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ASSESSING THE IMPACT OF WILDLIFE HUNTING IN OTUKPO, BENUE STATE, NIGERIA

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ABSTRACT: *The purpose of this study is to assess the impact of wildlife (animals) hunting in Otukpo Local Government Area of Benue State, Nigeria towards tackling the threatening extinction of wildlife from their habitat in Nigeria. Structured questionnaires and interviews were employed to obtain information from 150 sampled respondents (hunters). Data were analyzed using SPSS version 16.0. Results of the research study show that most hunters in the study area hunt mainly for the purpose of income and meat for domestic diet/protein. Hunting is causing serious threat to biodiversity and thereby leading to the extinction and decline in animal's population, outbreak of diseases such as Ebola Virus Diseases (EVD) in and around the study area. Habitat loss, fragmentation, degradation, pressure from human population, loss of forest to alternative land use, and over exploitation are the causes of the extinction of wildlife in the study area. As a result of that, government at all levels and all the stakeholders that are involved in this sector should provide the following: alternative sources of income and protein, establish game reserves, demarcate protected areas and sanctuaries, enact laws and regulations on hunting, give loans to farmers and enlighten the general public on the importance of wildlife conservation and the effect of wildlife hunting towards achieving Sustainable Development Goals.*

Keywords: Biodiversity, Conservation, Habitat loss, Wildlife hunting, Nigeria.

1. INTRODUCTION

Wildlife refers to animals, birds, and other living things, living in a natural undomesticated state. It is estimated that Nigeria has a striking biodiversity. It is home to gorillas, chimpanzees, baboons, and elephants. The country has 274 mammal species, over 20 species of primates 154 reptiles, 53 amphibians, over 20,000 insects' species, 109 snails' species and 899 species of birds (Happold, 2010). In Nigeria, wildlife forms a great proportion of the animal protein being consumed. For various rural populations, wild animal meat provides a flexible source of income, a direct source of affordable protein with good storage qualities and safety net in times of particular hardships. The Cross-River Gorilla (2010) observed that several wildlife species have been sold for ritual and fetish uses, souvenirs, and decorative purpose, and when captured alive, as pets. Animal parts like Gorilla skull, Lion's head, Buffalos' heads, and the skin, feather and furs of animals have been traditionally kept as trophies in many Nigerian communities. The rising demands on wild animal meat for income, vitality and cultural needs have therefore made wildlife trade a strong emerging economic and livelihood activity for both local and urban people. Although in the past, hunting wildlife was primarily for household

consumption as source of protein, there is a paradigm shift from subsistence to commercial hunting for income recently (Ape Alliance, 1998; Fa et al., 2002; de Merode et al., 2004; Okiwelu et al., 2009). Wildlife is facing serious global challenges, many flora and fauna species are continuously driven closer to extinction on daily basis. Less than 9% of the earth has been set aside as protected areas and there is constant pressure from increased human and cattle population, uncontrolled development of community on forest resources has ultimately caused fragmentation and degradation of wildlife habitats. Although bush meat trade is socio-economically important, researchers have condemned the unsustainable and illegal hunting and harvesting of wild animal meat for commercial purposes as a serious threat to the populations of these wild animals, including trade in them (e.g. Ape Alliance, 1998; de -`Merode et al., 2003; Fa et al., 2003; Okiwelu et al., 2009). Thus, Oates et al., (2000) and Brashares et al., (2001) noted that bush meat extraction in Africa is very high and West Africa mainly hunts game animals to the point of local extinction of some animal species. Also, Ape Alliance, (1998) observed with confidence that urban centres are foci for the growing trade in wild animal meat within the geographical region of Central and West Africa.

Studies on bush meat trade are therefore important and fundamental to the development of effective conservation policies and sustainable management of wild animals (Bowen- Jones et al., 2003; Samantha et al., 2003; Guy et al., 2004). In Kruger National Park of South Africa, Rhino are major target for hunting; their horns are so valuable. Hunters sell their horns at high prices. The number of Elephant in Serengeti National Park Tanzania and other areas in Tanzania seriously declined (Serengeti, 2000). Hunting, therefore, has become more pervasive and is commonly taking place from the depths of the oceans to the highest mountaintops, no environment is spared from hunting and all wildlife species can be drawn into the immense illicit trade (Granby, 2012). Almost every country faces hunting issues although different items, species or wildlife products are hunted. The African Elephant (*Loxodonta africana*) and Rhinoceroses are more recent victims of hunting.

The hunting of wildlife species has been worsened by the increasing availability of rural infrastructures such as feeder roads, which make the transportation of commercial bush meat from the rural to urban areas easy (Wilkie and Finn, 1990). This illegal activity flourishes in spite of Nigeria's Endangered Species Act 11 of 1985, which placed various categories of Nigerian wildlife under protection in line with the global Convention on International Trade in Endangered Species (CITES), to which Nigeria is a signatory. Hunting and habitat destruction have seriously depleted populations of wild animals in Otukpo area of Nigeria. Almost all wildlife species are less abundant than they were, some are threatened with extinction. In addition, many rural people still depend on wild animal as a source of food; and the sale of live animals for pets or laboratory use has further depleted stocks. Population of animals has been reduced as their forest habitats have been destroyed.

