HUNTING, WOOD EXTRACTION AND BIODIVERSITY LOSS IN OBUBRA LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

Udumo, Bassey Obeten
Department of Environmental Education University of Calabar, Calabar
basseyobeten9@gmail.com

Igwebuike, Osedumme
Department of Curriculum and Teaching University of Calabar, Calabar
osedumme83@gmail.com&
osedumme_igwebuike@yahoo.com
&
Kujoh, Jude Ubuh
Department of Environmental Education University of Calabar, Calabar
Judekujoh123@gmail.com

Abstract
This study examined the relationship between hunting, wood extraction and l biodiversity loss in Obubra LGA of Cross River State, Nigeria. To guide the study, two research questions and two hypotheses were formulated. The population of the study was 172,444 indigene of Obubra Local government area of Cross River State. The sample of the study comprised of 228 indigenes in the research area. The sampling technique adopted for this study was purposive and accidental sampling techniques. Questionnaire tagged "Livelihood Activities and Forest Resource Conservation Questionnaire" (LAFRCQ) was the instrument used for data collection. Pearson Product Moment Correlation Coefficient technique was employed to test the hypotheses at .05 level of significance. Findings from the study indicated significant relationship hunting, wood extraction and biodiversity loss. it was recommended that indiscriminate hunting of wildlife should be discouraged and government through environmental agencies should help in controlling the rate of wildlife hunting to prevent loss of even total extinction of the endangered species. The government should make and enforce the law against uncontrolled wood extraction and logging activities in the research are while the defaulters are made to face the law.

Keywords: Hunting, wood extraction, biodiversity loss, Obubra, Cross River State.

Introduction
Biodiversity or biological diversity is the variety and variability of life on earth. Biodiversity is a measure of variation at the genetic, species, and ecosystem level. The variety among living things from various environments, such as desert, marine, and terrestrial ecosystems, as well as ecological complexity, is known as biodiversity. They could originate from any number of places, such as terrestrial, aquatic, and the ecological complexes of which they are a part. This includes diversity within and between species as well as diversity within and between ecosystems. Important biological resources that sustain human existence on Earth are provided by biodiversity (Ranius, Hämäläinen, Egnell, Olsson, Eklöf, Stendahl, Rudolphi, Stens & Felton, 2018)). In addition, biodiversity also provides unquantifiable services to humans. These services include nutrient and water cycling, soil formation and retention, resistance against invasive species, pollination of plants, and regulation of climates as well as pest and pollution control by

ecosystems. The world's gravest environmental worry is the rapid extinction of plant and animal species

At the 992 United Nations Conference on Environment Development "Earth Summit" in Rio de Janerio, Brazil, there was an important indication of growing international concern about biodiversity loss and its transformation from the scientific point of view to popular, political and ultimately diplomatic issues. The convention had its objectives as conservation of biological diversity, the sustainable use of flora and fauna, and the fair and equitable distribution of benefits among community members and all stakeholders arising from the utilization of these generic resources (Agbor, 2016). The high consumption rate of forest resources by the rural populace has led to the deforestation of the Cross River rain forest especially that of Obubra Local Government Area. This is because the rural dwellers especially in Obubra LGA, perceive the forest as a source upon which their livelihoods depend, hence the disruption of biodiversity is unavoidable. The status and trends of wildlife will not be adequately considered without considering their habitats.

Agricultural activities particularly for cocoa, palm oil and rubber, in addition crop farming were introduced to West Africa. This marked the beginning of large-scale utilization and modification of tropical forest ecosystem. Habitat clearance and alteration are the most important single threats to biodiversity. Serious concerns exist about environmental and ecological degradation from modern agriculture. A world in which poverty and inequalities are endemic will always promote ecological and other crises. Perceived needs are socially and culturally determined and sustainable values that encourage consumption standard that are within the bounds of the ecological possibility and to which man can reasonably aspire (Maikhuri & Negi, 2016).

