hill Forest reserve) and reviews critically the measures needed to adopt for the protection of wildlife resources in Oba Hill Forest Reserve, Osun State, Nigeria. The major problems include habitat degradation (through uncontrolled logging, agricultural projects, highway and urban development, exploitation for fuel wood, over hunting and poaching). The study was conducted in Oba Hill Forest Reserve between the wet and dry seasons in the year 2015.

Relevant data collected with the aid of a structured questionnaire administered in five (5) sampled communities' areas within the study site. The villages were chosen purposely due to their proximity to the forest reserve. A random sampling technique method was used to analyze one hundred (100) respondents randomly selected and interviewed.

The necessary steps need to be taken so far to protect wildlife in this reserve include making it to be a national park, enactment of wildlife laws, signing of international treaties and manpower empowerment development. These measures have however failed to produce the desired effect owing largely to public apathy, low level of funding, inadequate game laws and weak enforcement of existing legal provisions.

Summarily, it is suggested that the federal Government should intervene more positively in favour of conservation by creating more national parks and assuming joint responsibility with the state Government for formulating wildlife laws. In addition, the role of non-governmental agencies/organizations in influencing conservation policies and mobilizing public opinion will be crucial in the difficult years ahead.

Keywords: Ecosystem; Forest reserve; Human encroachment; Habitat fragmentation; Sustainable agriculture

Introduction

Protected forest reserve management areas are gradually going through rapid stage of evolution in response to mounting problems and pressures especially in most of our developing countries due to rapidly growing population and drastic economic meltdown. Pressure on human population growth has taken the form of a predictable linear increase in the demand, which people seek for land and resources in order of meeting their legitimate increase material aspirations. In Nigeria, protected forest environments are mostly located in the savanna ecosystem as those in other tropical and sub-Saharan countries of the world. These conserved forest protected areas (reserves) are set aside for the protection, preservation and propagation of wild vegetation and wild animals, for the preservation of objects, aesthetic geological prehistoric, archeological artifacts and other scientific interest for the benefits, advantages and enjoyment of mankind. The entire forest protected reserve enclave are biologically productive and function as field research laboratories, but growth in human population increases the cases of anthropogenic activities in the protected area and preservation of the land resources. An instance of such is the intrusion of conserve ecosystem environment by the Fulani herdsmen in most of our national parks of West Africa.

Conversely, the wildlife resource becomes threatened and regarded as a wasteful programme through extinction initiated due to human interplay. In Africa, the sub-Saharan wild resources are influenced by human population trends and ecological factors. The main cause of deforestation is land clearing for agriculture, uncontrolled logging, fuel wood gathering, fire and overgrazing as also taking their toll. 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 [1,2]. The main natural vegetation types in this area are lowland moist forest and swamp forest, together with some savannah woodland [3].

The forests left are in state forest reserves established during the colonial period to ensure timber supplies and safeguard watersheds. Due to lack of adequate protection to the wildlife species in them, large mammals are seriously threatened. Relatively, high level of economic development in the country led to continuing high rates of forest conversion and other forms of natural resource exploitation both outside and inside forest reserves and national parks.

Hunting of all animals for bush meat has been a traditional activity for a very long time in southern part of Nigeria. Recently, hunting pressure has sharply risen in size of opulence because to human population, natural forest environments are converted for economic

benefit through exploitation. Even though, it is theoretically protected by both State and

Federal Law, wildlife resources there in are still widely hunted for their meat and other uses. Due to wild resources that are particularly vulnerable to hunting and other human induced pressures, resulting to low population densities and slow rate of reproduction. Over exploitation of wildlife resources threaten not only biodiversity but those that depend on it either directly or indirectly; which their estimates of national values for subsistence use and legal contribution to national economies of many countries involved are rarely included in national economic statistic or nutrition data.