1.1 The Nigerian Perspective on hunting of Wildlife and Conservation

Proper management of natural resources in any nation projects good image and strength of the country. Forest or any sizable community of trees, shrubs and herbs play indispensable roles in creating and preserving a quality environment (Nwoboshi, 2000). Conservation practices on natural resources are positive, embracing preservation, maintenance, sustainable, utilization, restoration and enhancement of the resources (IUCN, 1980). Countries worldwide have designated some areas as protected areas resulting in many benefits. This includes the central role they play in socio-economic development of local inhabitants in surrounding rural areas. They contribute to the better life and standard of living of people. In national parks, game reserves and other protected areas unique natural resources (flora and fauna), sceneries and landscapes areas are protected, managed and regulated for human benefit from one generation to another. These protected areas are harboring outstanding natural resources and scenic areas of national or international interest/important for scientific, educational and recreational uses.

To maintain healthy ecosystems we have to strive to achieve a balance between society's ever-increasing need for goods and services and conservation of natural environments. Ecological zones influence local and global climate and man depend on suitable environment for his optimum performance. Building of infrastructures, staff capacities, making management plans, carrying out public enlightenments as well as immediate host community participation in park management are quite commendable conservation practices man is trying to implement for proper conservation of natural resources (Ejidike, 2010). However, more need to be done in the areas of updating the laws governing the protected areas in Nigeria so as to reflect the current realities especially in the area of sanctions being impose on the defaulters in protected areas.

Nigeria is a nation that is endowed with numerous natural resources. In Nigeria, conservation of diversity of wildlife species are maintained at the optimum level proportionate with other forms of land use in order to ensure the continued existence of wildlife for the purpose of their sustainable utilization for benefit of the people and this is among the objectives of Nigerian National Park Services (NNPS, 2006).

Nigerian rainforest zones and savanna areas have the potentials of providing for human needs in terms of economy, leisure among others (Ejidike, 2010; Idris et al., 2014). Maintenance of various reserves and parks and proposals for more in Nigeria has long term strategies in conserving the naturally endowed biodiversity in the nation.

1.2 Conservation strategies for preservation of wildlife in Nigeria

- Establishment of game reserves, National parks and protected areas. These serve for the protection of wildlife, rare or endangered species, and for recreational purposes. Protected area is designed to suit resources and requirement for conservation.

conservation practices on natural resources in Nigeria is positive embracing preservation, maintenance, sustainable utilization, restoration and enhancement of the resources (IUCN, 1980) protected areas contribute to the better lifestyle and standard of living of people. Landscape areas are protected and managed and regulated for human benefit from one generation to another (NNPK, 2006).

- Establishment of agencies for conservation e.g Department of wildlife, Ministry of Agriculture, Nigerian Conservation Foundation
- Making of conservation laws, edicts or decrees
- Prohibition of bush burning as it may lead to migration, death and displacement of species.

Nigerian has several national parks and game reserves across all the states which has been gazette as shown in figure 1.