Man's activity such as exploitation of natural resources leads to diverse environmental problems. Preserving the delicate balance of nature in biological resources appears to be most difficult and important aspect of serving our natural resources. This is because people have often upset this balance, for instance, poor farming methods have ruined most of the fertile soils and left it barren. Hunting and wood extraction are significant drivers of biodiversity loss, particularly in tropical ecosystems. Unregulated hunting decimates wildlife populations, disrupting delicate food chains and ecosystem balances (Stanton, Morrissey & Clark, 2018)). Meanwhile, rampant wood extraction for timber and fuelwood leads to widespread deforestation, habitat fragmentation, and erosion of ecosystem services (Sánchez-Bayo, Wyckhuys, 2019),). The consequences are stark: biodiversity loss accelerates, threatening the very foundation of ecosystem resilience and human well-being. A recent study found that hunting and deforestation combined account for nearly 50% of global biodiversity decline (Lister & Garcia, 2018). Urgent action is needed to address these interconnected threats. Sustainable forest management practices, eco-friendly wood harvesting, and community-led conservation initiatives can help mitigate biodiversity loss.

Opeyemi, Enefiok, Udo and Dan (2015) stated that the rainforest has been widely and indiscriminately exploited for timber with little or no attention given to the conservation of the much more valuable non-timber products. They affirmed that vast tracts of the rainforest have been degraded, denuded and eventually cleared to accommodate other forms of land use. Consequently, many tree species are threatened by extinction and considerable genetic resources have been loss

Hunting and wood extraction are devastating threats to global biodiversity. Unrelenting hunting pressures have led to widespread population declines, disrupting delicate ecosystem balances and pushing many species to the brink of extinction (Angula, Stuart-Hill, Ward, Matongo, Diggle & Naidoo, 2018). Meanwhile, rampant wood extraction for timber and fuelwood fuels deforestation, habitat fragmentation, and erosion of ecosystem services. The consequences are stark: biodiversity loss accelerates, compromising ecosystem resilience and

human well-being. A recent study found that hunting and deforestation combined account for nearly 50% of global biodiversity decline, emphasizing the urgent need for sustainable forest management and conservation efforts (Mbaiwa, 2018). Hunting and wood extraction are devastating threats to global biodiversity. Unrelenting hunting pressures have led to widespread population declines, disrupting delicate ecosystem balances and pushing many species to the brink of extinction (Mkono, 2019). Meanwhile, rampant wood extraction for timber and fuelwood fuels deforestation, habitat fragmentation, and erosion of ecosystem services. The consequences are stark: biodiversity loss accelerates, compromising ecosystem resilience and human well-being. A recent study found that hunting and deforestation combined account for nearly 50% of global biodiversity decline, emphasizing the urgent need for sustainable forest management and conservation efforts (Koot, 2019)

Despite this restriction to the parks, significant number of enclave communities now live inside and around the boundaries of the park and depend on the resources for their survival. Primary feature of these people in the park region is widespread poverty and illiteracy which is rarely conducive to conservation of natural resources. Local people see park as imposed restriction on their traditional rights; hence conservation has no basis in their system. Legislation as a major tool of management of biodiversity has appeared unsuccessful in Nigeria due to hunger and starvation. Based on the aforementioned, the researchers was poised to investigate the relationship between hunting and wood extraction and biodiversity loss in Obubra Local Government Area of Cross River State.

Theoretical framework

Theory of Legal pluralism by Boelens, Roth and Zwarteveen (2003)

Legal pluralism was conceptualized by Boelens, Roth and Zwarteveen in 2003 as a critic to the legal centralist point of view. According to Boelens, Roth and Zwarteveen, (2003), resource use and management appear to occur under legally plural conditions. Therefore, the use of the concept of legal pluralism as an analytical tool emerged and disseminated particularly in studies about natural resources exploitation and management (Boelens, Roth &Witteveen, 2003). The same authors advocate for a link among the increasing recognition of the importance of legal complexity and the more general pattern allowing for ambivalence, conflict, complexity and contingency in analyses of resource harvesting and management processes. In fact, in forests, community members rarely share homogenous interests, as well as they also differ in which institutions they use in different contexts (Boelens, Roth & Zwarteveen, 2003).

Hence in forest management, different people engage in different ways in various social practices, such as tree cutting, timber processing, transporting lumber, making laws, facilitating meetings, making charcoal, collecting non-timber product or trading forest products. Each of these roles requires a set of practices that are based on a proper understanding of what is legal. When operationalizing the concept of legal pluralism, it is important to recognize that the concept of law (what is legal) is not straightforward. It may mean different things to different people, and hence the meaning and significance have to be investigated, as well as the ways by which it becomes significant in strives over control and exploitation of people and natural resources by governments, business enterprises, individual rural people or local population groups (Benda-Beckmann, 2001). Actually, whether or not some claim or relation to resources is 'legal' indicates who has the right to exercise political control over people and resources, and who can exploit them economically and profit from it. As a consequence, the definition of what law is, and what legal rights are, is therefore highly political (Benda-Beckmann, 2001).