Oba hill forest reserve is a small enclave encompassing three hills with a wide valley running in between. A large teak plantation is there on its western side, covering about 12% of its total area [4] beyond the hills. The plantation has been over-exploited and now only coppices remain. Presently all the land in the valley bottoms surrounding all three hills, have been subjected to tungiya farming. This farming has also spread half way up to the hill slopes. Immigrant farm labourers do most of the farming from Franco phone countries such as Benin and Togo. The hills are deforested and logged. Consequently, streambeds on the slopes are dry, and dense scrubby vegetation covers all three hills. The vegetation that burnt back in the dry season prevents regeneration. The northerly hill has some forest/woodland remaining on its peak and has two gullies on its eastern side. One of these has been deforested completely, other is very deep, and probably because of inaccessibility the side is forested with awfully large trees. The middle hill has two peaks. The southern peak is deforested completely while the northern peak still has some forest on its upper slopes and one forested of about twenty-six (26) has gully on its south-facing side with signs of logging and disturbance are apparent. The southern hill also has some forest on its slopes, but again the habitat is suboptimal but highly disturbed. There are reports of people sighting large mammals and ungulates around the Olori area of the forest enclave. Although animals were last reported to have been seen frequently for the past years and a dead wild animals (ungulates, rodents and warthogs etc.) was offered for sale in a nearby market in 2015 which corroborated observation of 1999 [4].

This protected forest enclave is among the preserved ecosystem zone where wildlife resources was geared towards optimum utilization and effective conservation of its resources; to change the indifferent attitudes of the rural community to protection management of natural resources for sustainable development. The forest reserve is a mixture of rain forest and derived savanna vegetation; though the vegetation is now classified into eight vegetation zones according to vegetation ecological zone.

The development of this forest reserve, which is of great diverse in natural/cultural values, had promoted the ecological tourism potential in Iwo land communities. Forest ecosystem habitat blessed with varieties of tourist attractions provide a meeting point for those in love of nature tourism. Some other attractions includes game viewing, visit to monumental site in the reserve through which tourist could perceived the beauty of the scenic natural environment. This Nigeria forest reserve enclaves were gazette in each zone of the six geographical political zones within the nation to attained wildlife active position for their own acceptance values of our national heritage.

There is dearth of information on the environmental conservation of the wildlife resources management in the literature of Oba hill Forest reserve. Forest ecological zone was documented due to wildlife

conservation and nature tourism importance, it nature and cultural values are found on the hilly and rangeland of Iwo sector of the forest. This preserve forest ecosystem established to promote the national heritage and aesthetic/archeological, biological/physical features for its universal outstanding values from the point of view of history, science or art. Little or no literature documentation on the agriculture/human effects on wildlife conservation, traditional/cultural background can be assesses with the possible forest management acts/legislations that will promote/provide information for the preparation of a management rolling plan and compressive standard master plan for the forest reserve.

Materials and Methods

The study undertaken in Oba Hill Forest Reserve was located in Iwo local Government Council of Osun State in Nigeria. The reserve has a landmass of about 54 km² of hilly terrain with deep gorges situated between latitude 70 451°N and longitude 40 71°E.

Respondents in five (5) communities' areas of the site administered data collected. Systematic random sampling method of data collection adopted in each community. This involves spot data collection from the willing respondents with twenty (20) questionnaires allocated to each community. The vegetation of the ecosystem in Oba hill forest reserve is moist forest and swamp forest, together with some savannah woodland [3]. The forest reserve blessed with both fauna and flora wild resources but threatened by environmental degradation due to anthropogenic effect in and around the forest reserve. The major activities at the site are farming, logging, hunting, and grazing. Other activities are fuel wood harvesting, collection of flora leaves and indiscriminate burning of the forest.

Administration of questionnaires

Questionnaires were administered in those selected communities. Prior to the administration of questionnaire, the survey of surrounding villages in the five (5) communities areas are visited for a formal introduction and interaction with the heads of the communities (district head/baale) who served as linked persons. During the visit, a rough estimated number of household in each community selected to determine questionnaires need to be given in each area. One hundred questionnaires (100) was randomly distributed, twenty (20) in each communities selected to allow equal opportunity for every person being chosen to react independently (Table 1). The tools used in the analysis were descriptive statistics such as means, frequencies and percentage.

Variables	Categories	Frequency	Percentage
Age	21-30	20	20
	31-40	30	30
	41- 50	38	38
	Above 50	12	12
Gender	Male	65	65
	Female	35	35
Educational Status	Tertiary education	18	18
	Primary/Secondary	68	68

	No formal education	14	14
Occupation	Farming	23	23
	Hunting	25	25
	Grazing/livestock	22	22
	Logging	20	20
	Fuel wood harvesting	10	10
Marital status	Married	67	67
	Single	33	33
Religion	African Traditionalist	23	23
	Christianity	27	27
	Islamic	50	50
Source: Field Survey 2015			

Table 1: Demographic characteristics of the respondents in the surrounding villages.