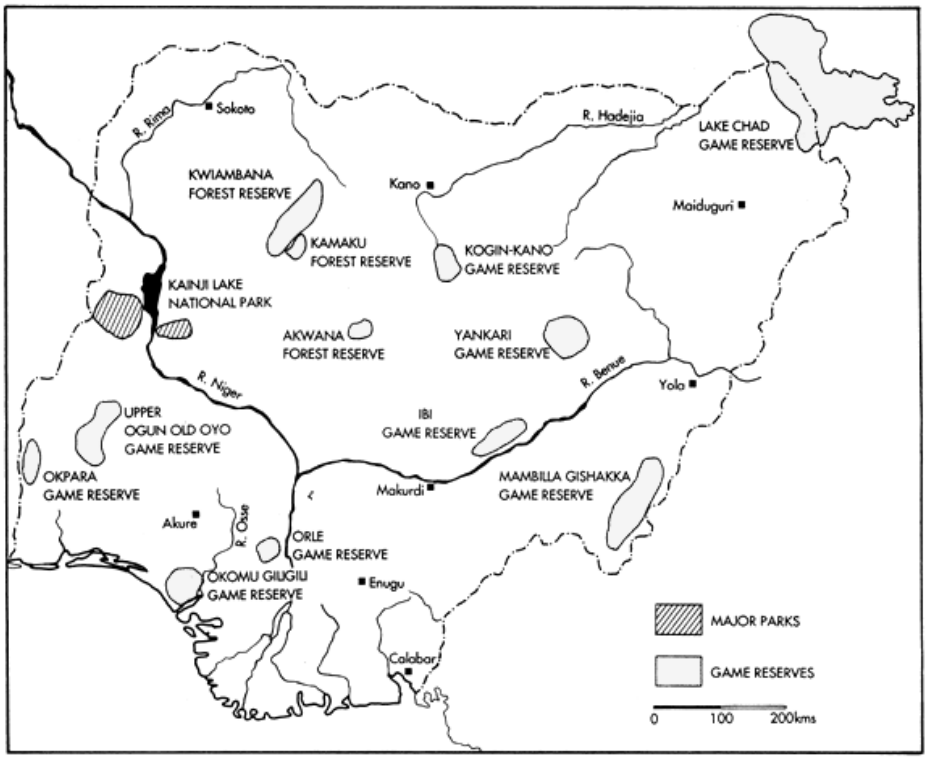

Figure 1: Locations of National Parks and game reserves in Nigeria

Source: Nigerian Conservation Foundation, 2008

2. THE STUDY AREA

This research work was conducted in Otukpo Local Government Area of Benue State, Nigeria. Benue State is the food basket of the nation because of its rich and varied agricultural produce. It was created on the 3rd February, 1976. It was carved out of the Middle Belt Region. It is the

seventh most populous state in Nigeria. The state is located in the Southern Guinea Savannah which is a transition belt between the grassland savannah in the North and the rainforest in the South. It is one of the six states constituting the North central region of Nigeria. Benue lies within the lower Benue in the middle belt region of Nigeria. Its geographic coordinates are $7^0$45' and $10^0$00' east. Latitude $6^0$25' and shares boundary with other six states namely: Nasarawa to the North, Taraba to the East, Cross River to the South, and Enugu to the South-west (Figure 2). Along the banks of the Benue are fertile soils for cultivation of several crops which has earned the state a nick name: The Food Basket of Nigeria''. Benue has a population of 4,780,359 and occupies a land mass of 32,511km^2 (NPC, 2006).

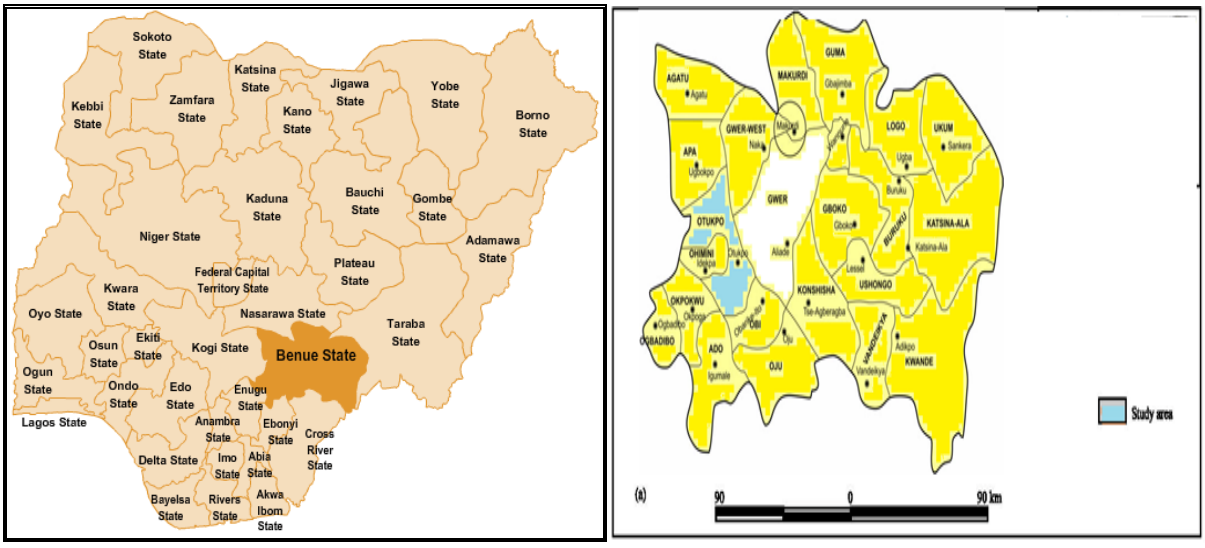

Figure 2: The study area

The vegetation of Otukpo is made up of mostly of giant grasses and tree species like *Vitellaria paradoxa, Parkia biglobosa, Khaya senegalensis, etc.* The study areas are made up of rural settlements dominated by farmlands. The study area is also primarily made up of sedimentary rocks, which comprise of shales and sandstone of the cretaceous period. As it is the case with other parts of Nigeria, Otukpo has two seasons, namely, the wet season and the dry season. Controlled by the West maritime and South-westerly monsoon wind from the Atlantic Ocean, the wet season usually starts from the end of April, breaks briefly in August and stops by mid October. At the beginning of the season, conventional rainfall is frequent and it is usually accompanied by thunder. The heaviest rains are recorded between July and September. The mean annual rainfall has been approximated at between 1016mm and 1524mm respectively. The dry season is characterised by the harmattan wind, which is a Northeasterly wind from the Sahara desert. This season normally starts from late November and lasts till the end of March.

During this period, the daily temperature of the land drops to between 25^{o}C and 35^{o}C and an average relative humidity of between 60% and 90% that makes many parts of Otukpo very hot.