Nonetheless, both state legal and non-state legal institutions, whether identified or not in state law, are perceived as important factors that compose the existing reality of complex normative systems. The relevance of this theory to this study is directly on the legal perspective

of not only considering the direct gain of exploiting natural resources but also the legal implication. This will go a long way in controlling the unguarded usage of environmental resources that has both environmental, physical and economic impact of the populace.

Statement of problem

Most local economy deals with rural economic activities that yield income to the rural investors. The rural dwellers economy focuses on optimal harnessing of rural resources for enhancement of the living conditions of the rural dweller. They deal with agriculture and agriculture related activities (wood extraction, livestock farming, land cultivation, etc.), forest and forest products exploitation such as logging, Non-Timber Forest Products (NTFPs), hunting activities for sustenance. These activities of rural dwellers have upset and outbalanced the nature in biological resources. The rural dwellers exploit forest and other natural resources having in mind that the environment is nature's gift. Therefore, they have the fundamental right to exploit the resources unsustainably.

Presently, the communities in Obubra Local Government Area are experiencing massive increase in the rate of deforestation, which is as a result of unsustainable logging activities, crude method of harvesting non-timber forest products (NTFPs), unsustainable method of land cultivation, indiscriminate hunting practices. These rural dwellers' activities and unregulated pattern of hunting have affected biodiversity in the area.

Study objectives

This study sought to:

1. Investigate the relationship between hunting activities and loss of biodiversity in Obubra Local Government Area of Cross River State.
2. Examine the relationship between fuel wood extraction and loss of biodiversity in Obubra Local Government Area of Cross River State.

Research questions

1 How does hunting practices relate to loss of biodiversity in Obubra Local Government Area of Cross River State?
2 How does fuel wood extraction relate to loss of biodiversity in Obubra Local Government

Statement of hypotheses

1 Hunting activity is not significantly related to loss of biodiversity in Obubra Local Government Area of Cross River State.
2 There is no significant relationship between fuel wood extraction and loss of biodiversity in Obubra Local Government Area of Cross River State.

Methodology

The present study is anchored on survey research design. It is a design which is utilized when research work is focused in obtaining and analyzing data from a few subjects considered as a representative of an entire population in line with an investigated phenomenon, with the expectation of generalizing such finding on the entire population (Salaria, 2012). The approach was used based on the study's focus which is to obtain and analyse data from a given population's representative with an intention of generalizing the finding on the study's population. Specifically, the approach was adopted data from a sample of rural dwellers with the aim of generalizing the finding on the entire population of rural dwellers in the study area**.** Purposive and accidental sampling techniques will be adopted for the study. First Obubra Local Government area was purposively selected based on high concentration of forests users in the area. Second stage, three communities was purposively selected for the above stated reasons.

Having done this stage, 5% of forest users in each of the communities will be accidentally selected as the instrument will only be given to the individuals the researcher will be able to assess. The instrument used for data collection was Questionnaire tagged "Livelihood Activities and Forest Resource Conservation Questionnaire (LAFRCQ)". Pearson Product Moment Correlation Statistics was used to analyze the hypothesis. The data were analyzed at .05 level of significance and 226 degrees of freedom'

Results

The results of data analyses are presented in this section hypothesis-hypothesis

Hypothesis one: Hunting activity is not significantly related to and loss of biodiversity in Obubra Local Government Area of Cross River State.

Table 1: Pearson Product Moment Correlation (PPMC) of relationship between Hunting practices and loss of biodiversity in Obubra Local Government Area of Cross River State (N=228)

Variables	$\overline{x}$	SD	r-ratio	Df	p-level
Hunting (X)	12.43	1.322	-.512*	226	.002
Loss of biodiversity (Y)	27.47	2.332			

*Significant at .05 level; p<.05.

In testing this hypothesis Pearson Product Moment Correlation (PPMC) was used. The result of data analysis is presented in table 1.