The respondents were of various age groups, occupations, religious denominations and educational background with their tribes. Mostly, the questionnaires explained to the respondents with the help of animal design. The respondents were allowed ample time to complete the questionnaires. Questions in the questionnaires translated to local languages of the people found in the survey area (Yoruba, Hausa/ Fulani and foreigners) by the interviewers and further notes were record alongside with the structure questions.

Results

The respondents, (65%) of which were males covered the wide range of age groups with youngest being 20 years old and the oldest claimed to be 92 years old (not confirmed). The dominant age group (38%) was between the 41-50 years old, while only (12%) were above 50 years of age. About (14%) of the respondents lacked formal education, but as many as (68%) had primary and secondary (JSS and SSS) education. Only (18%) of the respondents had received tertiary education. Hunting was the dominant occupation (25%) followed by arable crop farming occupation (23%) around the buffer zone and some encroached area of the forest reserve, while about (52%) of the respondents claimed to have been involved in one or more secondary occupations. Majority of the respondents (67%) were married while single are represented equally. In addition, (50%) of the respondents were Islamic, while Christians and African traditionalist were equally represented.

In the study, (25%) of the respondents were found to be hunters. Majority of the hunter's respondents were inhabitants of the largest community in the site of study. (Olori, Owu- Ile and Ife-Odan). The study revealed that (65%) of the respondents were hunters, taken it as secondary occupation and (35%) were taken it as primary occupation. Majority of the respondents use short guns (47%) as their hunting tools while locally manufactured guns and traps is 53%. Respondents found hunted for bushbucks are (30%) while others are equally depicted. In addition, most respondents used individual hunting (58%)

as their mode of hunting exhibition while group hunting was equally represented (Table 2).

Variables	Categories	Frequency	Percentage
Hunting as an activities	Primary	35	35
	Secondary	65	65
Tools	Short guns	47	47
	Locally manufactured guns	30	30
	Traps	23	23
Hunted animals	Bushbuck	30	30
	Grass cutter	25	25
	Duiker	24	24
	Warthog	13	13
	Others	10	10
Hunting Methods	Group hunting	42	42
	Individual hunting	58	58
Source : Field Survey 2015			

Table 2: Hunting activities and conservation at the buffer zone.

Farming

Farming was around the buffer zone communities of the site on both subsistence (55%) and commercial (45%) bases (Table 3). Land cultivation was normally prepared manually (75%) either by individual farmer (66.6%) or by group farming (33.4%). There was little much mechanized farming towards the boundary zone of the site (25%). Above two thirds of the farmers (75%), thought that their activities had no significant effects on the wildlife resources in the area (Table 4).

Variables	Categories	Frequency	Percentage
Types of farming	Subsistence	55	55
	Commercial	45	45
Land preparation for cultivation	Manual	75	75
	Mechanized	25	25
Types of mechanized farming	Individual	66.6	66.6
	Group	33.4	33.4
Size of farms	Small (1-5ha)	74	74
	Large (> 5ha)	26	26
Effect of farming on wildlife resources	Yes	35	35
	No	65	65
Source: Field Survey 2015			

Table 3: Farming activities and conservation at the buffer zone.

Variables	Categories	Frequency	Percentage
Source of bushfire	Anthropogenic	75	75
	Natural	25	25
Sources of Anthropogenic bushfire	Deliberate	67.4	67.4
	Accidental	32.6	32.6
Sources of deliberate bushfire	Hunting	35	35
	Vegetation clearing for vegetation/ Grazing	65	65
Sources of accidental bushfire	Dropping of cigarette butts	73	72.7
	On farm cooking	27	27.3
Attempt to control bushfire	Yes	86.4	86.4
	No	13.6	13.6
Benefits bush fire	Yes	24	24
	No	76	76
Source: Field Survey 2015			

Table 4: Bush fire activities and conservation at the buffer zone.