3. RESEARCH METHODOLOGY

This research work was conducted in Otukpo local government area of Benue State; Nigeria. The study was carried out in six (6) selected communities in Otukpo Local Government Area of Benue State. These communities include: Adoka, Ibaji, Ilaba, Odaubi, Ogobia and Ondo (Table 1). The population of the research study include; hunters (hunters union), youth and village heads. The population of the study focused on hunters within the six (6) communities. This is because hunters are the focus group in this study. Great percentages of people living within these communities are hunters and farmers as their main occupation. As a result of high migration rate, it is difficult to estimate the population of the area. Result from 2006 national population census shows that Otukpo Local Government has a total population of 266,411 people, and using the annual growth rate of 2.83%, the population now at 2014 is 346,334.

Table1: Population and No of Questionnaires administered in the study

Communities	Population	Estimated number of hunters	Sampled number of hunters
Adoka	989	104	27
Ibaji	562	92	24
Ilaba	867	67	18
Odaubi	912	98	26
Ogobia	1012	120	32
Ondo	718	89	23
Total	5060	570	150

As shown in table 1 above, 150 respondents representing 11% of the total population of the study were administered. Random sampling was employed in the distribution of questionnaire to wild life hunters in their residential places. These sampling techniques was adopted so that respondents will have equal chances of been sampled. It was base on who was available and was willing to respond at the time of questionnaire administration. Data collected from the

administered questionnaire were analyzed using Statistical Package for Social Sciences (SPSS) version 16.0.

4. RESULTS AND DISCUSSION

4.1 Economic importance of wildlife

Bushmeat plays an important role in consumption across all households (Figure 3). The demand for wild animal meat is high as a result of its numerous economic importances. The results revealed the following as the economic importance of wild animal meat consumption: the responses of respondents revealed that 34% of the respondents see the benefit for meat consumption while for transportation is 4%, protection is 10%, relaxation and fun is 2%, for animal parts is 13.3%, income is 36.7% and medicinal purposes takes 4.7% of the respondents.

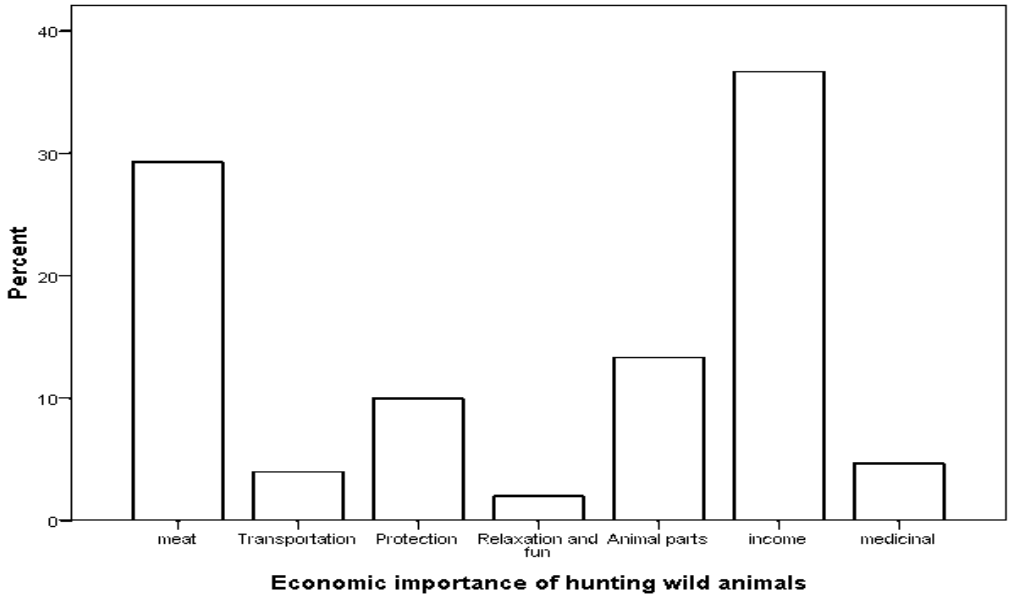

Figure 3: Economic importance of wildlife

4.2 Reasons for hunting

The results from the field show that majority of respondents (hunters) i.e. 78.7% hunt for the purpose of the importance of wildlife, while for cultural tradition has only 5.3 % of the respondents, for prestige has 4.7% community strengthening has 9.3% and 2% tick for other reasons (Figure 4). Apart from income generated through direct employment in wildlife based ventures, wildlife also contributes directly to household income through hunting, trade in wild animal meat, trophies, as well as live animals and craftwork based on wild animal product assist rural economies and provide income sources for the rural community who have few opportunity

for earning money and the income is used to provide daily need. The universe is replete with indices of immeasurable contributions that wildlife species have made to human development in virtually all countries of the world. Human beings have profitably utilized several kinds of animal species for traction, power generation, clothing, research, medicine, sports, tourism and entertainment