The finding showed that hunting had a mean score of 12.430 with a standard deviation of 1.322 while forest resource conservation had a mean score of 27.47 with standard deviation of 2.332, also the p-value of 0.002 is less than p<.05. The outcome further showed that the r-calculated value of -.512 is greater that critical-r of 0.166, tested at .05 level of significance and 226degrees of freedom. With reference to this result, the null hypothesis which stated Hunting practices is not significantly related to loss of biodiversity in Obubra Local Government Area of Cross River State was rejected showing that there is indeed Hunting practices is significantly related to loss of biodiversity in Obubra Local Government Area of Cross River State, This implies that extensive hunting of wildlife is highly inimical to forest resource conservation therefore need to be controlled to enhance efficient forest resource conservation in the research area.

Hypothesis two: There is no significant relationship between fuelwood extraction and loss of biodiversity in Obubra Local Government Area of Cross River State

TABLE 2: Pearson Product Moment Correlation (PPMC) of relationship between fuelwood extraction and loss of biodiversity in Obubra Local Government Area of Cross River State (N=228)

Variables	$\overline{x}$	SD	r-ratio	Df	p-level
fuelwood extraction (X)	11.37	2.0209	-.291*	226	.000
Forest conservation (Y)	27.47	2.332			

*Significant at .05 level; p<.05.

In testing hypothesis two Pearson Product Moment Correlation (PPMC) was used. The result of

data analysis is presented in table 2

The finding Table 2showed that fuelwood extraction had a mean score of 11.37 with a standard deviation of 2.0209 while forest resource conservation had a mean score of 27.47 with standard deviation of 2.332. The outcome further showed that the r-calculated value of -.291 is greater that critical-r of 0.166, tested at .05 level of significance and 226degrees of freedom. Also, the p<.000 is less than p<.05. With reference to this result, the null hypothesis which stated that there is no significant relationship between fuelwood extraction and loss of biodiversity in Obubra Local Government Area of Cross River State was rejected showing that there is a significant negative relationship between fuelwood extraction and loss of biodiversity in Obubra Local Government Area of Cross River State. The result implies that cutting down of trees for fuelwood destroys the forest structure and the biodiversity generally through habitat displacement etc.

Discussion of findings

Data in table one examined the relationship between hunting activity and loss of biodiversity in Obubra Local Government Area of Cross River State. The finding of the study revealed that there is a significant relationship between hunting activity and loss of biodiversity in Obubra Local Government Area of Cross River State. The result f the analysis is n line with the study of Angula, Stuart-Hill, Ward, Matongo, Diggle and Naidoo (2018) that stated that hunting and wood extraction are devastating threats to global biodiversity. According to the authors, unrelenting hunting pressures have led to widespread population declines, disrupting delicate ecosystem balances and pushing many species to the brink of extinction the consequences are biodiversity loss accelerates, compromising ecosystem resilience and human well-being. Mbaiwa (2018) equally discovered that hunting and deforestation combined account for nearly 50% of global biodiversity decline, emphasizing the urgent need for sustainable forest management and conservation efforts Hunting and wood extraction are devastating threats to global biodiversity.

Data in table 2 show that the null hypothesis was rejected. This means that indeed there is a significant negative relationship between fuelwood extraction and forest resource conservation in Obubra Local Government Area of Cross River State. The result of this analysis is in harmony with Opeyemi, Enefiok, Udo and Dan (2015) who noted that the rainforest has been widely and indiscriminately exploited for timber with little or no attention given to the conservation of the much more valuable non-timber products. They affirmed that vast tracts of the rainforest have been degraded, denuded and eventually cleared to accommodate other forms of land use. Consequently, many tree species are threatened by extinction and considerable genetic resources have been loss. The finding in hypothesis two equally aligns with the study of Koot (2019) who found that hunting and deforestation combined account for nearly 50% of global biodiversity decline, emphasizing the urgent need for sustainable forest management and conservation efforts (Koot, 2019)

Conclusion

In conclusion This study revealed that hunting and wood extraction activities in Obubra Local Government Area of Cross River State, Nigeria, have led to significant biodiversity loss, threatening the very existence of endangered species and the ecosystem's resilience. Urgent implementation of sustainable forest management practices, community-led conservation initiatives, and policy reforms are imperative to mitigate these impacts and preserve the rich biodiversity of the region. Based on the findings of the study, the following recommendations were made:

1. Indiscriminate hunting of wildlife should be discouraged and government through environmental agencies should help in controlling rate of wildlife hunting to prevent loss of even total extinction of the endangered species
2. The government should make and enforce the law against uncontrolled wood extraction and logging activities in the state while the defaulters are made to face the law.

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