Discussion

In this part of the southwestern Nigeria as in other parts of Africa, wild animals are considered to be destructive to crops and source of protein, thus are hunted for crop protection and meat consumption for human population as supported by Asibey. Bush meat is a popular delicacy in both rural and urban areas of Ghana [5], as well serve as a valuable source of meat protein, especially for rural communities [6,7]. Conversely, bush meat prices tends to be more higher than that of traditional sources of meat protein goat, sheep, ram and cow etc.), thus commercial bush meat hunting become a major economic activity in this part of the country leading to an influx of migrant hunter from nearby community settlement to hunt already over exploited bush meat animals. A few members of the hunters in the site could be due to forest reserve made the area protected for forest conservation management. The regulations and forest laws binding the site had proved conservation effort effective in this part of the country with the alliance efforts of the traditional community leaders. The acceptance of the Oba hill forest reserve and its establishment in 1955 as a gazette forest reserve supported by effective management of the study area develop the wildlife conservation.

Large proportion of the respondents who did not consider farming activities as threats to wildlife conservation and environment result due to lack of awareness of the direct (source of meat protein, medicine, etc.) and indirect (seed dispersers, pollinators, etc.) uses of natural resources to human populations. Conversely, low priority given to wildlife conservation or environmental awareness among the wetland community. Therefore, farming was undertaken without due concern to sustainable land use practices, with large tracts of land being cleared for farming and infrastructural development at the expense of valuable wildlife habitat. The essential roles of wildlife in the ecosystem food web as pollinators, seed dispersers, predators or prey species of other animals did not seem appreciated by majority of the rural community. A sound appreciation of such indirect values for

wildlife is pertinent to prevent destruction of wildlife ecosystem (habitat) through farming and other human activities.

Bush fires are natural phenomenon beneficial to biotic and abiotic component of the ecosystems [1]. Nonetheless, indiscriminate and repeated anthropogenic bush fires impact negatively on such ecosystem needs to be concern. However, high effects of such activity are observed at core zone of the reserve (field survey, 2015). Unfortunately, bush fire settlers do not often taken into reflection the direct (killing through burning) and indirect (clearing vegetation and exposing vulnerable animals to predation) destructive effects on wildlife resources [8]. Thus, anthropogenic bush fires are consider as beneficial in many ways:

- Drive away dangerous animals such as snake from their shelter in dense vegetation.
- Promote efficiency of shortening grasses and attracting game animals after burning.
- Devastation of implantable grass (*Hydropogon contortus* and *Bothriichloa* species).
- Stimulating the sprouting of new and more palatable grass for grazing mammals at the onset of the wet season [9,10].

Conclusion

Above all, the results revealed the major anthropogenic activities that affect the conservation of natural resources in the study site. Hunting was of high pressure and illegal logging of timber wood during the study. Although, hunting pressure has increased over years, against the background of warning resilience of forest conservation practices in the study area [11-15]. Farming was also observed has another variables affecting the conservation of wildlife resources in the site though this would have reduce to minimal level but the present farm settlement established at the corridor of the forest reserve give more encouragement to farmers having no regards to conservation effort towards the resources in the forest reserve [15-19]. As part of conservation toward sustaining the economically important of forest products and natural resources conservation management initiatives at the site, following recommendations need to be practice [20-23].

- Adequate integration of the indigenous knowledge, practices and skills of the modern methods in conservation through involvement of local community participation in the initiatives, in order to develop sustainable conservation programmes should be adopted.
- Sound conservation education and awareness orientation campaign targeted the young children and youth, by stressing the direct and indirect values of biodiversity and the scientific basis of traditional wildlife conservation be initiated around the corridor of the protected area.
- Management integration of the traditional and modern knowledge systems of biodiversity conservation should be part of curricula in our middle schools.
- A forestation and re-forestation programmes that will attract wildlife to the traditional hunting grounds, and protection of such grounds from bushfires with other human activities to enable recovery of ungulate animals populations should be integrated in the management plan.
- Local inhabitants to harness other forms of biomass energy (crop residue, organic refuse etc.) should be encouraged to reduce pressure on fuel wood harvesting at the site.

- Adequate financial resources for forest management department and agencies involved in conservation practices in protected site and wetland to enhance their efficiency and government towards sustainable conservation should provide performance.

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