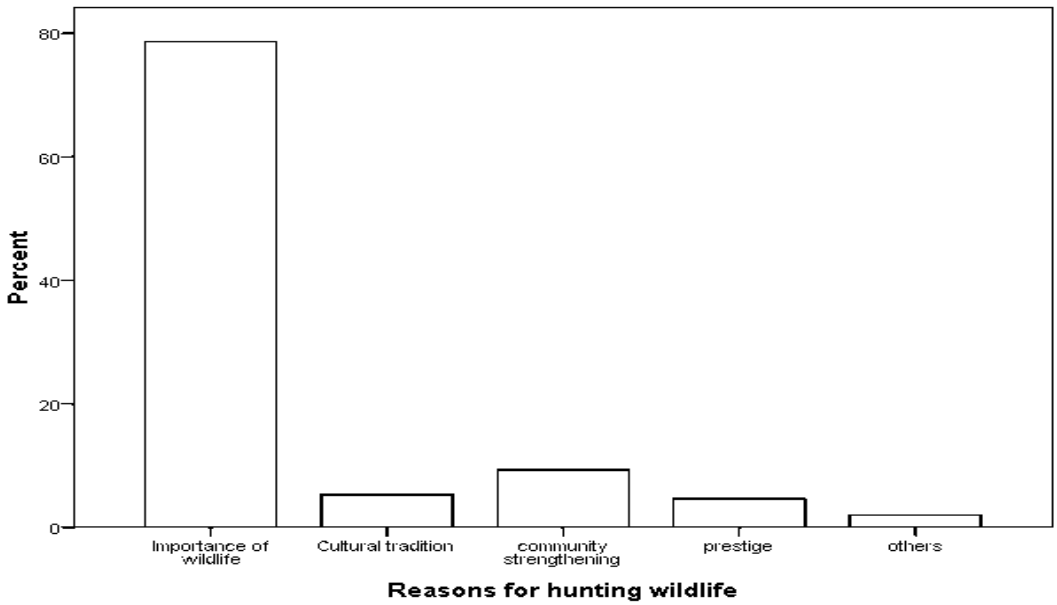

Figure 4: Reasons for hunting

4.3 Quality of hunting

Result shows that 68.75% of the respondents suggested dry season as the best period for hunting wildlife, 22.7% suggested wet season and 8.7% suggested both (Figure 5). Hunters usually experience quality hunting during dry season; this is the period that bushes and jungles are set on fire and various species of wildlife are being hunted and traded. But during rainy season, a lots of water arising from water pools, making it very difficult to hunt and thus, hunters prefers the dry season period.

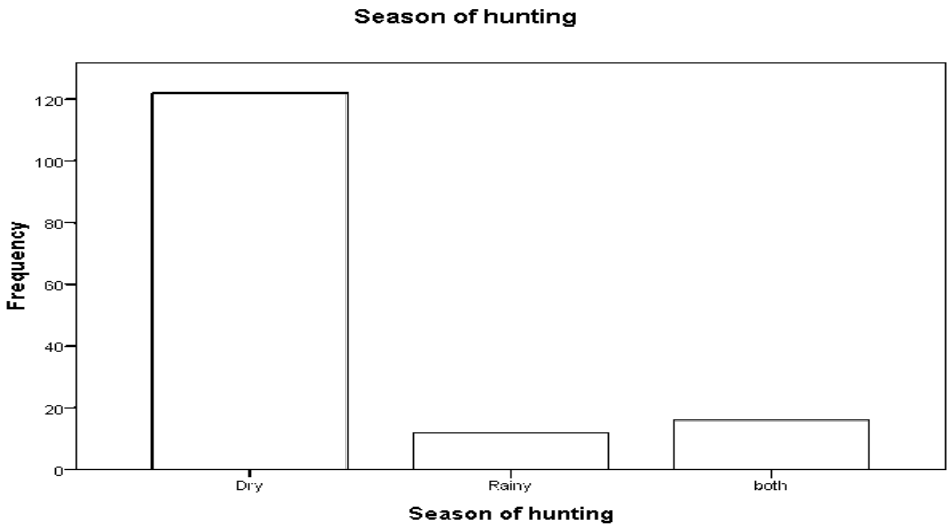

Figure 5: Quality of hunting

4.4 Species Hunted

Figure 6 shows the species of animals been hunted for in the study area. However, the list of species was compiled from the information gathered from the respondents during a special visit to hunters market popularly called "Bush Market" in the study area. Majority of the species mentioned are indigenous to the study area. While table 2 shows the common names and the scientific names attached to each species for proper identification.

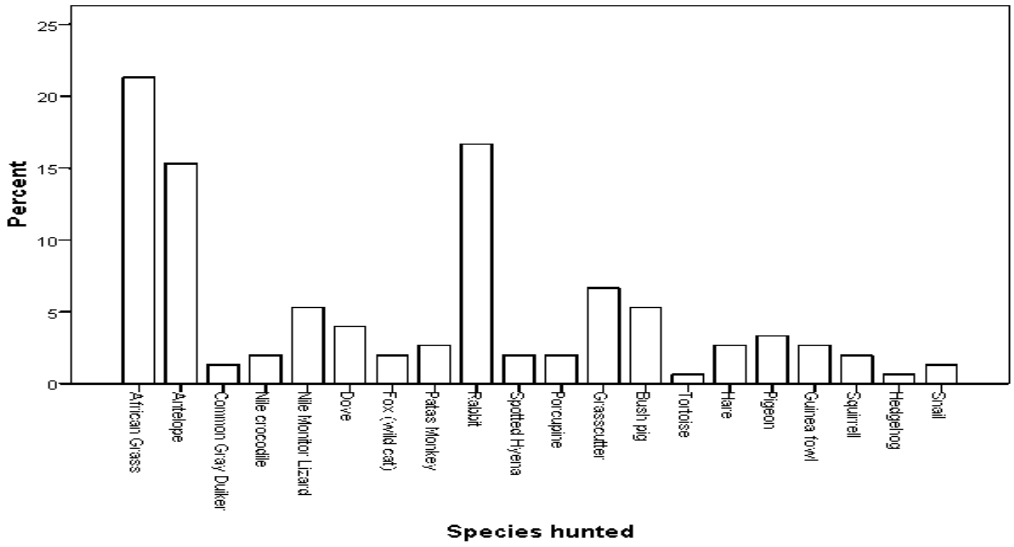

Figure 6: Species Hunted

Table 2: Species Hunted in the Study Area

Common name	Scientific Name
African Grass Alligator	*Arvicanthus niloticus*
Antelope	*Alligator mississippiensis*
Common Gray Duiker	*Sylvica pragrimmia*
Nile crocodile	*Crocodylus niloticus*
Nile Monitor Lizard	*Veranus niloticus*
Dove	*Zenaida macroura*
Fox (wild cat)	*Vulpesspp, Felis*
Patas Monkey	*Erythrocebus patas*
Rabbit	*Sylvilagus brasiliensis*
Spotted Hyena	*Crocuta crocuta*
Porcupine	*Atherurus africanus*
Grasscutter	*Thryonomis swiderianus*
Bush pig	*Potamocheorus spp*
Tortoise	*Geochelone elephantopus.*

Hare	*Lepus spp*
Pigeon	*Columba livia*
Guinea fowl	*Agelastes niger*
Squirrel	*Sciurus niger,*
Hedgehog	*Atelerix spp*
Snail	*Achatina fulica*

Source: Field Survey 2014

4.5 Method used by hunters

Data collected shows that 11.3% of the respondents use traps, 13.3% use powdered rifles, 10.7% use bows and arrows, 16% use wire snare, 43.3% use dogs and 5.3% use other means as hunting method. Hunting in big game in Africa, like elephant and Rhino are mostly unskilled and uses local tools for hunting. Hunters used under powered riffles resulting in the animal severely wounded and dying slowly. Wire snares are used to trap animals. Animals get trapped around the legs leading to serious injuries, as captured animals struggle to get free, and the necks of smaller animals resulting in individuals being strangled to death. Besides shooting and snaring, there are other conventional methods of hunting. There have been reports from Mozambique of hunters using land mines to hunt ivory. Due to the size of an elephant, the mines are not usually sufficient to kill the animal instantly and it bleeds out many days or dies of subsequent infection. Highly organized hunters in South Africa have used Helicopters to track and shoot Rhino.

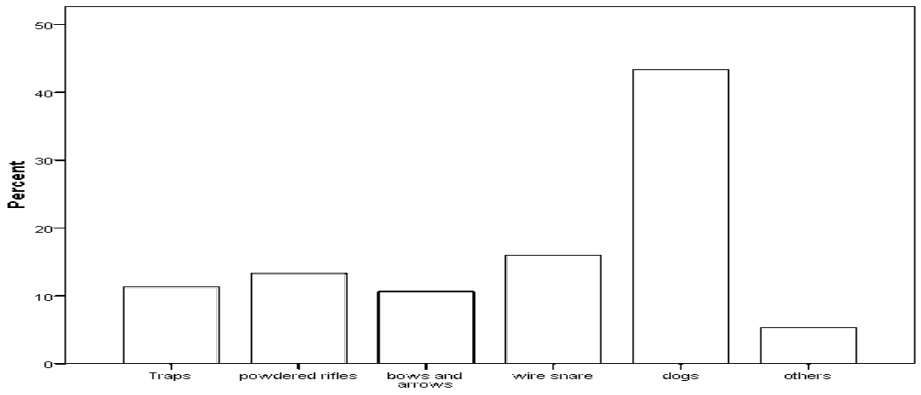

Figure 7: Method used by hunters

4.6 Impact of hunting

The results from the field show that 49.3% of the respondents suggested decrease in animal population, 30% suggested hunting lead to extinction of animals, 8% suggested endanger animal species, 8% suggested ecosystem imbalance and 4.7% observes other factors.

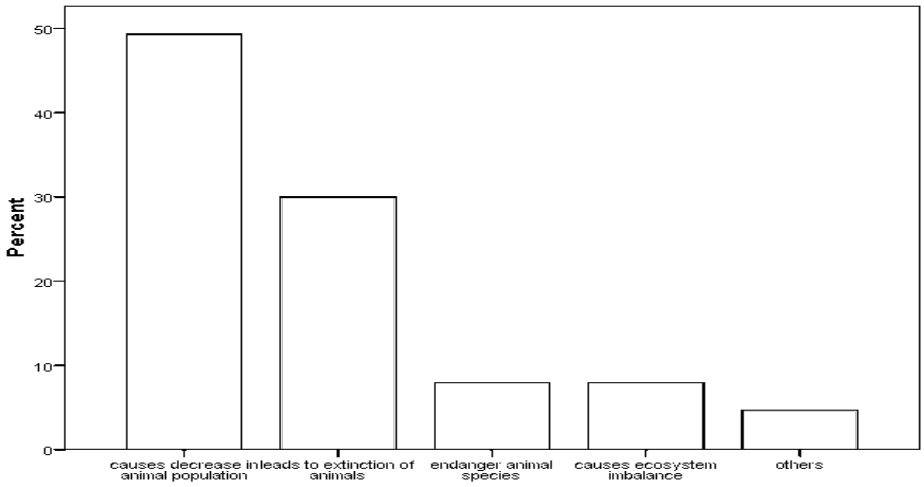

Figure 8: Impact of hunting

4.7 Causes of extinction of wild animals

About 21.3% of the respondents suggested that pressure from human population growth causes extinction of wild animals while 7.3% suggested globalization, 4% suggested loss of forest to alternative land use such as agriculture, 6% suggested urbanization, 46.7% suggested hunting, 6.7% suggested new roads opening up in previously inaccessible areas as the factor for the extinction and only 8% suggested other factors as shown in figure 9. In spite of the innumerable benefit mankind derive from wildlife resources, man´s inhumanity to animal species remain unceasing and unabated. Thus, these human activities such as bush burning, damming of rivers, draining of swamps, environmental pollution, hunting and hunting are threatening their existence leading to extinction. Invariably, many more are faced with extinction and classified as threatened species, others are fairly abundant but face serious threats to their survival while many are endangered species and are seriously threatened thereby requiring human protection for survival.

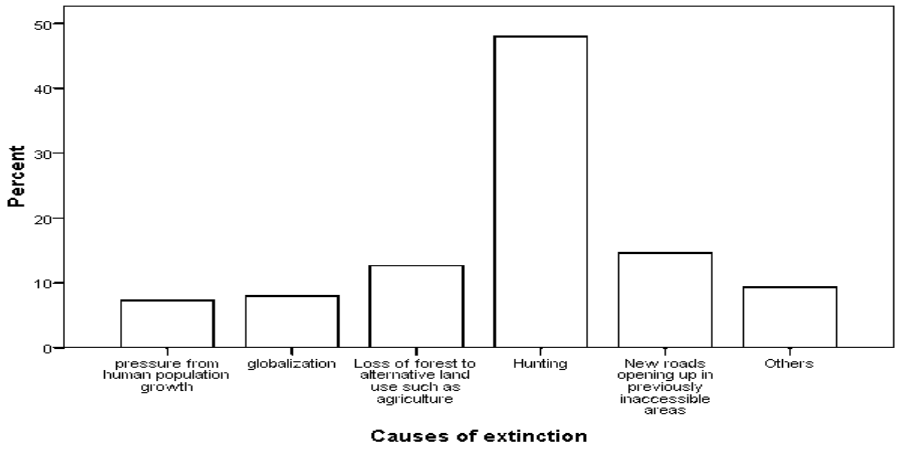

Figure 9: Causes of extinction of wild animals

4.8 Measures towards addressing the problem of hunting

Results from the field revealed that 20.7% of the respondents suggested that provision of social amenities will solve hunting problem while 28% suggested creating employment opportunities, 16.7% suggested government should give loan to farmers, 14.7% suggested educating the villagers on the effect of hunting, 10.7% suggested hunting should be licensed and 9.3% suggested other reasons as solution to hunting problem (Figure 10).

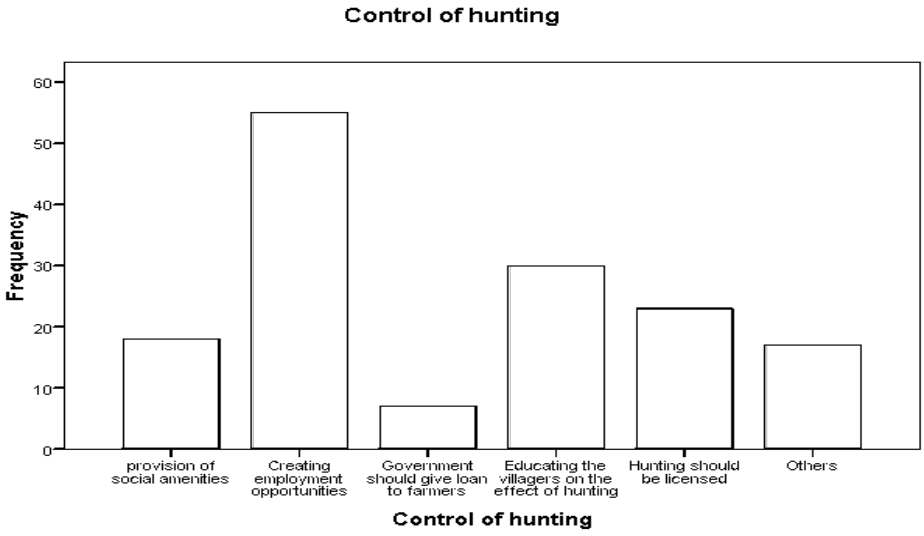

Figure 10: Measures to control hunting

4.9 Major problem in the implementation of wildlife laws

The results from the field showed that 17.3% of the respondents mentioned lack of political support and corruption as a major problem in the implementation of wildlife law while 16%

suggested poor infrastructure, 16% says lack of awareness, 31.3% suggested lack of coordination among law enforcement authority and only 20% considered other reasons as a factor as shown in figure 11. Nevertheless, the existing variety of legislation on biodiversity need coordination for effective application while lack of and/or poor enforcement mechanism by institutional bodies and government inhibit appropriate polices on the conservation.

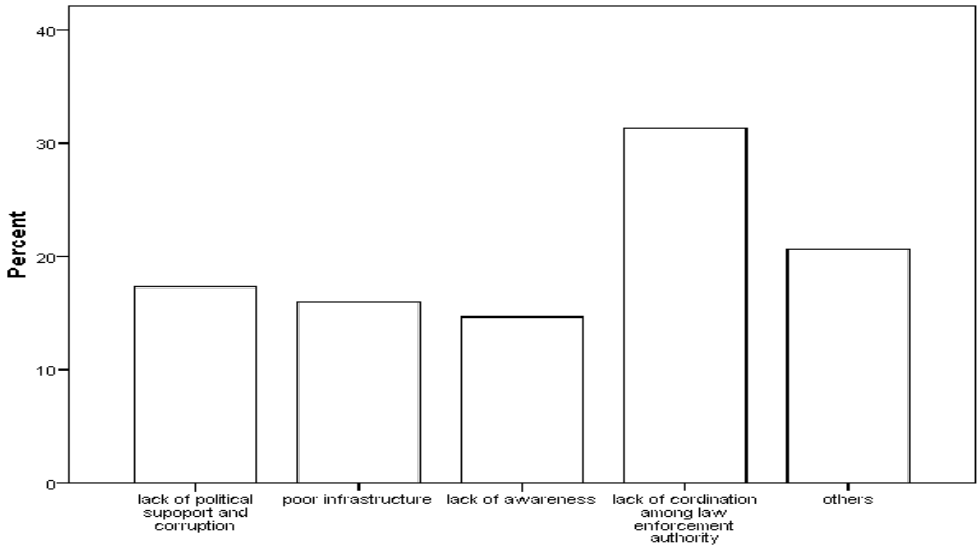

Figure 11: Major problems in the implementation of wildlife laws

5.CONCLUSION AND RECOMMENDATIONs

This study has revealed that wildlife hunting has significant impact globally as the world is moving towards achieving the new sustainable development goals for future generations and if care is not taken, some of the species currently in existence today, may not be available for the unborn generation to see the species in question if the current trend in hunting continues and which are also causing imbalance in our ecosystem today. In addition, habitat loss, habitat fragmentation, habitat degradation, pressure from human population growth, globalization, loss of forest to alternative land use such as agriculture, urbanization, hunting, over exploitation and construction of roads are seriously causing mass extinction of species today. Exploitation of wildlife in Nigeria has caused serious population decrease of the species. The most obvious environmental impact of hunting is depletion of the number of wildlife present in a given area. And, the depletion of one species is analytically bound to the effects it has on other species as ecosystem is the basic functional unit of ecology and most species depend on each other in one way or the other. However, contributory factors like hunting, demand for food by a rapidly increasing human population, scarcity of energy, poverty, pollution, overgrazing, bush burning, poaching among others are adversely militating against the sustenance of wildlife and game management in Nigeria. To ameliorate the harmful effects of hunting to our environment,

Nigeria has to put in place legal and institutional frameworks to protect both flora and fauna species from local extinction through enactment of enforceable laws on wildlife protection. The primary causes of hunting in Nigeria is unemployment, this could be as a result of corruption therefore, government officials and other custodians of wildlife management should engage in anti-corruption campaign and provide employment opportunities. Public education at all levels to create awareness on the impact of wildlife hunting should be pursued. Alternative sources of protein (e.g., promoting the rearing of free-ranging poultry) should be promoted to relieve the pressure on wildlife from rural and urban demand for bush meat. Creating of alternative livelihood for wildlife traders and hunters should also be proposed. Establishment of local agencies for biodiversity conservation and establishment of game reserves, national parks and other levels of protected areas in the state should also be introduced. And finally, government should ensure the implementation of existing conservation laws and regulations towards achieving SDGs.

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